

# The USPTO's Initiative to Improve the Quality of Examination for Patentable Subject Matter Eligibility

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## I. Introduction

35 U.S.C. § 101 states that a patent may be obtained for any “process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” Earlier cases recognized the four statutory categories as broad, covering “anything under the sun made by man.” *Diamond v. Charkrabarty*, 447 U.S. 303, 309 (1980). Three exceptions to the statutory categories are laws of nature, natural phenomenon, and abstract ideas. Without a bright light definition of the exceptions, the patent world has and continues to struggle. First, there was *Benson*, where the “machine-or-transformation test” was first introduced. *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972). Then came *Flook*, where the court adopted a “mathematical algorithm test” and analogized a mathematical algorithm to a law of nature. *Parker v. Flook*, 437 U.S. 584, 594 (1978). Eight years later, the *Diehr* court criticized the methodology of *Flook* and repeated its earlier holding that mathematical formulas are abstract and ineligible for patent protection. *Diamond v. Diehr*, 450 U.S. 175, 175-76 (1981). Several years passed until the issue of abstract ideas was revived in *Bilski*. See *Bilski v. Kappos*, 561 U.S. 593 (2010). Although the *Bilski* court rejected the machine-or-transformation test as being the sole test, the court left the patent world still confused by not setting forth any particular test for identifying an abstract idea. *Id.*

Following *Bilski* came the § 101 storm of over 30 cases regarding subject matter eligibility, where the court invalidated some or all of the claims in about 85% of the cases. In *Mayo*, the court invalidated claims directed to methods for treating autoimmune diseases. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1302 (2012). The court held that the steps of “administering” and “determining” were nothing more than “well-understood,

routine, conventional activit[ies]” that added nothing to the laws of nature. *Id.* at 1291. In analyzing the claims, the *Mayo* court introduced the “inventive concept” requirement. *Id.* Other cases dealt with other exceptions to the statutory categories, such as abstract ideas in *Alice*. See *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014). Starting with *Mayo* and with heightened pressure from *Alice*, the USPTO began its efforts to improve the examination quality for subject matter eligibility.

This article will analyze the improvements the USPTO has made thus far towards enhanced examination quality. Part II of the article provides a detailed discussion of the USPTO’s Guidances and Memorandums. A case study comparing the qualitative effect the USPTO’s Guidance and Memorandums on patent examination is presented. Part III of the article illustrates the quantitative effect. Part IV of the article provides a brief conclusion of the positive improvements in the examination quality along with a few considerations for further improvements.

## **II. The USPTO’s Guidances and Memorandums**

On June 25, 2014, the USPTO issued its 2014 Guidance for Subject Matter Eligibility Analysis of Claims. The 2014 Guidance was issued a short number of days after the Supreme Court decided that claims directed to a computer-implemented escrow service were invalid because of being drawn to an abstract idea. *Id.* at 2350. Implementation of the claims on a “generic computer implementation” was not enough to transform the idea into patentable subject matter. *Id.* On December 16, 2014, the USPTO issued its 2014 Interim Guidance on Subject Matter Eligibility supplementing its initial 2014 Guidance with a two-step framework, resembling the tests in *Alice* and *Mayo*. In response to feedback and comments from the public, the USPTO issued a 2015 Update along with subject matter eligibility examples for abstract

ideas. In the spring of 2016, the USPTO issued several memorandums: the 2016 Memorandum on formulating a subject matter eligibility rejection and evaluating the applicant's response to a subject matter eligibility rejection, subject matter eligibility examples in the life sciences, and memorandums responsive to *Enfish, LLC v. Microsoft Corp.*, *In re TLI Commc'ns LLC Patent Litig.*, *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, *McRO, Inc. dba Planet Blue v. Bandai Namco Games America Inc.*, and *BASCOM Global Internet Services v. AT&T Mobility LLC*.

This section will elaborate on the USPTO Guidances and Memorandums for patent Examiners. The changes in quality of the Office Action rejections of the same Examiner are reviewed. Following another Examiner with the same percent allowance rate, the improvement in the quality of patented claims is discussed.

#### **a. The 2014 Guidances**

Once the Examiner has reviewed the application and determined the broadest reasonable interpretation of the claims, step 1 includes determining whether the claim is directed to a process, machine, manufacture, or composition of matter. This step is the same as explained in MPEP 2106(I).

