

March 8, 2019

The Honorable Andrei Iancu
Under Secretary of Commerce for Intellectual Property and
Director of U.S. Patent and Trademark Office
U.S. Patent and Trademark Office
600 Dulany Street
Alexandria, VA 22314

Via email: Eligibility2019@uspto.gov and 112Guidance2019@uspto.gov.

Re: Comments of the High Tech Inventors Alliance on the 2019 Revised Patent Subject Matter Eligibility Guidance and Examining Computer-Implemented Functional Claim Limitations for Compliance With 35 U.S.C. 112

Dear Director Iancu:

The High Tech Inventors Alliance (HTIA) appreciates the opportunity to provide comments on the new guidance from the U.S. Patent and Trademark Office (“USPTO” or “Office”) regarding the application of Sections 101 and 112.¹ HTIA members are some of the most innovative technology companies in the world, creating the computer, software, semiconductor and communications products and services that support growth in every sector of the economy. We rely on a well-functioning patent system as they collectively invest over \$60 billion in R&D each year, generating technological advances protected by their more than 115,000 patents. HTIA companies also contribute significantly to employment and the U.S. economy, providing more than 1.2 million jobs and generating more than \$500 billion in annual revenues worldwide. HTIA’s mission is to promote balanced patent policies that promote innovation, R&D investment, and American jobs.²

HTIA commends the USPTO’s efforts to increase the consistency and predictability of the application of Sections 101 and 112 and supports significant aspects of the *Guidance*. While much of the *Guidance* represents an appropriate application and synthesis of the caselaw, some aspects require further clarification and explanation in order to achieve the goal of accurately distinguishing between claims that are patent eligible under governing precedents and those that are not. It is in the interest of both patent applicants and the public for the Office to make consistent and reliable eligibility determinations to ensure that patents are correctly granted and that the resulting rights are reliable.

To that end, this submission makes three main points and suggests minor changes to make the *Section 101 Guidance* more consistent with the caselaw: First, Section 101 plays a unique and critical role in the U.S. patent system that is not replicated by – and should not be conflated with – the role of Section 112. That role should be emphasized in both sets of guidelines. Second, while HTIA agrees that

¹ *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (hereinafter “*Section 101 Guidance*”) and *Examining Computer-Implemented Functional Claim Limitations for Compliance With 35 U.S.C. 112*, 84 Fed. Reg. 57 (Jan. 7, 2019) (hereinafter “*Section 112 Guidance*”).

² HTIA members include Adobe, Amazon, Cisco, Dell, Google, Intel, Oracle, and Salesforce. For more information, see <https://www.hightechinventors.com/>.

synthesizing the Section 101 jurisprudence into categories that can be more easily understood by examiners should improve consistency, the existing categories and definitions do not fully capture the case law. Relatively minor clarifications and expansion of these categories and definition are required to accurately reflect the governing caselaw. Third, the “practical application” concept introduced by the *Guidance* requires clarification if it is to achieve outcomes consistent with governing precedents.

Turning to the *Section 112 Guidance*, HTIA commends the USPTO for its clear and evenhanded summary of that section’s enablement requirement, particularly the rule that the full scope of a claim’s scope be enabled. HTIA also appreciates the discussion of the need for an adequate written description, but we respectfully suggest that additional emphasis should be placed on the requirement that an applicant show possession of the full scope of the claim and that examiners be encouraged to perform simple searches to ensure that terms in the claim can be found in the specification. Additionally, we recommend adding a brief discussion of step-plus-function claims noting that the principles discussed by the *Guidance* in the context of means-plus-function claims are, in general, equally applicable to step-plus-function claims.

Each of these points is discussed in more detail below.

1. Section 101 plays a unique role in the U.S. patent system that does not replicate – and should not be conflated with – the role of Section 112.

Section 101 plays the unique role of defining the subject matter that is eligible for patenting. As the Supreme Court has repeatedly held, Section 101 accomplishes this in part by adopting the four statutory categories of inventions and in part through its implicit exclusion of abstract ideas, laws of nature, and natural phenomena.³ These limitations on patent eligible subject matter are as old as the U.S. itself and are based on the Founders’ judgment that the patent system is neither intended nor well-equipped to address all types of subject matter across the entire spectrum of human endeavors. Rather, patents are specifically intended to encourage the advancement of *technology*.⁴

This limitation is closely tied to the language of the U.S. Constitution giving Congress the power to enact patent laws to promote the progress of the “useful Arts”⁵ and reflected in the text of the first U.S. patent act, which authorized patenting of advances in “any useful Art.”⁶ At the time of the Founding,

³ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012).

