

# § 101 Patent Eligibility: Advocation of the Supreme Court Proffering a Bright-Line Rule

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## I. Introduction

The governing statute for patent subject matter eligibility, 35 U.S.C. § 101, is relatively short (only containing 36 words), yet the uncertainty surrounding what exactly constitutes eligible subject matter persists.<sup>1</sup> The analysis for determining whether an invention truly is § 101 subject matter eligible grows increasingly convoluted, especially with technological advancements. The United States Patent and Trademark Office (USPTO) offered cogent and substantive guidance directed toward patent examiners to help clarify the eligibility analysis.<sup>2</sup>

With a specific focus on a post-*Alice/Mayo* analysis, this article advocates for the Supreme Court proffering a bright-line rule, via precedential language, governing § 101 patent subject matter eligibility via the integration of the USPTO's eligibility guidelines. Section II of this article initially tracks the historical perspective of a patent and outlines the inherent capabilities of utilizing a patent. Next, the section shifts its analytical focus to the two seminal cases governing § 101 patent subject matter eligibility, *Mayo* and *Alice*, while including a full case analysis of each. Finally, the section concludes with several analyses of cases post-*Alice/Mayo* and their implications on the § 101 analysis.<sup>3</sup> Section III of this article outlines the USPTO's § 101 guidelines, including real-world graphics utilized by patent examiners in order to determine subject matter eligibility. The section transitions to a detailed description of the various § 101 amendments and concludes with a specific advocacy for the Supreme Court to proffer a bright-line rule that shall govern the § 101 analysis and determination.<sup>4</sup> Section IV of this article attempts to chronicle the specific impacts, or rather detriments, of adopting the various legislative amendments to the § 101 analysis. The last portion of Section IV recites the specific language that the Supreme Court should proffer and then conducts an impact analysis on the aforementioned language.<sup>5</sup>

## II. Background

### A. A Brief Historical Perspective and Present Analytical Focus

Patent rights in the United States are constitutional.<sup>6</sup> Pursuant to Article Eight of the United States Constitution, Congress has the inherent power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>7</sup> The Patent Act of 1790 was the first patent legislation passed in the United States, giving Patent Board members the power to grant patents.<sup>8</sup> Mr. Samuel Hopkins was issued

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<sup>1</sup> See 35 U.S.C. § 101.

<sup>2</sup> See *infra* note 113.

<sup>3</sup> See *infra* Section II.

<sup>4</sup> See *infra* Section III.

<sup>5</sup> See *infra* Section IV.

<sup>6</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>7</sup> *Id.*

<sup>8</sup> Press Release, U.S. Pat. & Trademark Off., The U.S. Patent System Celebrates 212 Years (Apr. 9, 2002), [https://www.legistorm.com/stormfeed/view\\_rss/219572/organization/32318/title/the-us-](https://www.legistorm.com/stormfeed/view_rss/219572/organization/32318/title/the-us-)

the first United States patent in 1790 for his process of making potash,<sup>9</sup> and the patent was signed by the former Director of the United States Patent Office and President of the United States, George Washington.<sup>10</sup> The Board, which consisted of highly esteemed members such as Thomas Jefferson and Edmund Randolph, had an authority that was initially absolute and could not be appealed.<sup>11</sup> Moreover, the Patent Act of 1790 defined subject matter eligibility, which subsequently became the basis for 35 U.S.C. § 101 patent eligibility,<sup>12</sup> as “any useful art, manufacture, engine, machine, or device, or any improvement thereon not before known or used.”<sup>13</sup>

Notwithstanding, it took Congress on the order of 160 years to enact cumulative legislation governing patents in the United States.<sup>14</sup> On July 19, 1952, Congress enacted Title 35 of the United States Code, which collectively governs the patent rights, duties, and obligations of a patent owner.<sup>15</sup> A few of the most important sections in the 1952 Patent Act are § 101 on eligibility,<sup>16</sup> § 102 on anticipation,<sup>17</sup> § 103 on non-obviousness,<sup>18</sup> and § 112 on specification.<sup>19</sup>

The enactment of the Leahy-Smith America Invents Act (commonly referred to as the “AIA” or the Patent Reform Act of 2011) on September 16, 2011 shifted the focus of § 102 from the concept of “first to invent” to the concept of “first to file.”<sup>20</sup>

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patent-system-celebrates-212-years.html.

<sup>9</sup> Potash is defined as “potassium carbonate, especially the crude impure form obtained from wood ashes.” *Potash*, DICTIONARY.COM, <https://www.dictionary.com/browse/potash> (last visited Oct. 30, 2022).

<sup>10</sup> *First U.S. Patent Issued Today in 1790*, U.S. PAT. & TRADEMARK OFF. (July 31, 2001), <https://www.uspto.gov/about-us/news-updates/first-us-patent-issued-today-1790> [<https://web.archive.org/web/20160129174420/https://www.uspto.gov/about-us/news-updates/first-us-patent-issued-today-1790>].

<sup>11</sup> P. J. Federico, *Operation of the Patent Act of 1790*, 18 J. PAT. OFF. SOC’Y 237, 238 (1936); David W. Trilling, *Recognizing a Need for Reform: The Leahy-Smith America Invents Act of 2011*, 2012 U. ILL. J. L. TECH. & POL’Y 239, 242 (2012).

<sup>12</sup> See 35 U.S.C. § 101 (“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 therefor, subject to the conditions and requirements of this title.”).

<sup>13</sup> Michelle K. Lee, Director, U.S. Pat. & Trademark Off., Remarks by Michelle K. Lee at 225th Anniversary of The First Patent Act (Apr. 10, 2015), <https://www.uspto.gov/about-us/news-updates/remarks-michelle-k-lee-225th-anniversary-first-patent-act>; see also U.S. Pat & Trademark Off., *supra* note 8, at para. 3.

<sup>14</sup> See generally 35 U.S.C. §§ 1–390.

<sup>15</sup> *Id.*

<sup>16</sup> See generally 35 U.S.C. § 101 (discussing patent subject matter eligibility).

<sup>17</sup> See generally 35 U.S.C. § 102 (outlining the governing rules for patent application deadlines and preclusion via prior art in the subject).

<sup>18</sup> See generally 35 U.S.C. § 103 (precluding patent applications on the basis of “obviousness” to a person of ordinary skill in the art).

<sup>19</sup> See generally 35 U.S.C. § 112 (outlining the specific guidelines for fully enabling and adequately describing the claims of the patent in the specification portion).

<sup>20</sup> Smitha B. Uthaman, *Summary of the America Invents Act*, THE NATIONAL LAW REVIEW (Apr. 12, 2012), <https://www.natlawreview.com/article/summary-america-invents-act>. See generally Leahy-Smith America Invents Act, H.R. 1249, 112th Cong. (2011).

Effective beginning March 16, 2013, the AIA, i.e., the transition to the “first to file” system, has numerous implications, but they are particularly limited to the prior-art and filing guidelines for patent applications contained in 35 U.S.C. § 102.<sup>21</sup> The AIA did not alter § 101, and the patent subject matter eligibility language has remained unchanged since the 1952 Patent Act.<sup>22</sup> Despite increasing technological advancements, particularly in the area of software and artificial intelligence, United States district courts, the Court of Appeals for the Federal Circuit, and the Supreme Court have been forced to rely on precedential case law and the anachronistic language contained in § 101 to govern their subject matter eligibility analyses. This has subsequently synthesized an inherently inconsistent patent system in the United States and generated increasing uncertainty and frustration surrounding the legal analysis of § 101 subject matter eligibility.<sup>23</sup>

### B. Mayo Collaborative v. Prometheus Laboratories Case Analysis

One of the two seminal cases regarding § 101 subject matter eligibility is *Mayo Collaborative Services v. Prometheus Laboratories*.<sup>24</sup> The specific patents at issue in the case were United States Patent No. 6,355,623 (‘623 patent) and United States Patent No. 6,680,302 (‘302 patent) which purported to apply natural laws describing the relationship between the concentration in the blood of certain thiopurine metabolites and the likelihood that the drug dosage would be ineffective or induce side-effects relative to treating patients with autoimmune diseases.<sup>25</sup> The specific embodiments of the ‘632 and ‘302 patents proclaimed that:

concentrations in a patient’s blood of 6–TG or of 6–MMP metabolite beyond a certain level (400 and 7000 picomoles per  $8 \times 10^8$  red blood cells, respectively) indicate that the dosage is likely too high for the patient, while concentrations in the blood of 6–TG metabolite lower than a certain level (about 230 picomoles per  $8 \times 10^8$  red blood cells) indicate that the dosage is likely too low to be effective.<sup>26</sup>

Prometheus Laboratories, Inc. (Prometheus) was the sole and exclusive licensee of the aforementioned patents and would utilize the protected process to generate and subsequently sell diagnostic tests.<sup>27</sup> Petitioners, Mayo Clinic Rochester and Mayo Collaborative Services (hereinafter referred to collectively as Mayo), after being long-time purchasers of the Prometheus diagnostic tests, developed their own testing procedure that utilized higher metabolite levels to determine toxicity.<sup>28</sup> Upon

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<sup>21</sup> Uthaman, *supra* note 20, paras. 2–4; *see also* H.R. 1249.

