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Plugging the Rabbit Hole: The Supreme Court's Decision in Alice

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PLUGGING THE RABBIT HOLE: THE SUPREME COURT'S DECISION IN *ALICE*

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I. INTRODUCTION

In this era, technology is more than just prevalent. Billions across the world rely on technology for almost every aspect of their lives. Though perhaps unnoticed by the masses, there has been a dramatic shift in the technological landscape, particularly with respect to computer software.[1] This shift has presented new issues in patent eligibility because abstract ideas by themselves are not patentable subject matter.[2] Recently, the Supreme Court in *Alice Corporation v. CLS Bank International*,[3] as in previous cases, chose not to address what defines an abstract idea.[4] In doing so, the Court has further perpetuated the difficult, subjective patent eligibility analysis performed by courts and patent examiners alike.[5] This Note avers that the Court's *Mayo* test used in *Alice*[6] is insufficient and that supplemental requirements will provide further clarity and a more consistent patent eligibility review. The supplemental requirements are twofold: (1) An idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension; and (2) the claims must be calculated to quantitatively improve the *Alice* examples. Further background and analysis will be discussed in turn.

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[1] Natalya Dvorson & Mark C. Davis, *Through the Looking Glass: Exploring the Wonderland of Patent Subject Matter Eligibility After* Alice Corp. v. CLS Bank International, LANDSLIDE, Nov./Dec. 2014, at 8, 9.

[2] *Id.*

[3] 134 S. Ct. 2347 (2014).

[4] *Id.* at 2357.

[5] *See* Stephen T. Schreiner & Brendan McCommas, *The Patentability of Financial Processes After the Supreme Court's* Alice *Decision*, 131 BANKING L.J. 777, 785 (2014) (arguing that a "case-by-case inquiry results in a certain amount of uncertainty that can be mitigated").

[6] 134 S. Ct. at 2355.

Specifically, Part II includes information regarding the *Alice* case itself, pre-*Alice* case law on patent eligibility, and the post-*Alice* aftermath. Part III includes an in-depth discussion on the proposed supplemental requirements, application of the proposed supplemental requirements to post-*Alice* decisions, alternative solutions, and two case studies on granted patent applications overcoming *Alice* rejections.

II. BACKGROUND

Section 101 of the Inventions Patentable provides, "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."[7] However, the Supreme Court has acknowledged for over one hundred years "an important implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable."[8] Here, the goal is to play the middle ground between two ends of a spectrum. On one end: Upholding patents on laws of nature, natural phenomena, and abstract ideas would essentially provide a monopoly over the "basic tools of scientific and technological work,"[9] thus "tend[ing] to impede innovation."[10] On the other end of the spectrum: The exclusionary principle of abstractness, if taken too far, could potentially swallow patent law since all inventions can be distilled down to, or rest upon some abstract principle or idea.[11] With slippery slopes at both ends of the spectrum, *Alice* provided little guidance as to what an abstract idea is and when it is patentable.[12]

A. The Case

Alice Corporation's ("Alice") patents claimed a "scheme for mitigating 'settlement risk,' *i.e.*, the risk that only one party to an agreed-upon financial exchange will satisfy its obligation."[13] Alice achieved this via a computer program that executes specific commands to calculate if sufficient resources exist to repay a debt, which ultimately determines whether or not a financial transaction is to be permitted.[14] CLS Bank was facilitating currency transactions on a global scale and

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[7] 35 U.S.C. § 101 (2012).

[8] *Alice*, 134 S. Ct. at 2354 (quoting Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2116 (2013)).

[9] *Id.*

[10] *Alice*, 134 S. Ct. at 2354 (alteration in original) (quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1293–94 (2012)).

[11] *Id.*

[12] Jesse Adland, Alice Corp. v. CLS Bank International: *Challenges in Identifying Patentable Subject Matter*, INTELL. PROP. & TECH. L.J., Dec. 2014, at 20, 22.

[13] *Alice*, 134 S. Ct. at 2349.

[14] *See id.*

sought declaratory judgment against Alice that "the claims at issue are invalid, unenforceable, or not infringed."[15] Both parties filed cross-motions for summary judgment based on patent eligibility under 35 U.S.C. § 101; the district court's ruling that the claims were patent ineligible was upheld in the Federal Circuit's rehearing *en banc*,[16] and subsequently by the Supreme Court.[17] The next section discusses patent eligibility prior to *Alice*.

*B. Pre-*Alice*: Case Law on Patent Eligibility*

Bilski v. Kappos[18] was a seminal case in the realm of patent eligibility. There, the patent in suit claimed a method for hedging against the financial risk of price fluctuations in which the final step involved the implementation of a mathematical formula.[19] There, the Court held the patent claimed an abstract idea[20] and explained that risk hedging was a "fundamental economic practice."[21] Similarly, in another landmark case—*Mayo*—the claims addressed the measurement of metabolites in the bloodstream in order to determine the appropriate dosage of medicine to be administered to the patient.[22] Though argued as a patent-eligible application of natural law (i.e., the human body's production of metabolites) the Court held the claimed method patent ineligible because it was "well known in the art" and comprised "nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients."[23] To arrive at this conclusion, the Court used a two-part test, now commonly referred to as the *Alice/Mayo* Test: (1) "whether the claims at issue are directed to one of those patent-ineligible concepts"; [24] and if so, then (2) "whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application."[25] Conversely, in *Diamond v. Diehr*,[26] the Court upheld the patent claims of a rubber-curing process involving a computer and a well-known mathematical formula because the process was aimed at solving an industry-specific problem that had not successfully been addressed.[27]

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[15] *Id.* at 2353.
[16] *Id.*
[17] *Id.* at 2354.
[18] 561 U.S. 593 (2010).
[19] *Alice*, 134 S. Ct. at 2355–56 (discussing *Bilski*, 561 U.S. at 599).
[20] *Id.* at 2356 (discussing *Bilski*, 561 U.S. at 609).
[21] *Id.* (quoting *Bilski*, 561 U.S. at 611).
[22] *Id.* at 2357 (discussing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1294–96 (2012)).
[23] *Id.* (quoting *Mayo*, 132 S. Ct. at 1298).
[24] *Id.* at 2355 (quoting *Mayo*, 132 S. Ct. at 1296–97).
[25] *Id.* at 2357 (quoting *Mayo*, 132 S. Ct. at 1298).
[26] 450 U.S. 175 (1981).
[27] *Alice*, 134 S. Ct. at 2358 (discussing *Diehr*, 450 U.S. at 177–78).

*C. Post-*Alice*: The Aftermath*

From the *Alice* decision through July 1, 2015, the Federal Circuit and district courts combined to invalidate 66.1% of all patents and 76.7% of all claims challenged under Section 101.[28] And this is no initial spike. For example, through April 21, 2016, federal court decisions have invalidated 70% of all Section 101-challenged patents since *Alice*.[29] Likewise, patent examiners have rejected a staggering number of applications under Section 101 since *Alice*.[30] Broken down by art unit, final rejection rates under Section 101 rose between 35% and 60% in E-shopping, Accounting, Business Processing, Incentive Programs, Finance and Banking, Retail, Insurance/Health Care, Operations Research, and Reservations.[31] Reports in December of 2015 even indicated that after *Alice,* rejection rates for the top ten rejected art units under Section 101 only varied between 80% and 86%.[32] Indeed, the scope of *Alice* has shown to be far-reaching.[33] The next sections discuss the true extent of that reach—particularly in regard to the economy, patent applicants, and attorneys.