Step 2 accurately reflects the two-part test provided in *Mayo* and *Alice*. *Mayo*, 132 S. Ct. at 1303; *Alice*, 134 S. Ct. at 2350. Step 2A asks whether the claim is directed to a judicially recognized exception (*i.e.*, laws of nature, natural phenomenon, or abstract idea). Concepts that fall under "law of nature" and "natural phenomena" are broken down into: (1) naturally occurring principles, (2) naturally occurring substances, and (3) substances that do not have markedly different characteristics compared to what occurs in nature. The 2014 Guidance provides a few examples of what constitutes a law of nature or natural phenomena such as

isolated DNA and electromagnetism to transmit signals. Concepts that fall under “abstract ideas” are broken down into: (1) fundamental economic practices, (2) certain methods of organizing human activities, (3) ideas themselves, and (4) mathematical relationships/formulas. The 2014 Guidance also provides a few examples of what constitutes an abstract idea such as mitigating settlement risk, hedging, and creating a contractual relationship.

Once the judicial exception is identified, step 2B asks, in analyzing each claim as a whole, whether any element or the combination of elements “amount to significantly more than the judicial exception.” The 2014 Interim Guidance refers to Supreme Court considerations in determining whether the claims amount to “significantly more.” Exemplary considerations include improvements to another technology or technical field and improvements to the functioning of the computer itself as discussed in *Alice*. *Id.* at 2351. The 2014 Interim Guidance highlights:

It is important to consider the claim as a whole. Individual elements viewed on their own may not appear to add significantly more to the claim, but when combined may amount to significantly more than the exception.

These statements appear to be consistent with *Diehr*. *Diehr*, 450 U.S. at 176.

The USPTO also provided a 2014 Interim Eligibility Guidance Quick Reference Sheet to Examiners. Following a discussion of the § 101 analysis framework, the Quick Reference Sheet included form paragraphs for two possible rejections. For example, the form paragraph for the second rejection is stated as:

The claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim(s) [1] is/are directed to [2]. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because [3].

Following the form paragraph are the following notes:

(3) In bracket 1, identify the claim or claims that recite the judicial exception.

(4) In bracket 2, identify the exception by referring to how it is recited (set forth or described) in the claim and explain why it is considered an exception.

...

(5) In bracket 3, identify the additional elements and explain why, when considered separately and in combination, they do not add significantly more to the exception. For example, if the claim is directed to an abstract idea without additional generic computer elements explain that the generically recited computer elements do not add a meaningful limitation to the abstract idea because they would be routine in any computer implementation ...

The 2014 Quick Reference seemed effective; Examiners began using the form paragraph in § 101 rejections. However, the Examiners were not doing much, if at all, more. For example, here is an excerpt from an Office Action that issued after the 2014 Guidance, but before the 2015 Guidance:

Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed the claimed invention is directed to non-statutory subject matter because the claims as a whole, considering all claim elements both individually and in combination, do not amount to significantly more than an abstract idea. Claims **1-20** are determined to be directed to the abstract idea of a mathematical relationship or formula. The additional elements or combination of elements in the claims other than the abstract idea per se amount to no more than mere instructions to implement the idea on a computer and/or a recitation of generic computer structure that serves to perform generic computer functions that are well-understood, routine and conventional activities previously known to the pertinent industry. Viewed as a whole, these additional claim elements do not provide meaningful limitations to transform the abstract idea into a patent eligible application of the abstract idea such that the claims amount to significantly more than the abstract idea itself. Therefore, the claims are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. The rationale for this determination is explained below: The claims are directed to the use of “the use of a linear programming which is a mathematical method for optimizing a solution to an equation given a set of constraints” using a generic computer system. See Supreme Court Decision Alice Corporation Pty. Ltd. v. CLS Bank International et al. (“Alice Corp”).

*See* U.S. Patent Application No. 13/673,347 Office Action (filed July 16, 2014).

Although the rejection identifies the judicial exception of an “abstract idea of a mathematical relationship or formula,” the rejection failed to refer to how the exception is recited in the claim or explain why the claim or the elements of a claim are considered an abstract idea. Furthermore, although claim 1, for example, recites a “Mixed-Integer Linear Program (MILP),”

the rejection fails to identify any additional elements and fails provide any explanation as to why the additional elements do not add significantly more to the exception. Instead, the rejection states “[t]he claims are directed to the use of ‘the use of a linear programming which is a mathematical method for optimizing a solution to an equation given a set of constraints’ using a generic computer system” – a rationale that appears to be a categorization or generalization of linear programming as a mathematical method that amounts to nothing more. While the rejection cites *Alice*, there is nothing in *Alice* discussing linear programming, so it is a bit unclear what the Examiner is quoting.