<sup>22</sup> *See* H.R. 1249; 35 U.S.C. § 101.

<sup>23</sup> *See infra* Section II(d) for a discussion on the inherent inconsistencies, confusions, and frustrations that have arisen from the legal determinations and analyses of § 101 subject matter eligibility.

<sup>24</sup> *Mayo Collaborative Servs. v. Prometheus Lab’s, Inc.*, 566 U.S. 66 (2012); *see also* Mark A. Perry & Jaysen S. Chung, *Alice at Six: Patent Eligibility Comes of Age*, 20 CHI.-KENT J. INTELL. PROP. 64, 65–66 (2021).

<sup>25</sup> *Mayo*, 566 U.S. at 73–74.

<sup>26</sup> *Id.* at 74.

<sup>27</sup> *Id.* at 75.

<sup>28</sup> *Id.* (“But in 2004 Mayo announced that it intended to being using and selling its own test – a test using somewhat higher metabolite levels to determine toxicity (450 pmol per  $8 \times 10^8$  for 6-TG and

Prometheus' subsequent patent infringement claim, the district court ultimately concluded that the patents in question were invalid due to § 101 subject matter ineligibility.<sup>29</sup> Prometheus appealed to the United States Court of Appeals for the Federal Circuit, which deduced that the patents specified the steps of “(1) ‘administering a [thiopurine] drug to a patient’ and (2) ‘determining the [resulting metabolite] level.’”<sup>30</sup> The Federal Circuit opined that the aforementioned steps “involve the transformation of the human body or of blood taken from the body,” and therefore warranted § 101 eligibility protection via the “machine or transformation test.”<sup>31</sup> The Supreme Court granted Mayo's petition for certiorari and remanded the case for further proceedings in light of *Bilski*.<sup>32</sup> On remand, the Federal Circuit affirmed its earlier decision of patent eligibility, opining that patented claims did not encompass laws of nature or natural phenomenon; the Supreme Court again granted certiorari.<sup>33</sup>

The Supreme Court in *Mayo* started its analysis by reinforcing the ideology that there are certain tacit exceptions to § 101 patent eligibility.<sup>34</sup> “The Court has long held that this provision [35 U.S.C. § 101] contains an important implicit exception. ‘Laws of nature, natural phenomena, and abstract ideas’ are not patentable.”<sup>35</sup> Notwithstanding, the Court proffered that the inclusion of natural phenomena or abstract ideas in a patent is not inherently dispositive of § 101 ineligibility.<sup>36</sup> “[A] process is not unpatentable simply because it contains a law of nature or a mathematical algorithm,” proclaimed the Supreme Court in *Mayo*; “an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”<sup>37</sup> The Court then shifted its analytical focus to the ‘632 and ‘302

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5700 pmol per  $8 \times 10^8$  for 6-MMP.”).

<sup>29</sup> *Id.* at 76 (“[T]he District Court ultimately granted summary judgment in Mayo's favor. The court reasoned that the patents effectively claim natural laws or natural phenomena—namely the correlations between thiopurine metabolite levels and the toxicity and efficacy of thiopurine drug dosages—and so are not patentable.”).

<sup>30</sup> *Id.* (alteration in original).

<sup>31</sup> *Id.*; see also *Bilski v. Kappos*, 561 U.S. 593, 596 (2010) (holding that while the “machine or transformation test” is not a dispositive test relative to patent subject matter eligibility, it is still an integral test for the eligibility of patent claims).

<sup>32</sup> *Mayo*, 566 U.S. at 76.

<sup>33</sup> *Id.* at 76–77.

<sup>34</sup> *Id.* at 70.

<sup>35</sup> *Id.*; see also *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (“Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas.”); *Bilski*, 561 U.S. at 593 (2010) (“Court's precedents provide three specific exceptions to § 101's broad principles: ‘laws of nature, physical phenomena, and abstract ideas.’”); *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (“The laws of nature, physical phenomena, and abstract ideas have been held not patentable.”); *Le Roy v. Tat-ham*, 55 U.S. 156, 175 (1852) (“A principle, in the abstract . . . cannot be patented . . .”); *O'Reilly v. Morse*, 56 U.S. 62, 132 (1854) (“The mere discovery of a new element, or law, or principle of nature, without any valuable application of it to the arts, is not the subject of a patent.”); *Neilson v. Harford*, *Webster's Patent Cases* 295, 371 (1841) (English case discussing same).

<sup>36</sup> *Mayo*, 566 U.S. at 71.

<sup>37</sup> *Id.* at 71–72 (first quoting *Parker v. Flook*, 437 U.S. 584, 590 (1978); and then quoting *Diehr*, 450 U.S. at 185 (1981)).

patents and answered the dispositive question of whether the natural relationship process of particular metabolites captured in the patents' claims significantly transformed the patents into patentable subject matter.<sup>38</sup> Ultimately, the Court concluded that the '632 and '302 patents were invalid due to § 101 subject matter ineligibility.<sup>39</sup>

A presumably significant factor in the *Mayo* Court's analysis was the fact that metabolite correlation relative to thiopurine dosage was already understood and well-known prior to the '632 and '302 patents.<sup>40</sup> The Court utilized two precedential cases surrounding § 101 patent eligibility to reinforce its ultimate invalidity holding.<sup>41</sup> In *Diamond v. Diehr*, the patented processes "set forth a method for molding raw, uncured rubber into various cured, molded products."<sup>42</sup> The process consisted of three steps, including:

- (1) continuously monitoring the temperature on the inside of the mold, (2) feeding the resulting numbers into a computer, which would use the Arrhenius equation to continuously recalculate the mold-opening time, and (3) configuring the computer so that at the appropriate moment it would signal "a device" to open the press.<sup>43</sup>

The Court differentiated *Diehr* from the case at bar, proclaiming that unlike the steps proffered in the '632 and '302 patents, the aforementioned *Diehr* patented steps "apparently added to the formula [contained in step (2)] something that in terms of

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<sup>38</sup> *Id.* at 72 ("We must determine whether the claimed processes have transformed these unpatentable natural laws in to patent-eligible applications of those laws."); *see also id.* at 77 ("[D]o the patent claims add *enough* to their statements of the correlations to allow the processes they describe to qualify as patent-eligible processes that *apply* natural laws?").

<sup>39</sup> *Id.* at 79–80 ("To put the matter more succinctly, the claims inform a relevant audience about certain laws of nature; any additional steps consist of well-understood, routine, conventional activity already engaged in by the scientific community; and those steps, when viewed as a whole, add nothing significant beyond the sum of their parts taken separately. For these reasons we believe that the steps are not sufficient to transform unpatentable natural correlations into patentable applications of those regularities.").

<sup>40</sup> *See, e.g., id.* at 73 ("In particular, the steps in the claimed processes (apart from the natural laws themselves) involve well-understood, routine, conventional activity previously engaged in by researchers in the field."); *id.* at 73–74 ("At the time the discoveries embodied in the patents were made, scientists already understood that the levels in a patient's blood of certain metabolites, including, in particular, 6-thioguanine and its nucleotides (6-TG) and 6-methyl mercaptopurine (6-MMP), were correlated with the likelihood that a particular dosage of a thiopurine drug could cause harm or prove ineffective."); *id.* at 78 ("[D]octors used thiopurine drugs to treat patients suffering from autoimmune disorders long before anyone asserted these claims . . ."); *id.* at 79 ("Thus, this step tells doctors to engage in well-understood, routine, conventional activity previously engaged in by scientists who work in the field."); *see also* U.S. Patent No. 6,355,623 col. 8 ll. 37–40 ("Previous studies suggested that measurement of 6-MP metabolite levels can be used to predict clinical efficacy and tolerance to azathioprine or 6-MP." (citing C. Cuffari et al., *6-Mercaptopurine Metabolism in Crohn's Disease: Correlation with Efficacy and Toxicity*, 39 Gut 401, 401–06 (1996))).

<sup>41</sup> *Mayo*, 566 U.S. at 79–82. *See generally Diehr*, 450 U.S. at 185 (1981) (explaining that the use of a mathematical equation and a programmed digital computer in the disputed process do not alter the Court's conclusion); *Flook*, 437 U.S. at 590 (1978) (stating that while there are limits on patentable subject matter, a process is not unpatentable for simply containing a law of nature or mathematical algorithm).

<sup>42</sup> *Mayo*, 566 U.S. at 80.