1. The Economy: Decreasing Value and Increasing Risk

Patents are a key factor in the "economic growth and development" of a country.[34] Patents provide "exclusive rights for a limited period" and allow inventors to "recover R&D costs and investments"[35] through a variety of means.

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[28] Robert R. Sachs, *#Alicestorm in June: A Deeper Dive into Court Trends, and New Data on Alice Inside the USPTO*, FENWICK & WEST: BILSKI BLOG (July 1, 2015), http://www.bilskiblog.com/blog/2015/06/alicestorm-a-deeper-dive-into-court-trends-and-new-data-on-alice-inside-the-uspto.html [https://perma.cc/2KMT-CNJD].

[29] Jason Rantanen, *Section 101—Pivotal Moment for Clarity on Patent Subject Matter Eligibility*, PATENLYO (Apr. 21, 2016), http://patentlyo.com/patent/2016/04/section-subject-eligibility.html [https://perma.cc/8A58-R93D].

[30] Michael Stein, *USPTO Urged to Revise Interim §101 Guidance to Require Examiners to Present a Proper Prima Facie Case Supported by Factual Evidence*, BAKER HOSTETLER: IP INTELLIGENCE (March 23, 2015), http://www.ipintelligencereport.com/2015/03/23/uspto-urged-to-revise-interim-§101-guidance-to-require-examiners-to-present-a-proper-prima-facie-case-supported-by-factual-evidence/ [https://perma.cc/J9P6-LW5W]; *see also* Sachs, *supra* note 28 (demonstrating large rate increases in final rejections under Section 101 for a myriad of technology art units post-*Alice*).

[31] Sachs, *supra* note 28.

[32] James Cosgrove, *The Most Likely Art Units for Alice Rejections*, IPWATCHDOG (Dec. 14, 2015), http://www.ipwatchdog.com/2015/12/14/the-most-likely-art-units-for-alice-rejections/id=63829/ (on file with the Utah Law Review).

[33] *See* Sachs, *supra* note 28.

[34] WORLD INTELLECTUAL PROP. ORG., *Economic Development and Patents*, http://www.wipo.int/patent-law/en/developments/economic.html [https://perma.cc/6767-Z5ZB] (last visited July 29, 2016).

[35] *Id.*

Patents "promote[] investment to commercialize and market new inventions so that the general public can enjoy the fruit of the innovation. Further, the [patent] system is designed to disseminate knowledge and information to the public through publication of patent applications and granted patents."[36] As a case in point, the U.S. patent system has until this time provided stringent protection for software technology.[37] Such an atmosphere encouraged massive growth and innovation to allow America to become the world leader in software.[38] However, *Alice* is changing the outlook.

> Software is at the center of inventions drawn to safely landing airplanes, efficiently operating chemical plants, and minimizing the need for surgery and software is critical to our way of life. The uncertainty of the effects of this [*Alice*] decision to software startup companies is making it difficult for them to get investor funding and will affect our economic growth in innovative technologies where we lead the world.[39]

With the investor funding pinch and rising uncertainty, particularly with respect to computer software, the risk is steep for entrepreneurs, solo inventors, small companies, and perhaps even large corporations to maintain expenditure of resources on development of innovation that is diminished in value or likely patent ineligible all together.[40] So what is the result? Some practitioners submit that a huge sector of the American economy is at risk of stalling[41] or at least falling behind the competition.[42] "Most inventors avoid these arts and are waiting for further clarity,"[43] which will likely come from federal court cases and their

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[36] *Id.*

[37] Marian Underweiser, Alice *Through the Looking Glass — The Supreme Court Considers Software Patents*, INTELLECTUAL PROP. @ IBM (Mar. 13, 2014), https://ibmip.com/2014/03/13/alice-through-the-looking-glass-the-supreme-court-considers-software-patents/ [https://perma.cc/7W6J-9ZH2].

[38] *Id.*

[39] Robert Stoll, *Where Do We Stand One Year After* Alice*?*, LAW360 (June 17, 2015, 8:27 PM), http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice [https://perma.cc/R23A-JKKH].

[40] *See* John C. Jarosz & Jaime A. Siegel, *Where Do We Stand One Year After* Alice*?*, LAW360 (June 17, 2015, 8:27 PM), http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice [https://perma.cc/R23A-JKKH].

[41] *See* Stoll, *supra* note 39.

[42] *See* Antoinette F. Konski, *Patent Subject Matter Eligibility — Impact on Litigation and Prosecution*, NAT'L LAW REVIEW (Sept. 21, 2015), http://www.natlawreview.com/article/patent-subject-matter-eligibility-impact-litigation-and-prosecution [https://perma.cc/N466-F5KC] (explaining how diagnostic patent filings have been delayed due to the necessity of first having "more data and technology . . . available to support the claims").

[43] Richard Baker, *Where Do We Stand One Year After* Alice*?*, LAW360 (June 17, 2015, 8:27 PM), http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice [https://perma.cc/R23A-JKKH].

appeals[44] involving the dominant players with massive software portfolios now under a barrage of Section 101 patent eligibility challenges.[45]

2. Applicants & Attorneys: Prosecution Nightmares and Rising Costs

Almost wielding new power, examiners now commonly provide only "conclusory assertions of ineligibility" and "boilerplate language lacking specific evidence or analysis."[46] The increased difficulty and time required to overcome these vague rejections has driven up patent prosecution costs and caused great headache for both applicants and attorneys.[47] Likewise, litigation costs are rising because "[f]or almost every pending software or business method patent litigation, defendants have revised their attack to vigorously challenge the validity of the patents in light of *Alice*, with reasonable success."[48] On the other hand, there is one minor advantage to *Alice*: Nonpracticing entities, more commonly referred to as patent trolls, are now very cautious to assert particular patents against operating companies for fear of their patents being ruled invalid.[49]

With the presented background information regarding the *Alice* case, pre-*Alice* case law, and some of the effects of *Alice* with respect to the economy, patent applicants, and attorneys, the following analysis will have appropriate context.

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[44] Cal. Inst. of Tech. v. Hughes Commc'ns Inc., 59 F. Supp. 3d 974, 986 (C.D. Cal. 2014) (explaining that "by allowing 'a period of exploratory consideration and experimentation by lower courts,' the Supreme Court can have 'the benefit of the experience of those lower courts' when it revisits the issue" (quoting California v. Carney, 471 U.S. 386, 400 n.11 (1985))); *e.g.*, Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1339 (Fed. Cir. 2016) (holding that "the claims are directed to a specific implementation of a solution to a problem in the software arts. . . . [and that] the claims at issue are not directed to an abstract idea"). This decision and *DDR Holdings* are the only Federal Circuit decisions upholding patent claims in view of *Alice*, which is why *Enfish* is exciting on many levels. One tweet read, "Enfish v. Microsoft is [m]ore [i]mportant that [sic] DDR Holdings—USPTO and Dist. [c]an [n]o [l]onger [a]ssume [a]ll [s]oftware is '[a]bstract.'" PatentBuddy (@patentbuddy), TWITTER (May 12, 2016, 8:46 AM), https://twitter.com/patentbuddy/status/730786210537345026 [https://perma.cc/KQJ9-3QPU].