⁴ Contrary to the “everything under the sun made by man” misquotation that opponents to the traditional limitations of patentability often rely on, there was no intent by Congress to erase these limitations in the 1952 Patent Act (the legislative history of which is the source of the quoted phrase). The full sentence contained in the House Report reads: “A person may have ‘invented’ a machine or a manufacture, which may include anything under the sun that is made by man, but it is not necessarily patentable under section 101 unless the conditions of the title are fulfilled.” H.R. Rep. No. 82-1923, at 6 (emphasis added). Read in context, it is clear that the point of this sentence was to emphasize the need to satisfy the additional statutory conditions rather than to say anything about the scope of Section 101. Even if read out of context as expressing a view on the scope of patentable subject matter, it clearly does not say that business methods and other abstract ideas are statutory, but instead refers specifically to the eligibility of “machines and manufactures” (*i.e.*, physical articles) that may include anything “made by man” (*i.e.*, the physical materials and structures out of which they are made).

⁵ U.S. Const. art. I, § 8, cl. 8.

⁶ Ch. 7, 1 Stat. 109, 110 (1790). In fact, while the first U.S. patent law is often referred to as the Patent Act of 1790, it was actually entitled “An Act to promote the progress of useful Arts.” *Id.*

the term “useful arts” was used to refer to practical skills and methods of manufacture and meant generally the same thing as the term “technology” does today.⁷ It was used in U.S. law to distinguish the types of practical, concrete innovations that are subject to patenting (*i.e.*, technological advances in the “useful arts”) from the academic and conceptual advances that are not patentable (*i.e.*, new ideas, insights, and discoveries in the “liberal arts and “fine arts”). The Supreme Court has indicated that this distinction is not a merely a legal tradition, but instead limits Congress’s constitutional power to enact patent laws to the purpose of advancing the useful arts; any extension of patent protection beyond technological inventions would likely be unconstitutional.⁸

The long-standing rule against patenting abstract ideas – which was reaffirmed in *Mayo* and *Alice* – may be seen as a corollary to the useful arts limitation. It was reflected in the earliest U.S. patent law (which included references to “useful arts” in both its title and in the language used to define eligibility) subsequent Patent Acts through the current 1952 Patent Law.⁹ It has been consistently adhered to by the Supreme Court since at least 1852.¹⁰ Various terms, including “principles,” “concepts,” “ideas of themselves,” “abstract ideas,” “laws of nature,” and “physical phenomena,” have been used by the courts to describe ineligible subject matter. While the terms have varied over time and from case to case, the underlying meaning is consistent and seeks to capture the dichotomy between the “useful arts” and the types of academic knowledge pursued in the liberal arts. This rule prevents, for example, innovations in mathematics, novel sociological theories, new financial strategies, and original aesthetic creations (*e.g.*, musical compositions, paintings, and sculptures) from being patent eligible. While much that is both new and immensely valuable is created in fields falling within the liberal and fine arts, the traditional view – which is shared by virtually all countries across the globe – is that advances in the liberal and fine arts are more appropriately encouraged using copyrights and other incentives.¹¹ These advances in the liberal arts – ranging from innovative mathematical equations to new discoveries in the natural and social sciences – have been characterized by the Supreme Court as the “building blocks of human ingenuity” that must not be tied up by the grant of exclusive rights.¹²

⁷ See, *e.g.*, Karl B. Lutz, *Patents and Science: A Clarification of the Patent Clause of the U.S. Constitution*, 32 J. Pat. Off. Soc’y 83, 87 (1950). “Useful arts” originally referred to the practical skills and methods of manufacture and craftsmanship taught as vocational subjects (*i.e.*, ways of *making*) as distinct from “liberal arts” which were academic subjects taught for intellectual development (*i.e.*, ways of *thinking*).

⁸ See, *e.g.*, *Graham v. John Deere Co.*, 383 U.S. 1, 5 (1966) (suggesting the patent power is a “qualified authority . . . limited to the promotion of advances in the ‘useful arts’”). See also *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (similarly interpreting the “limited times” language in the IP clause as a constitutional constraint on Congress’s power).

⁹ See *Bilski v. Kappos*, 561 U. S. 593, 619 (2010) (Stevens, J., concurring) (noting that the exclusions of abstract ideas and laws of nature “are consistent with the notion that a patentable process must be ‘new and useful’”).