<sup>43</sup> *Id.* (citing *Diehr*, 450 U.S. at 177–79).

patent law’s objectives had significance—they transformed the process into an inventive application of the formula.”<sup>44</sup>

The *Mayo* Court analogized the case at bar to another Supreme Court case, *Parker v. Flook*.<sup>45</sup> The patented process in *Flook* claimed “a method for adjusting ‘alarm limits’ in the catalytic conversion of hydrocarbons.”<sup>46</sup> The Court distilled the *Flook* process into three essential steps: “(1) measuring the current level of the variable, e.g., the temperature; (2) using an apparently novel mathematical algorithm to calculate the current alarm limits; and (3) adjusting the system to reflect the new alarm-limit values.”<sup>47</sup> However, unlike the Court in *Diehr*, the Court in *Flook* was hesitant to grant the aforementioned steps § 101 patent eligibility.<sup>48</sup> “And so the other steps in the process did not limit the claim to a particular application,” proclaimed the *Mayo* Court, explaining the invalidity of the *Flook* process pursuant to § 101 patent subject matter ineligibility.<sup>49</sup> The Court in *Mayo* integrated the rationale used in *Diehr* and *Flook* to distill the ‘632 and ‘302 patents into three steps: “(1) measure (somehow) the current level of the relevant metabolite, (2) use particular (unpatentable) laws of nature (which the claim sets forth) to calculate the current toxicity/inefficacy limits, and (3) reconsider the drug dosage in light of the law.”<sup>50</sup> The Court proclaimed that “[t]hese instructions add nothing specific to the laws of nature other than what is well-understood, routine, conventional activity, previously engaged in by those in the field,” thus finalizing the invalidity of Prometheus’ patents via § 101 subject matter ineligibility.<sup>51</sup>

Additionally, the Court in *Mayo* proffered valuable dicta surrounding patent protection in general and the inherent confusion and frustration of § 101 patent eligibility. First, the *Mayo* Court articulated the dangers of granting patent protection to inventors that try to claim laws of nature or natural phenomena.<sup>52</sup> Next, the Court offered exceptionally helpful insight on the Court’s susceptibility to the potential utilization of bright-line rules governing § 101 patent eligibility. “[T]he cases have

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<sup>44</sup> *Id.* at 81.

<sup>45</sup> *Id.* at 81–82. *See generally Flook*, 437 U.S. at 590 (1978) (stating that while there are limits on patentable subject matter, a process is not unpatentable for simply containing a law of nature or mathematical algorithm).

<sup>46</sup> *Id.* at 81.

<sup>47</sup> *Id.* (citing *Flook*, 437 U.S. at 585–87).

<sup>48</sup> *Id.* (quoting *Diehr*, 450 U.S. at 192 n.14 (1981)) (“Unlike the process in *Diehr*, [the claim in *Flook*] did not ‘explain how the variables used in the formula were to be selected, nor did the [claim] contain any disclosure relating to chemical processes at work or the means of setting off an alarm or adjusting the alarm limit.’”).

<sup>49</sup> *Id.* at 81–82.

<sup>50</sup> *Id.* at 82.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.* at 86 (“And so there is a danger that the grant of patents that tie up their use will inhibit future innovation premised upon them, a danger that becomes acute when a patented process amounts to no more than an instruction to ‘apply the natural law,’ or otherwise forecloses more future invention than the underlying discovery could reasonably justify.”).

endorsed a *bright-line prohibition* against patenting laws of nature, mathematical formulas, and the like, which serves as a somewhat more easily administered proxy for the underlying ‘building block’ concern.”<sup>53</sup> Notwithstanding, the Court’s aforementioned susceptibility waffled toward the end of the opinion. “[W]e must hesitate before departing from established general legal rules lest a new protective rule that seems to suit the needs of one field produce unforeseen results in another. And we must recognize the role of Congress in crafting more finely tailored rules where necessary.”<sup>54</sup>

### C. Alice Corporation v. CLS Bank International Case Analysis

The second seminal case over § 101 patent eligibility analysis is *Alice Corporation v. CLS Bank International*.<sup>55</sup> The specific patents at issue were United States Patent Nos. 5,970,479 (‘479 patent), 6,912,510, 7,149,720, and 7,725,375, with claim 33 of the ‘479 patent being representative of the information contained in the aforementioned patents.<sup>56</sup> The patented invention proclaimed to “enable[] the management of risk relating to specified, yet unknown, future events,” and in particular, the claims were “designed to facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary.”<sup>57</sup> The *Alice* Court distilled the patents into three categories, including: “(1) the foregoing method for exchanging obligations (the method claims), (2) a computer system configured to carry out the method for exchanging obligations (the system claims), and (3) a computer-readable medium containing program code for performing the method of exchanging obligations (the media claims).”<sup>58</sup>

Petitioner Alice Corporation (Alice) is the assignee of the aforementioned patents.<sup>59</sup> Respondents, CLS Bank International and CLS Services, Ltd. (CLS Bank) which operated a “global network that facilitates currency transactions,” brought a declaratory judgment action against Alice seeking to invalidate the patents, make them unenforceable, or declare non-infringement, relative to the aforesaid claims.<sup>60</sup> The district court “held that all the claims [were] patent ineligible because they are directed to the abstract idea of ‘employing a neutral intermediary to facilitate simultaneous exchange of obligations in order to minimize risk.’”<sup>61</sup> The Federal Circuit, sitting en banc, reversed a panel decision of the Federal Circuit and affirmed the

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<sup>53</sup> *Id.* at 89 (emphasis added).

<sup>54</sup> *Id.* at 92.

<sup>55</sup> *Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208 (2014).

<sup>56</sup> *Id.* at 212–13.

<sup>57</sup> *Id.*; see also *id.* at 214 (“At the end of the day, the intermediary instructs the relevant financial institutions to carry out the “permitted” transactions in accordance with the updated shadow records . . . thus mitigating the risk that only one party will perform the agreed-upon exchange . . .”).

<sup>58</sup> *Id.* at 214.

<sup>59</sup> *Id.* at 212.

<sup>60</sup> *Id.* at 214.

<sup>61</sup> *Id.* (quoting *CLS Bank Int’l v. Alice Corp. Pty.*, 768 F. Supp. 2d 221, 252 (D.D.C. 2011)).

district court's holding of invalidity.<sup>62</sup>

Upon granting certiorari, the Supreme Court in *Alice* again started its analysis by reinforcing the ideology that certain tacit exceptions apply to § 101.<sup>63</sup> The Court subsequently clarified and expounded on the two-step process articulated in *Mayo*:

First we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us?” . . . We have described step two of this analysis as a search for an ‘inventive concept’—*i.e.*, an element or combination of elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.”<sup>64</sup>

In accordance with the first step of the analysis, the Court in *Alice* determined that the claims in the aforementioned patents drew to the abstract idea of intermediated settlement.<sup>65</sup> The *Alice* Court utilized *Gottschalk v. Benson*,<sup>66</sup> *Parker v. Flook*,<sup>67</sup> and *Bilski v. Kappos*<sup>68</sup> to reinforce its abstract idea designation.<sup>69</sup> Pursuant to *Mayo*, the Court then transitioned to the second step in the two-factor analysis.<sup>70</sup> “At *Mayo* step two, we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.”<sup>71</sup> After a lengthy discussion of precedential case law,<sup>72</sup> the Court in *Alice* finally determined that the claims did not contain an inventive concept, therefore invalidating the claims as § 101 patent ineligible subject matter:

Put another way, the system claims are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. . . . Because petitioner’s system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101.<sup>73</sup>

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<sup>62</sup> *Id.*

<sup>63</sup> *Id.* at 216.

<sup>64</sup> *Id.* at 217–18 (alterations in original) (quoting *Mayo Collaborative Servs. v. Prometheus Lab’ys, Inc.*, 566 U.S. 66, 72–73).

<sup>65</sup> *Id.* at 218 (“These claims are drawn to the abstract idea of intermediated settlement.”).

<sup>66</sup> *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972) (holding “patent claims involving an algorithm for converting binary-coded decimal numerals into pure binary form” were subject-matter ineligible because they were “in practical effect . . . a patent on the algorithm itself”).

<sup>67</sup> *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (holding “a mathematical formula for computing ‘alarm limits’ in a catalytic conversion process was also a patent-eligible abstract idea”).

<sup>68</sup> *Bilski v. Kappos*, 561 U.S. 593, 599 (2010) (holding “claims . . . describ[ing] a method for hedging against the financial risk of price fluctuations” as patent ineligible).

<sup>69</sup> *Alice*, 573 U.S. at 218–19; *see also id.* at 219–20 (“Like the risk hedging in *Bilski*, the concept of intermediated settlement is a ‘fundamental economic practice long prevalent in our system of commerce.’ Thus, intermediated settlement, like hedging, is an ‘abstract idea’ beyond the scope of § 101.” (quoting *Bilski*, 561 U.S. at 611)).