[45] *See* Baker, *supra* note 43.

[46] Stein, *supra* note 30. For the above stated reason, part of the 2016 USPTO guidance materials included a memorandum specifically addressed to patent examiners regarding two issues: 1) how to formulate a proper Section 101 rejection; and 2) how to evaluate an applicant's response. May 2016 Subject Matter Eligibility Update, 81 Fed. Reg. 27,381 (May 6, 2016) (to be codified at 37 C.F.R. pt. 1).

[47] Stein, *supra* note 30.

[48] Baker, *supra* note 43.

[49] Padmaja Chinta, *Where Do We Stand One Year After* Alice*?*, LAW360 (June 17, 2015, 8:27 PM), http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice [https://perma.cc/9VJ2-HRLN].

III. ANALYSIS

Noticeably absent in pre-*Alice* case law is any bedrock foundation on patent eligibility to move forward in a uniform direction. The aftermath of *Alice* exemplifies this notion and demonstrates a blatant need to address the root cause, namely the inadequacy of the *Mayo* test applied in *Alice*. To begin with, the Court has not addressed a definition of abstract,[50] so it is inherently difficult at the outset to apply the second step of the *Mayo* test (i.e., sufficiently transform the abstract).[51] True assessment of this second step logically requires one to first know how abstract is defined in order to transform or go beyond what is abstract. Once adequately defined, the subjective second step of the *Mayo* test will still likely lead to inconsistent results for patent eligibility.[52] This section thus suggests further requirements or analytical guideposts should supplement the existing *Mayo* test for determining patent eligibility. Each is discussed in turn, followed by an application of the proposed supplemental requirements to post-*Alice* decisions, alternative solutions, and granted patent applications.

A. No Physical Dimension

To apply the first prong of the *Mayo* test in *Alice*, the Court analogized to *Bilski's* abstract claims to hold that Alice too claimed an abstract idea, mitigating risk.[53] Though price hedging and risk mitigation proved to be a rather easy comparison for the Court,[54] analogous reasoning in the future will likely not be the most effective way to determine abstractness.[55] The Oxford Dictionary defines abstract as "[e]xisting in thought or as an idea but not having a physical or concrete existence."[56] Thus, *Mayo's* patent eligibility analysis could begin as follows: an idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension. This simple definition falls in alignment with the Court's past holdings of abstract ideas such as settlement risk mitigation, price hedging, and mathematical algorithms.[57] But, going forward, there will be no need to rely solely on analogous reasoning, rather, the Court could apply a straightforward physical

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[50] Alice Corp. Pty. v. CLS Bank Int'l, 134 S. Ct. 2347, 2357 (2014).

[51] *Id.* at 2355 (discussing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1298 (2012)).

[52] *See* Schreiner & McCommas, *supra* note 5, at 785.

[53] *Alice*, 134 S. Ct. at 2350.

[54] *See id.*

[55] *See id.* at 2357 (stating that "we need not labor to delimit the precise contours of the 'abstract ideas' category in *this* case," while inferring it will likely be necessary at some point in the future (emphasis added)); *see also* Schreiner & McCommas, *supra* note 5, at 784–85 (discussing the difficulties in patent eligibility analysis).

[56] *Abstract*, OXFORD DICTIONARIES, http://www.oxforddictionaries.com/us/definition/american_english/abstract [https://perma.cc/Z8XB-ZKJU] (last visited Sept. 13, 2016).

[57] *Alice*, 134 S. Ct. at 2350.

dimension test as prescribed above. Once applied and if the claimed idea is rooted in an abstract form,[58] the Court can then focus on the more difficult second step in the *Mayo* analysis discussed below.

B. Calculated to Quantitatively Improve

The Court in *Alice* applied the second step of the *Mayo* test and held that the claims in question were simply conventional steps involved in risk mitigation, but now performed by a generic computer, which was "not enough to transform the abstract idea into a patent-eligible invention."[59] Fortunately, the Court briefly asserted a few examples of what may sufficiently transform the abstract.[60] By stating Alice's claims do not allege to improve the performance of the computer itself or improve another technology or technical field, the Court implied these instances may produce a different outcome with respect to patent eligibility.[61] However, these examples inadequately support the difficult, vague requirement in *Mayo* (i.e., sufficiently transform the abstract).[62] For this very reason, the Deputy Commissioner for the U.S. Patent and Trademark Office ("USPTO") issued multiple guidance materials to help patent examiners more effectively interpret *Alice*.[63] Still, this is no solution to the high degree of subjectivity involved. At best, the USPTO provided patent examiners a temporary band-aid.[64] And at any rate, the USPTO guidance materials are not binding in federal court and cannot serve as a proper basis for appeals or petitions of review.[65]

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[58] *Cf. id.* at 2352 (articulating an important limitation on the notion that an invention includes or relies on an intangible element of no physical dimension by holding that mere recitation of "generic computer implementation fails to transform that abstract idea into a patent-eligible invention").

[59] *Id.* at 2351 (internal quotation marks omitted).

[60] *Id.* at 2359.

[61] *See id.*

[62] *Id.* at 2355 (discussing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1298 (2012)).

[63] Schreiner & McCommas, *supra* note 5, at 784; *e.g.*, May 2016 Subject Matter Eligibility Update, 81 Fed. Reg. 27,381 (May 6, 2016) (to be codified at 37 C.F.R.pt. 1); July 2015 Update on Subject Matter Eligibility, 80 Fed. Reg. 45,429 (Jul. 30, 2015) (to be codified at 37 C.F.R. pt. 1); 2014 Interim Guidance on Patent Subject Matter Eligibility, 79 Fed. Reg. 74,618 (Dec. 16, 2014) (to be codified at 37 C.F.R.pt. 1); Memorandum from the Deputy Comm'r for Patent Examination Policy to Patent Examining Corps (May 19, 2016), http://www.uspto.gov/sites/default/files/documents/ieg-may-2016_enfish_memo.pdf [https://perma.cc/8FLN-CE9R].

[64] *See* Schreiner & McCommas, *supra* note 5, at 784 (explaining patent examiners are not trained to comparatively analyze the invention in question when the Court issued no guidance as to a requisite degree of similarity between the invention and the examples in *Alice*).

[65] *In re* Smith, 815 F.3d 816, 819 (Fed. Cir. 2016).

The following modifier would help alleviate the issue of subjectivity: the claimed element must be *calculated to quantitatively improve* the examples provided in *Alice.*[66] If the claimed element were calculated to quantitatively improve, there would certainly be more than mere application of an abstract idea. There would be real numbers, statistical data, specific factual support, or some other evidentiary basis to show a transformation beyond the abstract and thus have standing as a nonabstract claim under step two of the *Mayo* test. The following examples are illustrative.