**b. The 2015 Updated Guidance to Examiners**

After the 2014 Guidance, the USPTO received over 60 comments from the public. In response to the public comments (*e.g.*, requesting additional examples for claims directed to abstract ideas and laws of nature), the 2015 Update gave further guidance and explanation to Examiners. The 2015 Update emphasized the importance of considering the additional elements both individually and in combination for determining whether the claim amounts to “significantly more.” In providing guidance for Step 2A of the two-part test, the USPTO provided an Interim Eligibility Guidance Quick Reference Sheet listing various concepts considered to be an abstract idea. In providing guidance for Step 2B of the two-part test, the USPTO also provided additional examples of hypothetical claims directed to both subject matter eligible and subject matter ineligible claims. These examples include claims having certain elements that transformed the claim into patent-eligible subject matter.

Comparing § 101 rejections from the same Examiner, the look to the rejection definitely changed (compared to the rejections issued before the 2015 Update). *See* U.S. Patent

Application No. 13/959,490 Office Action (filed Dec. 15, 2015). Now with a section titled “JUDICIAL EXCEPTIONS TO SECTION 101,” over two pages of the Office Action are filed with boilerplate discussion about *Alice*, *Mayo*, and short statements about the differences in USPTO guidance. *Id.* The boilerplate discussion laid out the “ALICE V. CLS BANK: TWO-PART ANALYSIS” and provided bullet point lists of examples from the 2015 Update. *Id.* Here is an excerpt from the Office Action, issued from the same Examiner after the 2015 Update, but before the 2016 Memorandum:

**Part 1:** Applicant’s claimed invention, as described in independent method Claim 21 is a process claim and therefore statutory.

**Part 2:** However, Claim 21 is directed to an abstract idea namely the process of transmitting a request to a data usage plug in which has been downloaded to a user device. The response to the request is a message regarding the amount of data usage for some portion of a time period by the user’s device. A future billing estimate is determined based on the past usage data and is presented to a network application. Therefore, the process of transmitting a message (requesting data) and providing a response to the message are functions typically performed by communication devices. Furthermore, there is no improvement to another technology, there are no improvements to the functioning of the generic computerized communication devices and the additional claims elements do not amount to significantly more than the abstract idea.

*Id.*

The rejection’s “Part 1” coincides with what the USPTO has been calling “Step 1,” and “Part 2” coincides with the two-part test that the USPTO has been calling “Step 2.” The Office Action provides a short paraphrase of the independent claim along with a conclusory statement that the claim is directed to an abstract idea.

The section titled “Identifying Abstract Ideas in Step 2A” of the Interim Guidance Quick Reference Sheet states “[T]his information is meant to guide Examiners and ensure that a claimed concept is not identified as an abstract idea unless it is similar to at least one concept that the courts have identified as an abstract idea.” While categorizations of “An Idea ‘Of Itself’” in

the 2015 Update may have been helpful to some Examiners, this Examiner did not identify whether the subject matter of the claims were similar to one of the concepts listed in the table (e.g., “[C]ollecting and comparing known information” and/or “[O]btaining and comparing intangible data”). Assuming that the Examiner consulted the table, providing such information in the form of at least one sentence to the Applicant should not have imposed a great burden on the Examiner, but could have been very helpful to the Applicants (and others).

Part 2 also proceeds with the rationale that the claim limitations are “functions typically performed by communication devices” without “amount[ing] to significantly more than the abstract idea.” *Id.* Without further explanation, it appears that the Examiner merely categorized the steps “transmitting,” “requesting,” and “providing [a response]” as conventional, well-understood, and routinely performed by a general purpose computer. While somewhat consistent with *Mayo*, some cases later explicitly discouraged overgeneralization or oversimplification of the claims. *See In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016).