<sup>70</sup> *Id.* at 221.

<sup>71</sup> *Id.* (citing *Mayo Collaborative Servs. v. Prometheus Lab’ys*, 566 U.S. 66, 72, 80 (2021)); *see also id.* at 222 (“The introduction of a computer into the claims does not alter the analysis at *Mayo* step two.”).

<sup>72</sup> *Id.* at 222–27.

<sup>73</sup> *Id.* at 226–27.

#### D. Post-Alice Federal Circuit Case Law Categorizing Claims as § 101 Subject Matter Eligible

Following the Supreme Court decision in *Alice*, the United States Court of Appeals for the Federal Circuit has rendered more than thirteen decisions that have held patent claims, which were directed toward software or technological subject matter, eligible under the *Alice/Mayo* analysis by finding that the claims were either (1) not directed toward an abstract idea or (2) directed toward an abstract idea but containing “significantly more” to transform the claims into eligible subject matter.<sup>74</sup> In the interest of expediency, the following section will conduct a brief analysis of a selection of the aforementioned cases, attempting to extrapolate, via the Federal Circuit’s dicta, what exactly constitutes an abstract idea and what (or how) is an abstract idea transformed into § 101 subject matter eligibility.

On May 12, 2016, the Federal Circuit issued its decision in a software case entitled *Enfish, LLC v. Microsoft Corp.*<sup>75</sup> In a potential patent infringement suit against Microsoft Corporation, Enfish’s two patents (United States Patents Nos. 6,151,604 and 6,136,775) fell under scrutiny for being directed toward subject ineligible matter.<sup>76</sup> The patents were directed toward “an innovative logical model for a computer database.”<sup>77</sup> In contrast to the relational model, “the patented self-referential model has two features that are not found in the relational model: first the self-referential model can store all entity types in a single table, and second the self-referential model can define the table’s columns by rows in that same table.”<sup>78</sup> Thus, the technology purported to include two significant improvements to the technology: (1) “the patents disclose an indexing technique that allows for faster searching of data than would be possible with the relational model” and (2) “the patents teach that the self-referential model allows for more effective storage of data other than structured text, such as images and unstructured text.”<sup>79</sup> The lower district court held all claims invalid under 35 U.S.C. § 101 for being directed toward an abstract idea.<sup>80</sup>

The Federal Circuit initiated its § 101 analysis by proffering dicta particularly useful for this article. “The Supreme Court has not established a definitive rule to determine what constitutes an ‘abstract idea’ sufficient to satisfy the first step of the

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<sup>74</sup> See *Chart of Post-Alice Cases (as of March 1, 2019)*, GIBSON, DUNN & CRUTCHER L.L.P. (Mar. 1, 2019), <https://www.gibsondunn.com/wp-content/uploads/2019/03/Overview-of-Section-101-Patent-Cases-Decided-After-Alice-v-CLS-as-of-03-01-19.pdf>.

<sup>75</sup> *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016).

<sup>76</sup> *Id.* at 1330.

<sup>77</sup> *Id.* (“A logical model is a model of data for a computer database explaining how the various elements of information are related to one another.”).

<sup>78</sup> *Id.* at 1332.

<sup>79</sup> *Id.* at 1333.

<sup>80</sup> See *id.* at 1334 (describing “all claims invalid under 35 U.S.C. § 101 as directed to an abstract idea”); see also *id.* at 1337 (“The district court concluded that the claims were directed to the abstract idea of ‘storing, organizing, and retrieving memory in a logical table’ or, more simply, ‘the concept of organizing information using tabular formats.’”).

*Mayo/Alice* inquiry.”<sup>81</sup> Next, the court warned that *Alice* should not be read so broadly as to swallow all improvements to computer-related technology as inherently abstract.<sup>82</sup> The court then held that the claims, after distinguishing them from the claims contained in *Alice*, were not directed toward an abstract idea.<sup>83</sup> Integral to the Federal Circuit’s categorization of the claims not being directed toward an abstract idea was its focus on an improvement to computer functionality itself.<sup>84</sup> The key insights extrapolated from *Enfish* relative to § 101 patent subject matter eligibility are (1) particularized and specific improvements of computerized functionality will most likely not be categorized as an abstract idea<sup>85</sup> and (2) recitation or integration of generalized computer functions to a mathematical algorithm or fundamental business practices will most likely be categorized as an abstract idea.<sup>86</sup>

Immediately following *Alice*, and prior to *Enfish*, the Court of Appeals for the Federal Circuit offered insight into the utilization of the Internet in its December 5, 2014 decision in *DDR Holdings, LLC v. Hotels.com, L.P.*<sup>87</sup> United States Patents Nos. 6,993,572 and 7,818,399, owned by DDR Holdings, LLC, were analyzed by the lower district court and subsequently withheld a § 101 challenge.<sup>88</sup> The technology in question generally related to “systems and methods of generating a composite web page that combines certain visual elements of a ‘host’ website with content of a third-party merchant.”<sup>89</sup> Following a § 102 anticipation analysis, the Federal Circuit underwent a § 101 subject matter eligibility *Alice/Mayo* two-factor analysis.<sup>90</sup>

Like in *Enfish*, the court started its analysis by offering dicta that is useful for

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<sup>81</sup> *Id.* at 1334 (citing *Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208, 221 (2014)).

<sup>82</sup> *Id.* at 1335 (“We do not read *Alice* to broadly hold that all improvements in computer-related technology are inherently abstract and, therefore, must be considered at step two. Indeed, some improvements in computer related technology when appropriately claimed are undoubtedly not abstract, such as a chip architecture, an LED display, and the like.”).

<sup>83</sup> *Id.* at 1336.

<sup>84</sup> *Id.* (“In this case, however, the plain focus of the claims is on an improvement to computer functionality itself . . . [T]hey are directed to a specific improvement to the way computers operate, embodied in the self-referential table.”).

<sup>85</sup> *See id.* at 1337 (“Here, the claims are not simply directed to *any* form of storing tabular data, but instead are specifically directed to a *self-referential* table for a computer database.”); *see also id.* at 1338 (“[T]he claims here that are directed to a specific improvement to computer functionality . . . .”); *id.* at 1339 (“[T]he claims are directed to a specific implementation of a solution to a problem in the software arts. Accordingly, we find the claims at issue are not directed to an abstract idea.”).

<sup>86</sup> *See id.* at 1338 (“In contrast, the claims at issue in *Alice* and *Versata* can readily be understood as simply adding conventional computer components to well-known business practices. . . . [T]he patent-ineligible claims at issue in other cases recited use of an abstract mathematical formula on any general purpose computer . . . .”); *see also id.* at 1339 (“In other words, we are not faced with a situation where general-purpose computer components are added post-hoc to a fundamental economic practice or mathematical equation.”).

<sup>87</sup> *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014).

<sup>88</sup> *Id.* at 1248.

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

<sup>90</sup> *Id.* at 1255–59.

this article, while also highlighting its increasing frustration with the § 101 analysis as a whole: “[d]istinguishing between claims that recite a patent-eligible invention and claims that add too little to a patent-ineligible abstract concept can be difficult, as the line separating the two is not always clear.”<sup>91</sup> Notwithstanding, the Federal Circuit outlined precedential case law surrounding § 101 and then underwent the first step in the *Alice/Mayo* analysis, concluding:

But these claims stand apart [from the cases that have held claims subject matter ineligible] because they do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.<sup>92</sup>

Therefore, like the lower district court, the Court of Appeals for the Federal Circuit concluded that the technology was not directed toward an abstract idea and therefore satisfied the § 101 requirement.<sup>93</sup> Reinforcing the aforementioned insight from *Enfish*, the key takeaways from *DDR Holdings* are (1) the claims and specification must articulate with particularity the technology involved in order to be categorized as not an abstract idea and (2) routine and conventional utilization of the Internet (or generalized computer functions) will be categorized as an abstract idea.<sup>94</sup>

More recently, the Federal Circuit issued its decision in a patent case regarding alleged infringement of a patent directed toward an automobile manufacturing method.<sup>95</sup> American Axle & Manufacturing, Inc. (AAM) sued Neapco Holdings LLC and Neapco Drivelines LLC (Neapco) alleging infringement of claims of U.S. Patent No. 7,774,911.<sup>96</sup> The claimed invention was “the tuning of a liner in order to produce frequencies that dampen both the shell mode and bending mode vibrations simultaneously.”<sup>97</sup> The lower district court held all claims invalid under 35 U.S.C. § 101 for being directed toward a law of nature.<sup>98</sup> The Federal Circuit mentioned:

The district court held that the claims’ direction to tune a liner to attenuate different vibration modes amounted to merely “instruct[ing] one to apply Hooke’s law to achieve the desired

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<sup>91</sup> *Id.* at 1255; *see also id.* at 1257 (“Indeed, identifying the precise nature of the abstract idea is not as straightforward as in *Alice* or some of our other recent abstract idea cases.”).