First, a "special software that makes a laptop run 50 percent faster and 50 percent cooler will be patent-eligible because it is actually improving performance of the computer."[67] Second, "a new method of processing credit card transactions may be patent-eligible if it can be shown to improve the speed, increase the accuracy, or reduce the cost of processing over the credit card networks."[68]

Third, consider the rationale behind the holding of a post-*Alice* case. In *DDR Holdings, LLC v. Hotels.com, L.P.*,[69] the Court upheld a patent claim including a computer and the Internet because the claim was directed to solving a particular problem, specifically the "challenge of retaining control over the attention of the customer" when on the website.[70] Though an abstract idea, the claim was calculated to improve sales in a very specific manner without preempting all applications of the idea to "increase[e] sales by making two web pages look the same."[71] Essentially, the abstract idea was narrowly tailored to increase sales in a specific application without broadly claiming ownership over a societal building block like the computer or the Internet.[72]

Fourth, a recent Federal Circuit decision upholding the patent claims is also instructive in this regard. In *Enfish, LLC v. Microsoft Corp.*,[73] the specification included recitations of improvement over the prior art.[74] The specification further taught "that the claimed invention achieves other benefits over conventional databases, such as increased flexibility, faster search times, and smaller memory requirements."[75] Then responding to Microsoft's arguments, the Federal Circuit held: (1) The invention's ability to run on a general-purpose computer does not

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[66] *Alice*, 134 S. Ct. at 2351 (providing the following examples: "[i]mprove the functioning of the computer itself or effect an improvement in any other technology or technical field").

[67] Schreiner & McCommas, *supra* note 5, at 785.

[68] *Id.*

[69] 773 F.3d 1245 (Fed. Cir. 2014).

[70] *Id.* at 1258.

[71] *Id.* at 1259.

[72] *Id.*

[73] 822 F.3d 1327 (Fed. Cir. 2016).

[74] *Id.* at 1337 ("The present invention improves upon prior art information search and retrieval systems by employing a flexible, self-referential table to store data.").

[75] *Id.*

doom the claims;[76] and (2) The improvements need not come from "physical components" given the nature of these advancements are often defined by "logical structures and processes" as opposed to "particular physical features."[77]

The remaining question is to what extent the *calculated to quantitatively improve* language should be recited in the patent claims as opposed to residing only in the patent's specifications where most other factual details provide support to the claims.[78] The *Code of Federal Regulations* states "a claim particularly point[s] out and distinctly claim[s] the subject matter which the applicant regards as his invention or discovery."[79] As previously explained, abstract subject matter must be sufficiently transformed to be patentable; therefore, it logically follows that the distinction between abstract and nonabstract is at the very core of a potentially patentable invention and consequently should be inserted into the claims to comply with federal code. Thus, if the subject matter is abstract (i.e., has no physical dimension) then the subject matter should be expressly recited in the claims as calculated to quantitatively improve one of the *Alice* examples. Contrary to common practice, this notion will encourage, and in some cases require, certain limitations to be provided in the claim.[80]

For example, if Alice invented a new method involving "XYZ," which is abstract because it has no physical dimension, Alice should claim the following: a method comprising "XYZ," wherein "XYZ" provides an increase in the number of settlement transactions performed per day due to at least a twenty-five percent efficiency increase in processed transactions. By expressly stating how the abstract invention or method is calculated to quantitatively improve the technical field of risk mitigation, Alice now has a much greater chance of overcoming patentability issues under *Mayo*.[81] If this simple additional step is implemented during the patent drafting process, the high degree of subjectivity involved with the second step of the *Mayo* test can largely be eliminated.[82] In addition, the assertion of quantitative evidence in the claims would limit the scope of patents, and in turn, work towards

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[76] *Id.* at 1338.

[77] *Id.* at 1339.

[78] *See* Dvorson & Davis, *supra* note 1, at 10.

[79] 37 C.F.R. § 1.75 (2015).

[80] *But see* Richard V. Burgujian et al., *Practical Considerations and Strategies in Drafting U.S. Patent Applications*, FINNEGAN (Apr. 2009), http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=80dcb48f-0cab-4dc2-ab03-34eabfca340b (citing Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241 (Fed. Cir. 2000)) (explaining how *Bayer's* use of a precise range of surface areas in the claim limited the scope of its patent so as to allow a potential infringer escape infringement, which supports the widely adopted patent drafter rationale of carefully avoiding any limiting language where possible).

[81] *See* Schreiner & McCommas, *supra* note 5, at 784 (describing how financial services companies can craft patentable claims by emphasizing how they do something "bigger, stronger, or faster").

[82] *Id.*

resolving "the pre-emption concern that undergirds our § 101 jurisprudence."[83] However, the foreseeable hang-up here will likely be the practicality of achieving a more ideal system in a fiercely competitive and market driven economy, where applicants' claims would be limited in scope but patent eligible.[84]

*C. Application of the Proposed Supplemental Requirements to Post-*Alice *Decisions*

In *Chamberlain Group, Inc. v. Linear LLC*,[85] "[t]he '977 Patent is directed to opening and closing a movable barrier, e.g., a garage door, a gate, a door, or a window, by sending status signals and requests over a computer network, e.g., the Internet."[86] The inventor wished to overcome issues stemming from human error, such as leaving the garage door open when the user intended it to be closed.[87] So, advantageously to the user, the user could check to see if the garage door was left open, and if so, send a signal to the garage door to close itself without the user being physically present on-site.[88] The court ruled the '977 patent just described as "directed to patent-eligible subject matter."[89] Applying the proposed supplemental requirements here would likely provide a similar outcome with the following rationale: First, "[a]n idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension."[90] In this instant, the '977 patent claim is directed to closing a movable barrier,[91] wherein the movable barrier is obviously a tangible element with some physical dimension. Otherwise, what dimensionless, intangible barrier would serve to protect our garage, cars, and homes? Because the movable barrier passes the simple *physical dimension* test, the second step is not applied, and the patent should be eligible under Section 101, as the case correctly held.

In *Smartflash LLC v. Apple Inc.*,[92] the court held that Apple "failed to show that the asserted patents claim ineligible subject matter."[93] Again, applying the proposed supplemental requirements, the outcome here is unlikely to match the court's determination. In the instant case, "the asserted claims recite methods and systems for controlling access to content data, such as various types of multimedia files, and receiving and validating payment data."[94] Going through the first step:

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[83] Alice Corp. Pty. v. CLS Bank Int'l, 134 S. Ct. 2347, 2358 (2014).
[84] *See* Burgujian, *supra* note 80 and accompanying text.
[85] 114 F. Supp. 3d 614 (N.D. Ill. 2015).
[86] *Id.* at 617.
[87] *Id.*
[88] *Id.*
[89] *Id.* at 632.
[90] *See supra* Part III.A.
[91] *Chamberlain*, 114 F. Supp. 3d, at 617.
[92] No. 6:13CV447-JRG-KNM, 2015 WL 661174 (E.D. Tex. Feb. 13, 2015).
[93] *Id.* at *9.
[94] *Id.* at *8.