### **c. The 2016 Memorandum: Formulating a Subject Matter Eligibility Rejection**

The USPTO received over 37 comments from the public after the 2015 Update issued. One part of the 2016 Memorandum detailed how to formulate a subject matter eligibility rejection. The 2016 Memorandum emphasized sub-steps that the Examiner should take, analyzing each sub-step with a level of specificity. For example, when Step 2A results in identifying an abstract idea, the rejection “should identify the abstract idea as it is recited (*i.e.*, set forth or described) in the claim, and explain why it corresponds to a concept that the courts have identified as an abstract idea.” In Step 2B, the Memorandum states:

When making a rejection, it is important for the Examiner to explain the rationale underlying his or her conclusion so that applicant can effectively respond... See the *Interim Eligibility Guidance* for a listing of considerations that courts have found to qualify, and to not qualify, as significantly more than an exception. For example,



when the Examiner has concluded that particular claim limitations are well-understood, routine, conventional activities (or elements) to those in the relevant field, the rejection should explain why the courts have recognized, or those in the relevant field of art would recognize, those claim limitations as being well-understood, routine, conventional activities.

The Office Actions issued shortly after the 2016 Memorandum included the same boilerplate discussion from the Office Actions issued shortly after the 2015 Update. *See* U.S. Patent Application No. 13/920,856 Office Action (filed June 16, 2016). Additionally, the Examiner's analysis and rationale for the § 101 rejection appear to have the same level of detail and seem to be given the same level of attention as before the 2016 Memorandum. *Id.* Here is an excerpt from the Office Action, issued from the same Examiner after the 2016 Memorandum:

**Part 1:** Applicant's claimed invention, as described in independent Claim 1 is a system comprising a memory and processor and therefore statutory.

**Part 2:** However, Claim 1 is directed to an abstract idea namely the process of storing data to a memory. A processor is further configured to apply a mathematical formula to compute a total score indicative of whether the organization will profit by using a financial product by determining "the average number of days that an organization's sales are outstanding," determining an organization's ability to pay for the financial product based on the profit margin of the organization, determining a bad debt ranking and applying a weighting factor to all the determined data to compute a total score. Therefore, the system which is performing the steps of computing a total score based on mathematical algorithm is typically performed by a generic processor which has been configured to perform the steps. Furthermore, there is no improvement to another technology, there are no improvement to the functioning of the generic computer and the additional claim elements do not amount to significantly more than the abstract idea.

*Id.*

Although the rejection includes slightly more detail, the rejection still lacks an explanation about why the Examiner considered the subject matter an abstract idea and why the court or one skilled in the art would recognize the claim limitations as being "typically performed by a generic processor."

#### **d. The 2016 Memorandum: Evaluating Responses to 101 Rejections**

Another part of the 2016 Memorandum gave guidance on how Examiners should evaluate an Applicant's response to a subject matter eligibility rejection and gave four examples of appropriate responses. For example, the "significantly more" step states:

If applicant amends a claim to add a generic computer or generic computer components and asserts that the claim recites significantly more because the generic computer is 'specially programmed' (as in *Alapat*, now considered superseded) or is a 'particular machine' (as in *Bilski*), the Examiner should look at whether the added elements provide significantly more than the judicial exception. Merely adding a generic computer, generic computer components, or a programmed computer to perform generic computer functions does not automatically overcome an eligibility rejection. *Alice Corp.*

In some instances, the § 101 rejection can be convincing enough to lead the Applicant to amending the claim. For example, in U.S. Patent No. 9,444,932, the claims before allowance were directed to a gaming system having a physical network, a gaming server, and a plurality of networked gamed machines, where each network gaming machine included a processor. Although the claims included structural components (*e.g.*, a physical network, a gaming server, and networked gaming machines), the Examiner nevertheless considered the claims to be drawn to an abstract idea. Here is an excerpt from the § 101 rejection:

Furthermore, the claims do not add anything of substance to said abstract idea. For instance, the claims recite networked gamed machines, a network management system, a gaming server, a configuration server, and a user interface for operating a process or logical operations for arranging a configuration of said networked gaming machines.

There are no limitations beyond a generic computer (*e.g.*, machines providing user input, software, and a management system) and therefore the generically-recited computer(s) in the claims adds nothing of substance for improving a computer or another technology.

*See* U.S. Patent Application No. 12/111,956 Office Action (filed Aug. 13, 2015).

In response to the rejection, the Applicant amended the claims to require each networking gamed machine to comprise at least one display device, a plurality of input device including an acceptor and a cashout button, at least one gaming machine processor, and at least one gaming machine memory device. The Applicant successfully argued that that the claimed invention “recites specialized technological hardware device that include meaningful limitations beyond simply linking the use of an abstract idea to a generic computer.” *See* U.S. Patent Application No. 12/111,956 Office Action response (filed November 13, 2015).