<sup>92</sup> *Id.* at 1257.

<sup>93</sup> *Id.* at 1259.

<sup>94</sup> *Id.* at 1258 (“[T]he claims at issue here specify how interactions with the Internet are manipulated to yield a desired result—a result that overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.”); *see also id.* at 1259 (“[T]he claims recite an invention that is not merely the routine or conventional use of the Internet. . . . Rather, they recite a specific way to automate the creation of a composite web page by an ‘outsource provider’ that incorporates elements from multiple sources in order to solve a problem faced by websites on the Internet.”).

<sup>95</sup> *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285 (Fed. Cir. 2020).

<sup>96</sup> *Id.* at 1288.

<sup>97</sup> *Id.* at 1290.

<sup>98</sup> *Id.* at 1291 (“[T]he district court concluded that the [a]sserted [c]laims, ‘considered as a whole,’ are ‘directed to the mere application of Hooke’s law,’ treating claims 1 and 22 as representative.” (quoting *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 309 F.Supp.3d 218, 221–22, 225 (D. Del. 2018))).

result of attenuating certain vibration modes and frequencies” without “provid[ing] [a] particular means of how to craft the liner and propshaft in order to do so.”<sup>99</sup>

The Federal Circuit then analyzed claims 1 and 22 separately and held that independent claim 22 was invalid as being directed to patent ineligible subject matter.<sup>100</sup> However, the case was remanded to the district court to address whether claim 1 was directed to an abstract idea.<sup>101</sup>

The Federal Circuit’s analysis of claim 1 was rather instructive. In particular, “[i]n contrast with claim 22, which as construed recites nothing more than a desired result and an instruction to apply Hooke’s law, we cannot say claim 1 as construed is directed to a particular natural law and nothing more.”<sup>102</sup> Importantly, “[t]he mere fact that any embodiment practicing claim 1 necessarily involves usage of one or more natural laws is by itself insufficient to conclude the claim is directed to such natural laws.”<sup>103</sup>

In conducting the *Alice/Mayo* analysis for claim 22, the Federal Circuit looked to *Flook* stating, “Like the claims in *Flook*, claim 22 of the ‘911 patent is directed to the use of a natural law: Hooke’s law.”<sup>104</sup> In considering whether there was an inventive step, the Federal Circuit explained that “insofar as claim 22 here merely claims the achievement of results, they are directed to ineligible matter.”<sup>105</sup>

The key takeaway from *American Axle* is that, even if a claim does not expressly state a law of nature, the claim may nonetheless be deemed directed toward a law of nature. Additionally, when a claim on its face invokes a natural law, and nothing else, to accomplish a desired result, the claim will be held ineligible.

Judge Moore’s dissent took issue with the majority’s application of the *Alice/Mayo* test as it relates to laws of nature.<sup>106</sup> In particular, “the majority finds claims *directed to* natural laws, yet they clearly contain no such natural law.”<sup>107</sup> Additionally,

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<sup>99</sup> *Id.* (alterations in original).

<sup>100</sup> *Id.* at 1299.

<sup>101</sup> *Id.* at 1300-01 (“On appeal, Neapco relied on both the natural law and abstract idea categories of ineligibility in defending the district court’s decision. But the abstract idea basis was not adequately presented and litigated in the district court.” (citation omitted)).

<sup>102</sup> *Id.* at 1300.

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 1298; *see also id.* (“As in *Flook*, where the claimed method did not specify how variables were measured or how the alarm system functioned, claim 22 here does not specify how target frequencies are determined or how, using that information, liners are tuned to attenuate two different vibration modes simultaneously, or how such liners are tuned to dampen bending mode vibrations. Claim 22 here simply instructs the reader to tune the liner to achieve a claimed result, without limitation to particular ways to do so.”).

<sup>105</sup> *Id.* at 1299.

<sup>106</sup> *Id.* at 1304 (“The majority’s decision expands § 101 well beyond its statutory gate-keeping function and collapses the *Alice/Mayo* two-part test to a single step—claims are now ineligible if their performance would involve application of a natural law.”).

<sup>107</sup> *Id.*

“the majority refuses to consider the unconventional claim elements.”<sup>108</sup> Finally, “the majority has imbued § 101 with a new superpower—enablement on steroids. The majority’s blended § 101 and § 112 analysis expands § 101, converts factual issues into legal ones, and is certain to cause confusion for future cases.”<sup>109</sup> Judge Moore’s dissent further illustrates the confusion that exists regarding patent-eligible subject matter.

### III. Analysis

Recognizing the difficulty surrounding 35 U.S.C. § 101 patent subject matter eligibility prosecution, the United States Patent and Trademark Office published guidance to the general public.<sup>110</sup> Although explicitly stated in the October 2019 Update that the contents of the guidance are meant for patent examiners, the clear pathway to understanding how to evaluate and examine a § 101 eligibility issue is certainty transferable not only to the general public, but to the judicial system as a whole.<sup>111</sup> Subsequent analysis will demonstrate the guidelines issued by the United States Patent and Trademark Office integrate the real-world graphics utilized by patent examiners in the *Alice/Mayo* two-factor analysis relative to patent subject matter eligibility, and finally underscore the areas which are seemingly ripe for integration by the United States Supreme Court to proffer bright-line judicial rules for § 101 patent subject matter eligibility. Moreover, the analysis portion will include a section dedicated to 35 U.S.C. § 101 amendments proposed by intellectual property associations and pending congressional propositions, ultimately concluding with this article’s advocating for the Supreme Court’s adoption of bright-line § 101 rules via the integration of the USPTO’s 2019 Subject Matter Eligibility Guidance.

#### A. 2019 Revised Patent Subject Matter Eligibility Guidance Analysis

The first significant portion of the United States Patent and Trademark Office’s 2019 Subject Matter Eligibility Guidance (USPTO Guidance) was its categorical groupings of subject matter that is deemed an abstract idea.<sup>112</sup> Mathematic concepts, such as “mathematical relationships, mathematical formulas or equations, [and] mathematical calculations,” are the first grouping of abstract ideas.<sup>113</sup> The next grouping is “[c]ertain methods of organizing human activity,” which includes fundamental economic principles or practices, commercial or legal interactions, and managing

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<sup>108</sup> *Id.* at 1305.

<sup>109</sup> *Id.*

<sup>110</sup> See generally *October 2019 Update: Subject Matter Eligibility*, U.S. PAT. & TRADEMARK OFF. (2019) [hereinafter *October 2019 Update*], [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf) (highlighting the updated portions of the 2019 Revised Patent Subject Matter Eligibility Guidance); see also 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019).

<sup>111</sup> *October 2019 Update*, *supra* note 113, at 1 (“Note, the feedback received was primarily directed to examination procedures and, accordingly, this update focuses on clarifying practice for patent examiners. However, all USPTO personnel are expected to follow the guidance.”).

<sup>112</sup> See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 52.

<sup>113</sup> *Id.*

personal behavior or relationships or interactions between people.<sup>114</sup> The third and final grouping is “[m]ental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).”<sup>115</sup> Therefore, pursuant to the USPTO Guidance, any patent claims that fall under one of these groupings are automatically categorized as an abstract idea. These groupings are ripe for integration into the case law and would be integral to the categorical rule that the Supreme Court should adopt.

The second biggest component of the USPTO Guidance is the detailing of steps when conducting an *Alice/Mayo* § 101 subject matter eligibility analysis. In accordance with the guidelines, the first step in the analysis—Step 1—is to determine whether the claims are directed toward one of four statutory categories: process, machine, manufacture, or composition of matter.<sup>116</sup> If the claims in question are directed toward a statutory category, then the examiner, or the judiciary as a whole, should proceed to Step 2A.<sup>117</sup> There are two separate prongs in Step 2A.<sup>118</sup> In accordance with Step 2A, prong 1, the examiner must determine whether the claims recite a judicial exception.<sup>119</sup> The judicial exceptions are “a law of nature, a natural phenomenon, or an abstract idea as grouped in Section I,” which are the four aforementioned categorical groupings of abstract ideas.<sup>120</sup> Pursuant to the USPTO Guidance, “[i]f the claim does not recite a judicial exception . . . then the claim is eligible at Prong One of revised Step 2A.”<sup>121</sup> However, if the claim recites a judicial exception, then the analysis must proceed to Step 2A, prong 2. Under this prong, the examiner must determine whether the claim recites additional elements that integrate the exception into a practical application of that exception.<sup>122</sup> The USPTO Guidance lists:

In the context of revised Step 2A, the following exemplary considerations are indicative that an additional element (or combination of elements) may have integrated the exception into a practical application:

- An additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technical field;
- an additional element that applies or uses a judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition;
- an additional element implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture that is integral to the claim;
- an additional element effects a transformation or reduction of a particular article to a different state or thing; and

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<sup>114</sup> *Id.*

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

<sup>116</sup> *Id.* at 54. *See generally* 35 U.S.C. § 101 (showing that Step 1 is not novel, as it is almost a direct recitation of 35 U.S.C. § 101).