"An idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension."[95] Here, the claims are essentially directed to controlling access to digital content via a validation process.[96] Not only is digital content intangible in its pure form, so is the validation process (e.g., payment).[97]

Now to the second step: the claim language itself must demonstrate the invention is calculated to *quantitatively improve* the examples provided in *Alice*.[98] As stated, the claims in *Smartflash* do not provide any quantitative evidence that supports a sufficient transformation beyond the abstract.[99] As such, the claims would not pass the *quantitatively improve* step and thus would constitute patent ineligible subject matter. In contrast, the court notes how *Smartflash* incorporates specific data and memory types in connection with use rules to determine the claims do contain patent eligible subject matter.[100]

However, this Note maintains that it is unwise to believe courts will consistently and correctly reach such a determination that hinges on the subtleties of complex technologies and whether these technical details sufficiently transform the abstract. Where most judges and justices do not have any technical background, parties are throwing the dice when litigating patents over statutory subject matter.[101] Very easily, another court could have sided with Apple to rule that *Smartflash's* claims amount to nothing more than "simply payment for something and controlling access to something with generic implementation."[102]

Had *Smartflash* somehow incorporated into their claim, for example, that the content data memory comprises at least one hundred megabytes of data storage and that the flash memory comprises less than one gigabyte of data storage[103] to enable "faster data access,"[104] there would be quantitative evidence of improvement supporting a sufficient transformation beyond the abstract. Though this method limits the scope of the claim, it is more straightforward and allows parties to rely less on the judgment of unskilled judges to determine whether some aspect of a technical limitation is a "meaningful limitation[]."[105]

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[95] *See supra* Part III.A.

[96] *Smartflash*, 2015 WL 661174, at *8.

[97] *Id.*

[98] *See supra* Part III.B.

[99] *See Smartflash LLC*, 2015 WL 661174, at *9 n.1.

[100] *Id.* at *9.

[101] *See* Sachs, *supra* note 28.

[102] *Smartflash*, 2015 WL 661174, at *8 (internal quotation marks omitted).

[103] U.S. Patent No. 7,334,720 col. 18 l. 18–22 (filed Jan. 19, 2006).

[104] *Id.* at col. 6 l. 23–24.

[105] *Smartflash*, 2015 WL 661174, at *8. See also Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2124 (2014), where the Court held that "a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention" and, in using this holding, applied an entirely different patent doctrine and standard of review but nonetheless a far greater analysis that does not leave

In *Intellectual Ventures I LLC v. Capital One Bank*,[106] Intellectual Ventures owned a patent relating in general terms to budgeting.[107] The court held the claimed subject matter in the '137 patent ineligible under Section 101,[108] and the court would likely reach the same outcome under the proposed supplemental requirements. First, "[a]n idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension."[109] Here, the notion of budgeting, or more specifically, "utiliz[ing] user-selected pre-set limits on spending that are stored in a database that, when reached, communicates a notification to the user via a device,"[110] is under scrutiny. Again, recall that merely performing a function on a generic device cannot confer patent eligibility.[111] Thus, the remaining pre-set limits on spending, a database, and communications—all digitized—lack any physical dimension.

Second, the claim language itself must demonstrate the invention is calculated to *quantitatively improve* the examples provided in *Alice*.[112] However, the claim language presented does not contain any quantitative evidence of such an improvement.[113] Consequently, the patent should not be patent eligible under Section 101. But, even further, the patent specification did not provide any quantitative evidence[114] that could have been included in the claims themselves to show a sufficient transformation beyond the abstract. With so much left to prove and the fact that the claims capture a broad idea long-practiced that "'could still be [achieved] using a pencil and paper with a simple notification device,'"[115] the court correctly decided this case.

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interpretation of a claim's limitation alone to a judge's lacking skill, background, and understanding of complex technology.

[106] 792 F.3d 1363 (Fed. Cir. 2015).

[107] *Intellectual Ventures*, 792 F.3d at 1367.

[108] *Id.* at 1368.

[109] *See supra* Part III.A.

[110] *Intellectual Ventures*, 792 F.3d at 1367 (alteration in original) (citation omitted).

[111] Alice Corp. Pty. v. CLS Bank Int'l, 134 S. Ct. 2347, 2352 (2014).

[112] *See supra* Part III.B.

[113] *Intellectual Ventures*, 792 F.3d at 1367.

[114] *See* U.S. Patent No. 8,083,137 col. 1 l. 1–col. 9 l. 49 (filed May 26, 2009).

[115] *Intellectual Ventures*, 792 F.3d at 1368 (quoting CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1371 (Fed. Cir. 2011)). *But see* California Inst. of Tech. v. Hughes Commc'ns Inc., 59 F. Supp. 3d 974, 994 n.19 (C.D. Cal. 2014) ("Courts should not view software as abstract simply because it exists in an intangible form. It is as fruitless to say that a human could use pencil and paper to perform the same calculations as a computer, as it is to say that a human could use pencil and paper to write down the chemical structure of a DNA strand. In either case, any effort on the part of a human will only be a symbolic representation. The effort will not produce the same effect as executing a computer program or isolating a DNA strand.").

In another case, *Synopsys, Inc. v. Mentor Graphics Corp.*,[116] the three patents in suit "relate generally to the field of integrated circuit ('IC' or 'chip') design."[117] But, more specifically,

> [t]he . . . patents are directed to a form of EDA known as logic synthesis. In the subject field, logic synthesis is generally understood to mean the process of using a computer tool to interpret or synthesize a human designer's descriptions of the operations of the integrated circuit and then generating . . . the electronic circuit components . . . that perform those operations.[118]

As a result, the court in this situation held that the "patents lack the inventive concept necessary to transform a patent-ineligible abstract idea into a patent-eligible invention."[119] Applying the proposed supplemental requirements here would likely provide a similar outcome with the following rationale: First, "[a]n idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension."[120] In this instant, there is no physical element besides the implementing computer tool that is necessarily set aside.[121] Thus, the second step is needed, which requires evidence of a quantitative improvement in the claims.[122] However, as the claims are presently stated, there is no quantitative evidence in the language.[123] Consequently, the subject matter is rendered ineligible for patentability under Section 101 and the proposed supplemental requirements.

However, when filed in 1995,[124] the patent drafter(s) did not have the luxury of Section 101 guidance as provided today—particularly under *Alice*. Yet, this patent does contain a good footing, where if improved upon, would pass the proposed supplemental requirements and likely the subjective *Alice/Mayo* Test currently used. For example, the patent provides "only a knowledge of the desired operation of the resulting logic network is required to generate the logic network" as opposed to "the prior art methods that required at least a detailed knowledge of the characteristics and operations of complex logic elements such as high impedance drivers, level sensitive latches and edge sensitive flip-flops."[125] Such an improvement over the prior art would likely result in a calculable increase in efficiency and accuracy for the engineer or designer that could be inserted into the

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[116] Synopsys, Inc. v. Mentor Graphics Corp., 78 F. Supp. 3d 958, 960 (N.D. Cal. 2015).
[117] *Id.*
[118] *Id.* (internal quotation marks omitted).
[119] *Id.* at 966.
[120] *See supra* Part III.A.
[121] *See Synopsys*, 78 F. Supp. 3d at 960–61.
[122] *See supra* Part III.B.
[123] *See* U.S. Patent 5,530,841 col. 62 l. 60–col. 64 l. 63 (filed June 6, 1995).
[124] *Id.* at [22].
[125] *Id.* at col. 9 l. 31–38.

claims to constitute a quantitative improvement in compliance with the proposed supplemental requirements.[126] The next section discusses some potential alternative solutions to the prescribed *Alice/Mayo* Test and its proposed supplemental requirements.