The Examiner’s responded to the applicant’s arguments with:

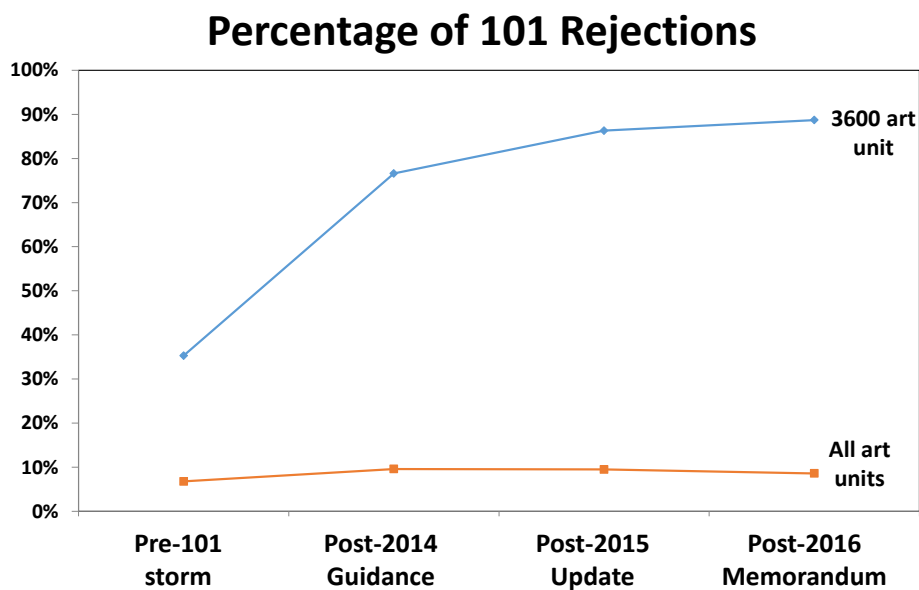
However, in Step 2B of the analysis, the “significantly more” comes from the claims being directed to an improvement in the underlying computer technology, wherein the claims are improving the operability of a networked gaming machine system by overcoming a problem that arises in data transfer wherein various gaming machines that are to receive a scheduled download cannot execute the download due to an incompatibility with said gaming machine and resolving the incompatibility, such that a user can further schedule a configuration assignment after incompatibility has been resolved and the download assignment is downloaded.

Thus, the claims are found to be patent eligible under 35 U.S.C. 101, not because of the addition of a plurality of input devices (i.e., an acceptor and a cashout button) as currently claimed, but because there are other limitations in the claim that show a patent-eligible application such that the claim amounts to significantly more, e.g., more than a mere instruction to apply an abstract idea.

*See* U.S. Patent Application No. 12/111,956 Notice of Allowance (filed December 8, 2015). As the 2016 Memorandum instructed, the Examiner should look at “whether the added elements provide significantly more than the judicial exception.” It appears that the Examiner did just what the 2016 Memorandum instructed; the Examiner withdrew the § 101 rejection and provided a satisfactory reason - the claims provided significantly more by improving the underlying computer technology. *Id.*

### **III. The Increasing Numbers In The 101 Rejections**

The number of § 101 rejections continues to increase with each USPTO issued guidance, especially for certain art units, such as the 3600 Business Methods art unit. The plot below shows (in blue) a drastic jump from about 35% of the number of § 101 rejections pre-§ 101 storm compared to about 90% post-§ 101 storm. Overall, however, the total percentage of § 101 rejections (shown in red) is unaffected by the § 101 storm.



Given the continued increase in § 101 rejections and the very high percentage – over 65% – of claims invalidated by the Patent Trial and Appeal Board, Federal Circuit, and District Court, the § 101 storm still has a looming presence.