<sup>117</sup> 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 53.

<sup>118</sup> *See id.* at 54.

<sup>119</sup> *See id.*

<sup>120</sup> *See id.*

<sup>121</sup> *See id.*

<sup>122</sup> *See id.*

- an additional element applies or uses the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception.<sup>123</sup>

Moreover, the 2019 USPTO Guidance states:

The courts have also identified examples in which a judicial exception has not been integrated into a practical application:

- An additional element merely recites the words “apply it” (or an equivalent) with the judicial exception, or merely includes instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea;
- an additional element adds insignificant extra-solution activity to the judicial exception; and
- an additional element does no more than generally link the use of a judicial exception to a particular technological environment or field of use.<sup>124</sup>

If the claim fails Step 2A, prong 2, then the examination proceeds to Step 2B, which is to “evaluate whether the claim provides an inventive concept.”<sup>125</sup> If the claim adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activities in the field, this is indicative that an inventive concept may be present and therefore the claim is subject matter eligible under Step 2B.<sup>126</sup> In contrast, if the claim simply appends well-understood, routine, conventional activities previously known to the industry, at a high level of generality, to the judicial exception, then the claims most likely do not add an inventive concept and therefore are subject matter ineligible.<sup>127</sup> The aforementioned steps that have been articulated via the USPTO are particularly salient to consider when determining what content the Supreme Court should integrate into its enumeration of any bright-line § 101 rules.

Additionally, the USPTO Guidance is consistent with both Supreme Court and Federal Circuit precedent.<sup>128</sup> For example, regarding the category of abstract ideas, the “types of technologies that are typically considered to embody abstract ideas are those that operate based on mathematical concepts, equations, formulas, or calculations; facilitate methods of organizing human activity; or facilitate a mental process performed in the human mind.”<sup>129</sup> This list is supported by both Supreme Court and

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<sup>123</sup> *See id.* at 55 (indicating the type of particularity that a claim must recite or inherently possess in order to pass Step 2A, prong 2).

<sup>124</sup> *See id.* (indicating the type of generality or non-specificity contained in a patent claim that would fail Step 2A, prong 2).

<sup>125</sup> *See id.* at 56. Pursuant to the case law surrounding § 101 analyses, this is referred to as the “hunt for an inventive concept.” *See, e.g.,* Gene Quinn, *The Hunt for the Inventive Concept is the Flash of Creative Genius Test by Another Name*, IPWATCHDOG (Nov. 6, 2018, 1:09 PM), <https://ipwatchdog.com/2018/11/06/hunt-inventive-concept-flash-creative-genius/>.

<sup>126</sup> 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 56.

<sup>127</sup> *See id.*; *see also* Manual of Patent Examining Procedure § 2106.05(d) (9th ed. 2019).

<sup>128</sup> *See* Dustin Luetgen, *A Logical and Lawful Application of § 101 Jurisprudence: The USPTO’s 2019 Subject Matter Eligibility Guidance*, 28 J. L. & POL’Y 445, 508 (2020).

<sup>129</sup> *Id.* at 484.

Federal Circuit precedent.<sup>130</sup>

Likewise, the “practical application standard of the 2019 Guidance is the equivalent of the ‘something more’ judicial inquiry of *Alice* Step 2 and therefore also represents a lawful application of patent jurisprudence.”<sup>131</sup> As explained by Dustin Luetgen, the practical application should comply with Supreme Court and Federal Circuit precedent because requiring claims to contain a meaningful limitation limits claiming basic ideas, and the “something more” requirement of the *Alice/Mayo* test underlies Step 2A prong 2 of the USPTO guidelines.<sup>132</sup> Accordingly, the USPTO Guidance is “a well-thought-out application of patent law likely to benefit the USPTO, patent applicants, and the public.”<sup>133</sup>

#### B. Real World Graphics Utilized in Conjunction with The *Alice/Mayo* § 101 Analysis

This section will integrate the graphics that are utilized in determining whether certain patent claims are § 101 subject matter eligible in hopes of providing an easier conceptualization of the process as a whole. The subsequent graphics included will highlight the non-revised steps of the USPTO Guidance along with the revised portions. The first graphic listed below illustrated the portions of the *Alice/Mayo* analysis that have been unchanged: Step 1 (determining whether claims are directed toward a statutory category) and Step 2B (the hunt for the inventive concept).

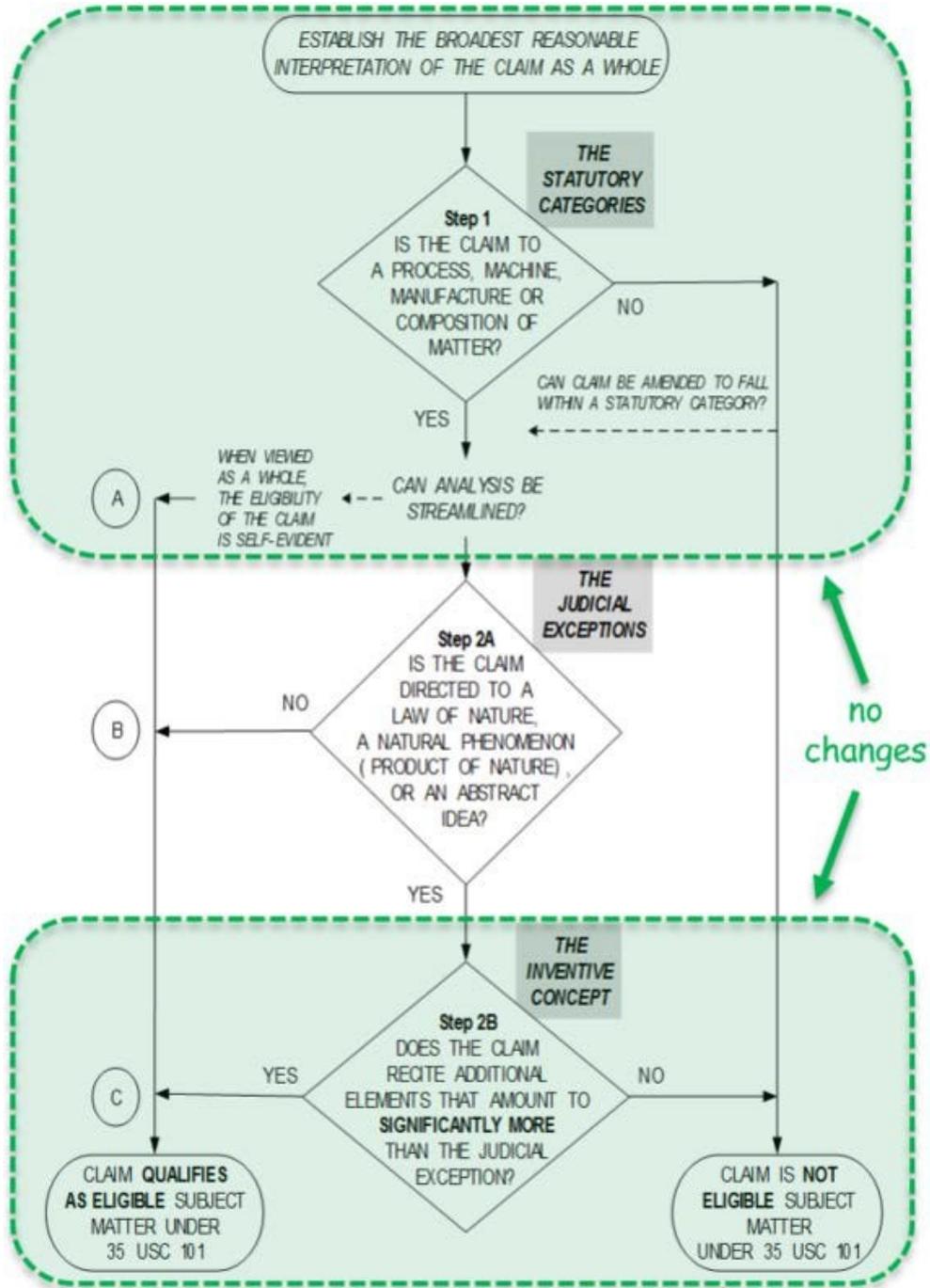
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<sup>130</sup> See, e.g., *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1297–99 (Fed. Cir. 2020) (noting, in holding claim 22 invalid for being directed to patent-ineligible subject matter, that “claim 22 of the ‘911 patent is directed to the use of a natural law: Hooke’s law” and “nothing in claim 22 qualifies as an ‘inventive concept’ to transform it into patent-eligible subject matter”).