D. Alternative Solutions

In *McRO, Inc. v. Naughty Dog, Inc.*,[127] the court engaged in an alternative analysis. It is implicit the court did not intend to provide a different approach based on its analysis.[128] However, it did just that, by extending *Alice's* reach, when the court required the claims to be analyzed in light of the prior art.[129] More pointedly, the court noted if the abstract subject matter is the novel part of the claim and the nonabstract subject matter lay only in the prior art, then the claim may still be directed to patent ineligible subject matter.[130] The court supports this approach by citing the Supreme Court's decision in *Alice* to "disregard[] the presence of a computer in the claim given 'the ubiquity of computers.'"[131] However, at no point in the *Alice* decision does the phrase "prior art" even exist.[132] Rather, *Alice* is concerned with preemption[133] of entire fields and long-standing practices well known or fundamental to the art.[134]

Contrary, prior art is much broader: "Prior art must be a reference of some type (i.e., a patent or a printed publication) or some type of knowledge or event (i.e., public knowledge, public use or a sale of a product) that demonstrates that the invention in question is not new."[135] So, to be precise, all fundamental building blocks constitute prior art, but not all prior art is considered a fundamental building block. For example, a fundamental economic practice like intermediated settlement[136] would constitute prior art. But not all prior art, such as a particular

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[126] *See supra* Part III.B.

[127] 49 F. Supp. 3d 669 (C.D. Cal. 2014).

[128] *See id.* at 679–80.

[129] *Id.*

[130] *Id.*

[131] *Id.* at 679 (quoting Alice Corp. Pty. v. CLS Bank Int'l, 134 S. Ct. 2347, 2358 (2014)).

[132] *See Alice*, 134 S. Ct. 2347, 2347–61.

[133] *Id.* at 2358 (noting it is "the pre-emption concern that undergirds our Section 101 jurisprudence").

[134] *Id.* at 2356.

[135] Gene Quinn, *The Impact of the America Invents Act on the Definition of Prior Art*, IPWATCHDOG (Oct. 3, 2012), http://www.ipwatchdog.com/2012/10/03/the-impact-of-the-america-invents-act-on-the-definition-of-prior-art/id=28453/ (on file with the Utah Law Review).

[136] *Alice*, 134 S. Ct. at 2356.

type of anonymous matching system,[137] would amount to a fundamental building block in economics.

In failing to make this distinction, the court in the instant case accidentally created an alternative approach to the prescribed test in *Alice*. This alternative approach appears to go beyond the mark intended in *Alice* and requires an extensive analysis into the prior art,[138] and one if used, should go beyond the few references admitted as prior art.[139] However, at that point, the analysis would encroach on the duties of a patent examiner assessing patentability[140] by requiring courts to participate in a redundant, rigorous analysis of prior art that is already beyond *Alice's* intended scope.[141] In short, this approach extends *Alice* too far and appears impractical if performed correctly. And in this case, it was not correctly performed due to the court's failure to analyze the prior art beyond what was submitted by the applicant.[142]

DDR Holdings provides another alternative solution to the *Alice* predicament. According to *DDR Holdings*, a patent applicant can use the specification as a sword to defend the patent by engaging in a "problem-solution approach to define what is 'new and useful.'"[143] This approach would entail pointing to the particulars of the specification that demonstrate a direct response to actual problems experienced by those in the field.[144] Alternatively, or in addition to the proposed supplemental requirements, the court could "provide the 101 analysis with an

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[137] *See* U.S. Patent No. 5,970,479, fig. 12 (filed May 28, 1993) (citing as prior art U.S. Patent No. 5,136,501 (filed May 26, 1989)).

[138] *See* McRO, Inc. v. Naughty Dog, Inc., 49 F. Supp. 3d 669, 677–84 (C.D. Cal. 2014).

[139] *See id.* at 682 ("One unintended consequence of Alice, and perhaps of this and other decisions to come, is an incentive for patent applicants to say as little as possible about the prior art in their applications.").

[140] *See* 37 C.F.R. § 1.104(a)(1) (2015) ("On taking up an application for examination or a patent in a reexamination proceeding, the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention.").

[141] *See* Synopsys, Inc. v. Mentor Graphics Corp., 78 F. Supp. 3d 958, 964 (N.D. Cal. 2015) (citing Cogent Med., Inc. v. Elsevier Inc., 70 F.Supp.3d 1058, 2014 WL 4966326, at *4, n.3 (N.D.Cal. Sept. 30, 2014) ("As one district court has noted, '[i]t is important to distinguish novelty and obviousness from the 'inventive feature' inquiry required by the Supreme Court in *Alice*.'"). *But cf.* Jason Rantanen & Ben Roxborough, *Guest Post: The Blurring of §§ 101 and 103—A Double-Edged Sword that Cuts the Other Way*, PATENTLYO (Oct. 6, 2015), http://patentlyo.com/patent/2015/10/blurring-%C2%A7%C2%A7-double.html [https://perma.cc/3A3A-9RSG] ("First . . . the Supreme Court and Federal Circuit have said that § 101 is facilitated by considerations analogous to those of § 103. Second, teaching away analysis should not be monopolized by § 103 . . . . Because teaching away analysis is transferable between different sections in the statute . . . .").

[142] *McRO,* 49 F. Supp. 3d at 677–84.

[143] Rantanen & Roxborough, *supra* note 141 (quoting 35 U.S.C. § 101 (2012)).

[144] Rantanen & Roxborough, *supra* note 141.

objective baseline [by] . . . defin[ing] who the skilled artisan is—and what she knew at the time of the invention."[145] Since many Section 101 cases are decided in the early stages of procedure, plaintiffs are often precluded from providing evidence regarding the skilled artisan,[146] which is arguably prejudicial to the plaintiff's case: "To guard against early Rule 12(b)(6) motions, the skilled artisan's background should be described in the complaint (or even the patent itself)."[147]

In another test, "sometimes referred to as the Blue Pencil Rule, [the test] conceptually removes all non-statutory elements of the claim. The examination would then proceed with this purified form of the claim."[148] In other words, "no matter how novel the combination of non-statutory elements is, the proposed test will never reconsider an element once it is removed."[149] Other solutions may be more dramatic. For example, one author calls for the complete abandonment of the abstract idea itself in order to resolve the *Alice* mess.[150] Or perhaps, part of the solution lay in plain view of Section 101 history, specifically, "[t]he machine-or-transformation test [that] once was the gatekeeper of patent eligibility . . . ."[151] "The two prongs of the machine-or-transformation test are whether the claimed process (1) is tied to a particular machine or apparatus, or (2) transforms a particular article into a different state or thing."[152] The machine-or-transformation test was greatly diminished when the Supreme Court stated in *Bilksi* that it was not to be the sole test for assessing patentability.[153] However, a post-*Alice* decision by the Federal Circuit recently brought the machine-or-transformation test back to life

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[145] Rantanen & Roxborough, *supra* note 141.

[146] Rantanen & Roxborough, *supra* note 141.