#### **IV. Alignment of Patent Examination with the Courts**

A consistent theme in subject matter eligibility cases is the Court’s emphasis on the importance of preemption. *Benson*, 409 U.S. at 72-73 (“The mathematical formula involved here has no substantial practical application exception in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself.”); *Diehr*,

450 U.S. at 187 (“Their process admittedly employs a well-known mathematical equation, but they do not seek to preempt the use of that equation.”); *Bilski*, 130 S. Ct. at 3231 (“Allowing petitioners to patent risk hedging would preempt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.”); *Mayo*, 132 S. Ct. at 1294 (“They [Benson and Flook] warn us against upholding patents that claims processes that too broadly preempt the use of a natural law.”); *Alice*, 717 F. 3d at 1281 (“What matters is whether a claim threatens to subsume the full scope of a fundamental concept, and when those concerns arise, we must look for meaningful limitations that prevent the claim as a whole from covering the concept’s every practical application.”); and *McRo*, Fed. Cir 2016 (“The concern underlying the exceptions to § 101 is not tangibility, but preemption.”)

Recently, the USPTO attempted aligning their issued Guidance and Memorandums with the Courts. Seven days after the Federal Circuit ruled on *Enfish*, the USPTO issued a May 2016 Memorandum about identifying abstract ideas. Nine days after the Federal Circuit ruled in *Rapid Litigation Management* and seven days after the Supreme Court ruled in *Sequenom*, the USPTO issued a July 2016 Memorandum discussing the subject matter eligibility framework. The USPTO also issued another memorandum in November shortly after *McRo* and *Bascom*.

Although the percentage of § 101 rejections is increasing, the quality of patent examination appears to be headed in the right direction. For example, in U.S. Patent Application No. 12/111,956 (discussed in Section II.d), after the applicant’s addition of the “specialized technological hardware” limitations to the claims, the Examiner withdrew the rejection and ultimately allowed the application. The “improvement in the underlying computer technology” would likely not preempt abstract ideas tied to a general computer, whereas the claims before the amendment were susceptible to invalidity.

Overall, the USPTO is trying to align patent examination with the courts. For example, the Guidances and Memorandums follows the *Mayo* and *Alice* courts with the two-part framework; with several courts (*e.g.*, *buySAFE*, *Bilski*, *Alice*, *Ultramercial*, etc.) on concepts of fundamental economic practices, organizing human activity, an idea ‘of itself,’ mathematical relationships/formulas; the *Diehr* court with addressing claim elements both individually and in combination; and several cases (*e.g.*, *Sequenom*, *TLI Commc 'ns*, *McRO*) on preemption.

## **V. Conclusion**

The PTO is actively trying and incrementally succeeding in improving the quality of patent examination. Its recent November 2016 Memorandum stated that preemption would be addressed in more detail in the near future. Moreover, the recent November 2016 Memorandum briefly stated that Examiners should not overgeneralize claims or simplify claims into its core principles. Hopefully, in the near future, the USPTO will also address in more detail and provide guidance to Examiners on how to avoid overgeneralization.

There are also other areas of the § 101 storm that could help the patent world. For example, how can we ensure a more uniform examination quality? Would it be feasible and effective to designate specific Examiners as § 101 specialists while designating other Examiners as § 102 and § 103 specialists? While designating Examiners as specialists for different types of statutory rules may not be cost effective, the distinction could be effective in preventing Examiners from mixing the concepts of § 101 with § 102 and § 103. For example, although U.S. Patent Application No. 13/673,347 (discussed above in Section II.b) later was allowed as a patent, the Examiner’s rationale for withdrawing the § 101 rejection was “the combinations of limitations, clearly presenting in the claims of this application are novel, unobvious and

allowable.” *See* U.S. Patent Application No. 13/673,347 Notice of Allowance (dated Nov. 3, 2014).

One further consideration is the significantly higher hurdle some Applicants have for overcoming § 101 rejections and the fear of having invalid patent claims. After all, we still want to “promote the Progress of Science and useful Arts.” U.S. Const. art. I, § 8, cl. 8. The Applicants in U.S. Patent Application No. 13/959,490 (discussed above in Section III.b) and U.S. Patent Application No. 13/920,856 (discussed above in Section III.c) are still today trying to overcome the § 101 rejections. While the number of patent applications are increasing, the number of Applicants deterred from filing a patent application due to the § 101 storm is unknown.

Given how far away we are from the balance between patent claims that are wholly preemptive and patent claims that encourage innovations, we may be riding the § 101 storm for a bit while longer. Improvements have already been made to providing more clarity to the Examiners, and the quality of the patent examination continues to inch closer and closer. Until we get there, the patent world is eagerly waiting for the next USPTO issued memorandum and seeing what direction(s) the courts will go next.