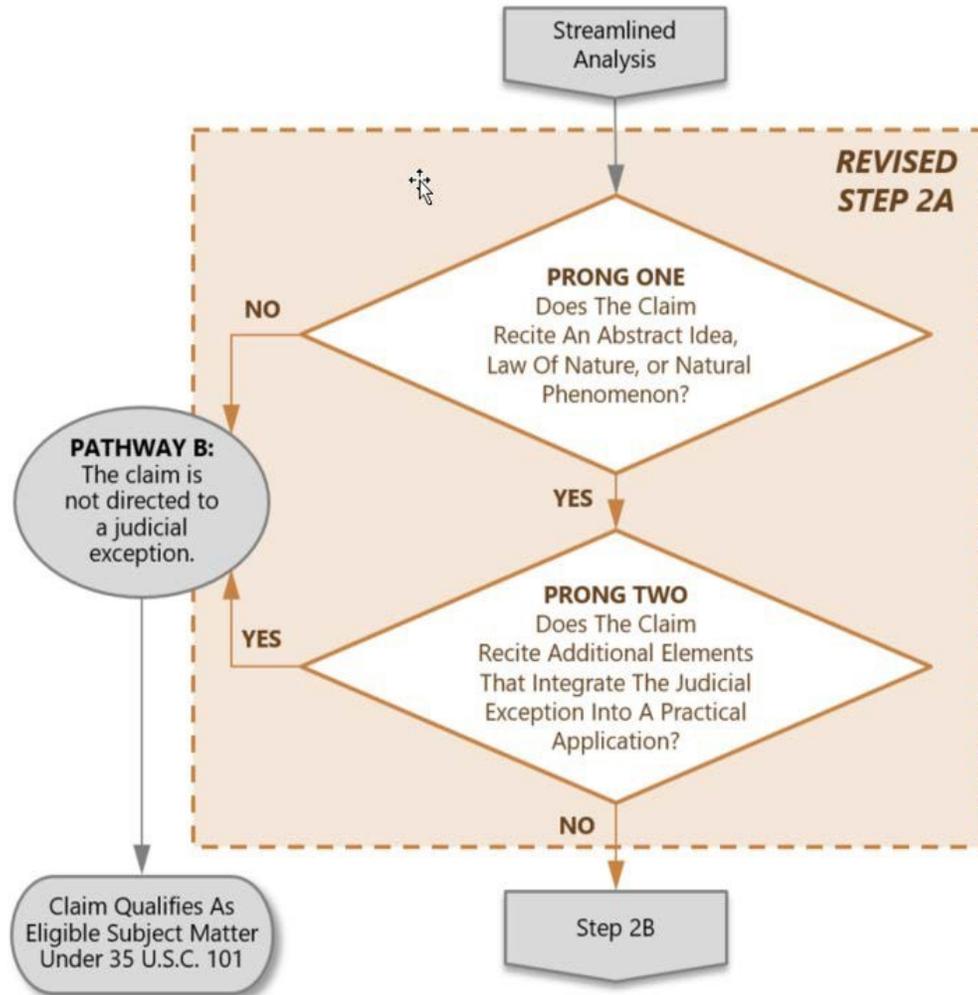
<sup>131</sup> Luetgen, *supra* note 131, at 487.

<sup>132</sup> *Id.* at 489; see also *id.* at 488–98 (explaining why the “practical application” standard is consistent with precedent and is supported by Step 2 of the *Alice/Mayo* test).

<sup>133</sup> *Id.* at 509.



<sup>134</sup> 2019 Revised Patent Subject Matter Eligibility Guidance, U.S. PAT. & TRADEMARK OFF. (April 2, 2019), <https://www.uspto.gov/sites/default/files/documents/2019%20USPTO%20BM>



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as a whole (i) exists in nature independently of and prior to any human activity or (ii) is performed solely in the human mind.

**Sole Eligibility Standard**

c) The eligibility of a claimed invention under subsections (a) and (b) shall be determined without regard to:

- (i) the requirements or conditions of sections 102, 103, and 112 of this title;
- (ii) the manner in which the claimed invention was made or discovered; or
- (iii) whether the claimed invention includes an inventive concept.<sup>139</sup>

The first portion of the amendment is a near recitation of 35 U.S.C. section 101.<sup>140</sup> The “Sole Exceptions to Subject Matter Eligibility” attempts to exclude natural phenomena—absent any human intervention—via (i) and activities performed solely in the human mind via (ii).<sup>141</sup> Finally, the last portion of the amendment, the “Sole Eligibility Standard” eliminates the hunt for the inventive concept, i.e., effectively eliminating Step 2B of the *Alice/Mayo* analysis.<sup>142</sup>

On April 19, 2018, the Intellectual Property Law Association of Chicago (IPLAC) introduced its proposed amendment to 35 U.S.C. § 101.<sup>143</sup> It reads:

**101(a) Eligible Subject Matter:** Whoever invents or discovers, and claims as an invention, any useful process, machine, manufacture, composition of matter, or any useful improvement thereto, shall be entitled to a patent for a claimed invention thereof, subject only to the exceptions, conditions, and requirements set forth in this Title.

**101(b) Sole Exceptions to Subject Matter Eligibility:** A claimed invention is ineligible under subsection (a) if and only if the claimed invention as a whole exists in nature independently of and prior to any human activity, or exists solely in the human mind. In determining eligibility, each claimed invention shall be considered as a whole.

**101(c) Sole Eligibility Standard:** The eligibility of a claimed invention under subsections (a) and (b) shall be determined without regard to (i) the requirements or conditions of sections 102, 103, and 112 of this Title, (ii) the manner in which the claimed invention was made or discovered, or (iii) the claimed invention’s inventive concept.<sup>144</sup>

IPLAC’s amendments almost identically mirror the joint amendment proffered by IPO and AIPLA. The only substantive addition from IPLAC’s amendment is the phraseology “[i]n determining eligibility, each claimed invention shall be considered as a whole.”<sup>145</sup>

On May 22, 2019, several United States senators and congressmen released their

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<sup>139</sup> *Id.* (emphasis added).

<sup>140</sup> *See* 35 U.S.C. § 101.

<sup>141</sup> *Joint IPO-AIPLA Proposal*, *supra* note 140.

<sup>142</sup> *See id.*

<sup>143</sup> Letter from Paul R. Kitch, President, Intell. Prop. Law Ass’n of Chicago, to Andrei Iancu, Under Sec’y of Com. for Intell. Prop., U.S. Pat. & Trademark Off. (Apr. 19, 2018), <https://patent-docs.typepad.com/files/2018-04-19-ilpac-letter.pdf>.

<sup>144</sup> *Id.* at 4.

<sup>145</sup> *See id.* at 4.

bipartisan proposed amendment to § 101 of the Patent Act.<sup>146</sup> Although the actual proposed amendment to the § 101 language does not alter much, the additional legislative provision captures the most substantive changes.<sup>147</sup>

**Section 101:**

(a) Whoever invents or discovers any useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

(b) Eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation.

**Additional Legislative Provisions:**

- The provisions of section 101 shall be construed in favor of eligibility.
- No implicit or other judicially created exceptions to subject matter eligibility, including “abstract ideas,” “laws of nature,” or “natural phenomena,” shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.
- The eligibility of a claimed invention under section 101 shall be determined without regard to the manner in which the claimed invention was made; whether individual limitations of a claim are well known, conventional, or routine; the state of the art at the time of the invention; or any other considerations relating to sections 102, 103, or 112 of this title.<sup>148</sup>

The most significant portion of the amendment comes in the form of eliminating all judicially created exceptions relative to subject-matter and abrogating all case law utilizing such exceptions.<sup>149</sup> Moreover, the proposal explicitly states that § 101 should weigh in favor of eligibility.<sup>150</sup> This effectively reduces the subject matter eligibility threshold, thus increasing reliance on other provisions, namely § 102 and § 103, to invalidate patents upon examination.

D. Supreme Court Proffering Bright-line § 101 Rules Via Integration of the USPTO Guidance

Although the previously mentioned judicial amendments to 35 U.S.C. § 101 potentially ameliorate some of the detriments of the current analysis, the amendments

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<sup>146</sup> Press Release, Sen. Thom Tillis et al., Sens. Tillis and Coons and Reps. Collins, Johnson, and Stivers Release Draft Bill Text to Reform Section 101 of the Patent Act (May 22, 2019) [hereinafter Congressional Proposal], <https://www.tillis.senate.gov/2019/5/sens-tillis-and-coons-and-reps-collins-johnson-and-stivers-release-draft-bill-text-to-reform-section-101-of-the-patent-act> (“Today, U.S. Senators Thom Tillis (R-NC) and Chris Coons (D-DE), Chair and Ranking Member of the Senate Judiciary Subcommittee on Intellectual Property, and Representative Doug Collins (R-GA-9), Ranking Member of the House Judiciary Committee, Hank Johnson (D-GA-4), Chairman of the House Judiciary Subcommittee on Intellectual Property and the Courts, and Steve Stivers (R-OH-15) released a bipartisan, bicameral draft bill that would reform Section 101 of the Patent Act.”).