[147] Rantanen & Roxborough, *supra* note 141.

[148] Kelly Fermoyle, *Adapting* Alice*: How to Formulate a Repeatable Test Based on* Alice v. CLS Bank, 6 CYBARIS INTELL. PROP. L. REV. 201, 233 (2015) (internal quotations omitted).

[149] *Id.*

[150] Annal D. Vyas, *Alice in Wonderland v. CLS Bank: The Supreme Court's Fantastic Adventure into Section 101 Abstract Idea Jurisprudence*, 9 AKRON INTELL. PROP. J. 1, 17–18 (2015); *cf.* Ryan Davis, *Kappos Calls for Abolition of Section 101 of Patent Act*, LAW 360 (Apr. 12, 2016, 4:32 PM), http://www.law360.com/articles/783604/kappos-calls-for-abolition-of-section-101-of-patent-act [https://perma.cc/3ZGZ-9DU4] ("The former director of the U.S. Patent and Trademark Office on Monday called for the abolition of Section 101 of the Patent Act, which sets limits on patent-eligible subject matter, saying decisions like Alice on the issue are a 'real mess' and threaten patent protection for key U.S. industries.").

[151] Justin M. Sobaje, *Has the Machine-or-Transformation Test Returned to Prominence in Patent Cases?*, IP LITIGATION CURRENT (Jan. 29, 2015), https://www.iplitigationcurrent.com/2015/01/29/has-the-machine-or-transformation-test-returned-to-prominence-in-patent-cases/ [https://perma.cc/Q3RE-QAPV].

[152] *Id.* (citing Ultramercial, Inc. v. Hulu, LLC, 772 F.3d 709, 716–17 (Fed. Cir. 2014)).

[153] *Id.*

by showing the "test can provide a 'useful clue' in the second step of the *Alice* framework."[154]

In *Ultramercial, Inc. v. Hulu, LLC*, the patent in suit is "directed to a method for distributing copyrighted media products over the Internet where the consumer receives a copyrighted media product at no cost in exchange for viewing an advertisement, and the advertiser pays for the copyrighted content."[155] The court held that the subject matter was not patent eligible under Section 101 because the individual steps were routine and conventional and thus could not transform the abstract idea.[156] However, the court did not stop here. The court further engaged in the machine-or-transformation test.[157]

Under the first prong of the test, the court stated that the claims "are not tied to any particular novel machine or apparatus, only a general purpose computer."[158] The rationale was simple: The ubiquitous nature of the computer and mere inclusion of the Internet is not enough to confer patentability.[159] Under the second prong of the test, the transformation prong was not satisfied because the "manipulations of 'public or private legal obligations or relationships, business risks, or other such abstractions . . . are not physical objects or substances, and they are not representative of physical objects or substances.'"[160] Though an abrupt reversion to the old machine-or-transformation test would likely be insufficient to determine patentability,[161] the machine-or-transformation test could provide another solid factor in addition to the proposed supplemental requirements for assessing patentability issues.

E. Granted Patent Applications: Two Case Studies

VMware, a global leader in cloud infrastructure and business services, recently applied for a patent entitled: "Identifying Code That Exhibits Ideal Logging Behavior."[162] A quick analysis under the proposed supplemental

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[154] *See Ultramercial*, 772 F.3d at 716 (quoting Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.), 687 F.3d 1266, 1278 (Fed. Cir. 2012)).

[155] *Id.* at 712.

[156] *Id.* at 715–16.

[157] *Id.* at 716–17.

[158] *Id.* at 716.

[159] *Id.* at 716–17 (citing CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1370 (Fed. Cir. 2011); Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347, 2357 (2014)).

[160] *Ultramercial*, 772 F.3d at 717 (quoting *In re* Bilski, 545 F.3d 943, 963 (Fed. Cir. 2008)).

[161] *See* Bilski v. Kappos, 561 U.S. 593, 604 (2010).

[162] U.S. Patent Application No. 14/458,303 (filed Aug. 13, 2014), http://portal.uspto.gov/pair/PublicPair (enter the verification code seen in the image into the blank field, and click continue; then with the "Application Number" bubble selected, type in the application number without any punctuation or slashes; then click the search button; the title then

requirements, show in effect, the original claims are directed to the abstract idea of analyzing, assigning, and ranking methods.[163] As such, the claims do not include or rely on any tangible element of some physical dimension.[164] Likewise, the claims do not include evidence of a quantitative improvement to demonstrate a sufficient transformation beyond the abstract.[165] So, how exactly did VMware overcome the patent examiner's Section 101 rejection that issued in the first office action?[166] First, VMware argued that the claims are not directed to an abstract idea, but more specifically that the claims were not directed to organizing human activity or a mathematical relationship as the office action alleged.[167] In support of this argument, VMware asserted that methods inside source code are operations executed by computers, which can, for example, "contain log statements that cause the computer to print information in a log file during the execution of the method."[168] Notwithstanding the fact that source code was written by a human, these are computer operations, and thus the claims "cannot possibly be considered [as organizing] 'human activities.'"[169] Similarly, VMware argued that the claims cannot be directed to a mathematical relationship because representative "[c]laim 1 does not contain any mathematical equation with variables or formulas."[170]

Second, VMware argued that even if the claims were directed to an abstract idea, the amended claims add meaningful limitations that would transform the

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appears next to the application number above the row of tabs and above all the application data).

[163] U.S. Patent Application No. 14/458,303 (filed Aug. 13, 2014) [hereinafter USPA No. 14/458,303], http://portal.uspto.gov/pair/PublicPair (enter the verification code seen in the image into the blank field, and click continue; then with the "Application Number" bubble selected, type in the application number without any punctuation or slashes; then click the search button; then click the tab "Image File Wrapper"; then click or download the desired document, in this case the original "Claims" document filed 08-13-2014).

[164] *See* USPA No. 14/458,303, *supra* note 163.

[165] *See* USPA No. 14/458,303, *supra* note 163.

[166] USPA No. 14/458,303, *supra* note 163, at "Non-Final Rejection" document filed 06-01-2015, 3–4.

[167] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 9–10. Note that the USPTO in their guidance materials to examiners developed four categories within the abstract ideas realm: (1) fundamental economic practices, (2) certain methods of organizing human activity, (3) an idea of itself, and (4) mathematical relationships/formulas. U.S. PATENT & TRADEMARK OFFICE, JULY 2015 UPDATE: SUBJECT MATTER ELIGIBILITY 4–5 (2015), http://www.uspto.gov/sites/default/files/documents/ieg-july-2015-update.pdf [https://perma.cc/U2A8-FB3Z].

[168] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 9.

[169] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 9.

[170] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 10.

claims into patent-eligible subject matter.[171] To start, "[t]he claims recite many components which are not part of a generic computer," including a processor for processing the source code and a static cell graph data structure containing elements that would not be found in any generic computer.[172] Additionally, the narrowing limitations provided by the amendments insert the claims into a niche not covering any abstract idea.[173] Based on these arguments, VMware overcame the Section 101 rejection and was awarded the patent.[174]

In another patent application, this time assigned to eBay, "the invention is directed to a method of converting 'unstructured' text into 'structured' text in the context of an online marketplace for selling goods."[175] The examiner rejected the claims as a fundamental economic practice: selling items without significantly more than a generic implementation.[176] And as with the previous case study, the claims do not include or rely on any tangible element of some physical dimension nor do the claims include evidence of a quantitative improvement to demonstrate a sufficient transformation beyond the abstract.[177] However, eBay successfully responded to the Section 101 rejection in three parts. First, eBay argued the claims are not directed to an abstract idea (i.e., selling items).[178] In support, eBay argued the claims are directed to "extracting textual semantics and utilizing textual semantics" as indicated by the title, the "TECHNICAL FIELD" section in the specification, and the specification itself.[179] The words "selling" and "items," individually or combined, are not found in either the title or TECHNICAL FIELD

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[171] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 10.

[172] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 10.

[173] USPA No. 14/458,303, *supra* note 163, at "Applicant Arguments/Remarks Made in an Amendment" document filed 08-31-2015, 10.

[174] *See* USPA No. 14/458,303, *supra* note 163, at "Notice of Allowance and Fees Due (PTOL-85)" document filed 12-08-2015.

[175] Ryan M. Corbett, *Overcoming Section 101 Rejections: A Case Study*, INSIDE COUNSEL (May 13, 2015), http://www.insidecounsel.com/2015/05/13/overcoming-section-101-rejections-a-case-study [https://perma.cc/PSM5-FYDH].

[176] *Id.*

[177] *See* U.S. Patent Application No. 12/938,592 (filed Nov. 3, 2010) [hereinafter USPA No. 12/938,592], http://portal.uspto.gov/pair/PublicPair (enter the verification code seen in the image into the blank field, and click continue; then with the "Application Number" bubble selected, type in the application number without any separating punctuation or slashes; then click the search button; then click the tab "Image File Wrapper"; then click or download the desired document, in this case the "Claims" document filed 07-21-2014, upon which the Section 101 rejection was subsequently given).

[178] USPA No. 12/938,592, *supra* note 177 at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 13–15.

[179] USPA No. 12/938,592, *supra* note 177, at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 13.

section in the specification.[180] And though these words are present in other parts of the specification, eBay demonstrated that the patent application provides a solution to the problem of unstructured text.[181] At the crux of the argument, eBay demonstrates that the problem of unstructured text also exists in noncommercial environments, which contradicts the examiner's conclusory determination that the claims are directed to selling items.[182]

Second, eBay attacks the examiner's procedural approach.[183] To show a lack of adherence to procedure, eBay: (1) requested the examiner to identify what claim language describes "selling items"; (2) distinguished the analysis in *Alice* and *Bilski* from the examiner's analysis; and (3) cast doubt on "selling items" as a *fundamental* economic practice.[184] Third and finally, eBay argued in the alternative that there are limitations in the claims, without amendment and with amendment, that add significantly more than the alleged abstract idea.[185] Among other specific arguments tailored to the limitations provided, eBay analogizes to *DDR Holdings* and *Dier*; *DDR Holdings* to show the claims are not covering routine or conventional use of the Internet; and *Dier* to show the claimed transformation from unstructured text to structured text is patentable subject matter.[186] After subsequent consideration by the examiner, the claims were allowed.[187] In hindsight, a takeaway from this patent application might include "focusing on the technological problem solved by the invention, drafting claims so as to not recite a judicial exception, and perhaps piggybacking off of allowable claim limitations . . . to overcome Section 101 rejections."[188]

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[180] USPA No. 12/938,592, *supra* note 177, at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 13–14.

[181] USPA No. 12/938,592, *supra* note 177, at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 14.

[182] USPA No. 12/938,592, *supra* note 177 at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 15. eBay accomplishes this objective by a clever example that articulates the same difficulty arising from unstructured text in an entirely noncommercial environment, namely identifying qualified recipients for donor body parts. *Id.*

[183] USPA No. 12/938,592, *supra* note 177, at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 16.

[184] USPA No. 12/938,592, *supra* note 177 at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 16–17.

[185] USPA No. 12/938,592, *supra* note 177 at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 18–23.

[186] USPA No. 12/938,592, *supra* note 177 at the "Applicant Arguments/Remarks Made in an Amendment" document filed 02-02-2015, 18–23.

[187] USPA No. 12/938,592, *supra* note 177, at the "Notice of Allowance and Fees Due (PTOL-85)" document filed 2-27-2015.

[188] Corbett, *supra* note 175.

IV. CONCLUSION

In short, the two-step analysis in *Mayo* is insufficient to objectively analyze and make consistent determinations on patent eligibility.[189] The effects of *Alice* are prime exhibits of this conclusion. Uncertainty and confusion in the realm of patents and software technology have risen to such a level that there is a telling impact on the economy and perhaps far greater devastation to the economy on the horizon.[190] At the same time, the patent prosecution process has become increasingly expensive and difficult for both the client and drafting attorney provided the sheer number of Section 101 rejections that are challenging to overcome.[191] Consequently, this Note contends that two supplemental requirements would assist in remedying the *Alice* predicament.

To start, the Court in *Alice* should have created a meaningful definition of abstract to supplement the first prong in the *Mayo* test as opposed to solely using case analogy.[192] For instance, an idea is abstract if it necessarily includes or relies on an intangible element of no physical dimension.[193] This definition approach in the future will greatly reduce the subjectivity that is typical of comparative analysis between inventions with subtle yet significant differences.[194] Under step two of the *Mayo* test, *Alice's* examples of transformations beyond the abstract should be modified with terms that demonstrate a *calculated and quantifiable improvement* to the examples.[195] This supplemental language should be inserted into the claim language itself, which will ensure that the patent applicant has demonstrated a true basis for going beyond the abstract.[196] At the same time, this language will remove a great deal of subjectivity in the patent eligibility analysis.[197] These two supplemental requirements to the first and second prong of the *Mayo* test are not comprehensive, but both provide a better foothold going forward in an age when technology is becoming more and more abstract.[198]

If these proposed supplemental requirements are not implemented, other analytical methods in their various forms may provide alternative solutions to the *Alice* predicament.[199] One method requires the claims to be analyzed in light of the prior art, and other methods simply strike out from the claims what is abstract subject matter.[200] There is the problem-solution approach as well as the age-old

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[189] *See supra* Parts III.A–B; *supra* notes 5, 55, 64 and accompanying text.
[190] *See supra* Part II.C.
[191] *See supra* Part II.C.
[192] *See supra* Part III.A; *supra* notes 5, 55 and accompanying text.
[193] *See supra* notes 55–56 and accompanying text.
[194] *See supra* note 64 and accompanying text.
[195] *See supra* Part III.B.
[196] *See supra* Part III.B.; *see supra* note 79 and accompanying text.
[197] *See supra* Part III.B.
[198] *See supra* Parts III.A–B.
[199] *See supra* Part III.D.
[200] *See supra* Part III.D.

machine-or-transformation test.[201] Other approaches call for the complete abandonment of the *Alice/Mayo* Test.[202] Though there might not be a definitive solution, other solutions are certainly out there. And a mixing and matching of the factors historically used, ones now relied upon, and others of sound judgment may provide the best solution yet.

[201] *See supra* Part III.D.
[202] *See supra* Part III.D.