<sup>147</sup> See generally *id.*

<sup>148</sup> See *id.*

<sup>149</sup> See *id.* (“No implicit or other judicially created exceptions to subject matter eligibility, including ‘abstract ideas,’ ‘laws of nature,’ or ‘natural phenomena,’ shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.”).

<sup>150</sup> See *id.* (“The provisions of section 101 shall be construed in favor of eligibility.”).

do not completely cover the entire scope of the problem. First, the method of adopting these amendments is particularly slow (as is adopting any new piece of legislation). Moreover, these amendments do not cover the entire scope of the current frustration and confusion—namely, the confusion surrounding how to define an abstract idea and inventive concept. The following portion of this article will address, in turn, the negative ramifications of adopting the various proposed amendments (including the time it takes to adopt, and the confusion and frustration that will linger), and it will ultimately conclude with the positives of the Supreme Court integrating the USPTO Guidance, along with the exact language the Supreme Court should offer to clarify the § 101 analysis.

#### IV. Impact

The impact section of this article will conduct an individual analysis of the following: (1) adopting the legislative amendment jointly proposed by the IPO and AIPLA and the legislative amendment proposed by IPLAC, (2) adopting the legislative amendment proposed by the United States Senators and Congressmen on May 22, 2019, and (3) the Supreme Court proffering bright-line rules relative to § 101 analysis via integration of the USPTO Guidance.

##### A. IPO/AIPLA and IPLAC Proposed Amendments

As previously mentioned, the joint IPO/AIPLA amendment and the IPLAC amendment trifurcate § 101 into a three-prong analysis: (1) eligible subject matter; (2) sole exceptions to subject matter eligibility; and (3) sole eligibility standard.<sup>151</sup> The first portion, eligible subject matter, effectively mirrors the current § 101 text and makes subject matter eligibility contingent upon the subsequent two subsections. The sole exceptions to subject matter eligibility can be distilled down into the invention existing “in nature independently of and prior to any human activity” or existing “solely in the human mind.”<sup>152</sup> The first exception is relatively straight forward—any “invention” that can be found in nature prior to any human intervention would be precluded from patent subject matter eligibility. This provision is, on the whole, consistent with the case law surrounding § 101. Notwithstanding, the provision does not articulate what “exists solely in the human mind” means. This phrase is particularly ambiguous and there are several types of inventions that would consequently be precluded from patent protection that would otherwise be afforded such protection. Under this proposed amendment, computer-implemented programs could arguably be precluded from protection simply because they exist solely in the human mind prior to the integration of the concept into a computerized function. Therefore, under this proposed amendment, computerized patents would potentially be under attack, and we would ostensibly see a dramatic pushback from companies whose business is founded on the patent protection of computerized programs. The last subsection,

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<sup>151</sup> See *Joint IPO-AIPLA Proposal*, *supra* note 140.

<sup>152</sup> See *id.*

“sole eligibility standard,” is an integral inclusion. The § 101 analysis should be independent of any other provision contained in United States Code 35 (specifically § 102, § 103, and § 112).

#### B. United States Congressional Proposed Amendment

Relative to the aforementioned proposals, the United States Congressional proposal is rudimentary.<sup>153</sup> The Congressional proposal bifurcates § 101 into (1) a relatively similar language to the current § 101 and (2) a provision stating that the analysis must consider the invention as a whole.<sup>154</sup> However, the most important portion of the proposal comes in the “additional legislative provisions,” which states that “[n]o implicit or other judicially created exceptions to subject matter eligibility, including ‘abstract ideas,’ ‘laws of nature,’ or ‘natural phenomena,’ shall be used to determine patent eligibility under § 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.”<sup>155</sup> Although the literal language of the proposed amendment would not significantly alter the § 101 analysis, the abrogation of the precedential and controlling case law governing § 101 (including *Allice* and *Mayo*) would wreak havoc on the judicial system as a whole. This proposal seems to suggest that abstract ideas, laws of nature, and natural phenomena would be subject matter eligible. If enacted, this would create a race to the USPTO to file patents covering material that was previously subject matter ineligible. Moreover, this proposal seems to grant deference to the other judicially created bars in granting a patent—specifically, prior art and nonobviousness—and undermines the entirety of the case law that has been developed surrounding § 101. Not only would this proposal create an increase in patents being filed (notwithstanding their relative merits), it would inherently generate more confusion for the judicial system on the whole relative to subject matter eligibility. Any new patent that was issued and that dealt with previously ineligible subject matter would be a case of first impression for the court system, effectively granting the courts the opportunity to rewrite precedent the way they see fit. This is a direct contravention of the bright-line rules that this article proposes, which are intended to create uniformity and certainty in the patent application process while also granting substantial deference to the precedential case law.

#### C. Supreme Court Proffering Bright-line Rules Relative to § 101 Analysis Via Integration of the USPTO Guidance

On the whole, congressional amendments to legislation would take longer to enact relative to the Supreme Court proffering a bright-line judicial rule. Moreover, the aforementioned proposals do not directly solve the § 101 patent subject matter eligibility crisis. The amendments proposed by the intellectual property-based associations create more ambiguity surrounding the correct analysis via the inclusion of

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<sup>153</sup> See Congressional Proposal, *supra* note 149.

<sup>154</sup> See *id.*

<sup>155</sup> See *id.*

vague and ambiguous phraseology such as “exists solely in the human mind.”<sup>156</sup> The current congressional proposal leaves open the door for previously unpatentable subject matter to enter the intellectual property world and effectively allows the court system to rewrite precedential case law. The ostensible solution is the proffering of a bright-line rule governing the § 101 analysis by the Supreme Court via the integration of the USPTO Guidelines.

#### D. Proposed Bright-Line Rule Governing Patent Subject Matter Eligibility Via Supreme Court Language

The Supreme Court, after granting certiorari to a patent case dealing specifically with § 101 patent subject matter eligibility, should proffer the following language in order to resolve the current frustration, uncertainty, and unpredictability surrounding § 101 eligibility:

Notwithstanding any attempt to monopolize a law of nature, a naturally occurring phenomenon, an abstract idea, or mental process, without the addition of any non-routine, non-understood, or non-conventional element or activity engaged in by society at large, 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 subject to the other requirements set forth in the remainder of Title 35 of the United States Code. This analysis will be conducted with each claim of the patent being viewed in its entirety. This language will now govern § 101 patent subject matter eligibility.

The aforementioned language will have a better impact on the § 101 analysis relative to the proposed legislative amendments. Initially, the wait time to implement the changes will be far shorter than any legislative amendments. The Supreme Court can grant certiorari to any number of patent cases that are appealed from the Federal Circuit and can, relatively quickly, release this § 101 language. In contrast, the legislative amendments would get bogged down in bureaucratic minutia, making them ineffective measures to combat the current § 101 problem.

Moreover, the Supreme Court’s language will allow for more patents to be granted, which will increase technological advancement and will make a potential court’s analysis easier in a subject matter eligibility challenge. A concern for potential patent owners in asserting their patents is the uncertainty regarding whether their patent will be found unenforceable by the district court. However, providing the aforesaid language will increase the certainty of patent owners as to any potential challenge to their patents on the grounds of patent subject matter eligibility.

Since the value of a patent is derived from its enforceability, certainty regarding patent-eligible subject matter will increase the value of patents. This in turn will result in increased innovation due to the increased rewards of obtaining a patent.

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<sup>156</sup> See *Joint IPO-AIPLA Proposal*, *supra* note 140, at subsec. (b).

## V. Conclusion

As previously mentioned, the uncertainty surrounding the § 101 patent subject matter eligibility analysis has frustrated both the judicial and legislative branches. This has caused the proposal of several different amendments to the current language of § 101. However, the current proposals are ineffective for several reasons. First, they are pieces of legislation, which have to work their way through a bogged-down bureaucracy before becoming actual law. Moreover, the proposed amendments create more ambiguity and uncertainty via the inclusion of arbitrary phraseology such as “exists solely in the human mind” or the proposed abrogation of all precedential case law governing the § 101 analysis. Conversely, the Supreme Court proffering a bright-line rule governing the analysis is the most effective mechanism, in terms of both time and money, to achieve uniformity. Moreover, the aforementioned bright-line rule for § 101 integrates the *Alice/Mayo* analysis and the USPTO Guidance into one simple analysis that will generate uniformity and predictability relative to patent subject matter eligibility.