¹⁰ In the U.S., the rule dates back at least to *Le Roy v. Tatham*, 55 U.S. (14 How.) 156 (1852), which held that “[a] principle, in the abstract . . . cannot be patented.” The English precedents espousing this rule – some of which are cited as instructive by early U.S. decisions – extend back even further in time. See also *Rubber-Tip Pencil Co. v. Howard*, 20 Wall. 498, 507 (1874) (stating that “[a]n idea of itself is not patentable).

¹¹ Notably, the rule against granting exclusive rights to abstract ideas *per se* is so fundamental to U.S. intellectual property law that even copyright protection has been interpreted as being limited to a particular *expression* of an idea and not extending to the underlying idea itself.

¹² *Alice*, 134 S. Ct. 134 S. Ct. 2347, 2355 (2014) (internal citation omitted).

Moreover, courts have consistently described the concern driving the patent-eligibility analysis “as one of pre-emption.”¹³ Under this rubric, subject matter that is novel, non-obvious, and fully described and enabled, is nonetheless not patent-eligible. To extend patent protection to these areas would preempt the basic tools of scientific and technological work, thereby impeding, rather than promoting, the progress of science and the useful arts. A mathematician who, as in *Gottschalk v. Benson*, has truly invented a new algorithm, and fully described it and enabled others to practice it, nonetheless cannot patent his or her invention. The costs to society of granting a monopoly on math *per se* greatly exceed the benefits. But a machine using a novel algorithm to cure rubber, as in *Diamond v. Diehr*, is patent-eligible because the invention is a practical application of an algorithm and does not preempt uses of that algorithm in other fields.

In contrast to Section 101, Section 112 seeks to ensure that an inventor provides adequate disclosure to justify the grant of exclusive rights and that an inventor’s claims are limited to what was actually invented and in the possession of the applicant at the time of filing. An easy example demonstrates the difference between these statutory roles: the development of flash mobs, a phenomena that first happened in the early 2000’s was enabled by the development of the first the web and email and later social networks and the ubiquity of cell phones. Written descriptions of how to “build” and use a flash mob can be found on the Internet starting in about 2003.¹⁴ Yet, building a flash mob is clearly not patentable. Thus, only section 101, and not section 112’s enablement and written description requirements, that block the patenting of flash mobs and other excluded subject matter. This role of Section 101 is as unique as it is critical and should be preserved and emphasized in the *Guidance*.

2. HTIA supports the Office’s effort to synthesize the case law by enumerating general categories or groupings of abstract ideas in prong 1 of step 2A.

HTIA agrees with the Office that synthesizing the governing precedents into exemplary categories of excluded subject matter is an excellent response to the challenges presented by a growing body of eligibility case law. These general categories are likely to be more readily understood by examiners, and seem likely to improved consistency and predictability in eligibility determinations at the USPTO. The categories adopted in the *Guidance* generally reflect the claims that have been held ineligible in recent decisions and appear to capture most of the relevant precedents.

While HTIA supports the Office’s efforts in synthesizing the precedents, we would respectfully suggest that two sets of changes would bring the *Section 101 Guidance* into closer conformity with the caselaw. First, relatively minor clarifications of the existing categories and their descriptions are needed to make them more consistent with the governing precedents and, therefore promote consistency across the examining corps. Second, the *Guidance* should recognize more clearly that these “enumerated groupings” are exemplary rather than exhaustive by, for example, easing the restrictive circumstances under which the examining corps and Patent Trial and Appeals Board (PTAB) may conclude that a claim reciting non-technical subject matter that does not fall within the enumerated categories is ineligible.

¹³ *Id.* at 2354 (citing cases).

¹⁴ *Flash Mob Craze Spreads*, CNN (August 8, 2013) <http://www.cnn.com/2003/TECH/internet/08/04/flash.mob/>.

a. The existing enumerated groupings require minor clarifications to make them more consistent with the caselaw.

At least two of the three categories would benefit from clarification to bring them into closer conformity with the caselaw. Specifically, the first category – currently termed “mathematical concepts” – captures many, but not necessarily all, of the relevant precedents in this area. Multiple Federal Circuit decisions indicate that this category is not limited to mathematical concepts, but extends to logic, basic data operations and data manipulation more generally.¹⁵ Additionally, the precedents indicate that data *per se*, in addition to data operations, fall within the judicial exception for abstract ideas.¹⁶ As a result, HITA respectfully suggests this category be renamed to include “Data and Data Manipulation” and that the description be amended to more explicitly capture these cases. At a minimum, it would be helpful to clarify the description of the “mathematical concepts” category to reflect that it is intended to encompass all branches of mathematics (specifically including statistics and formal logic). It should also be clarified that it extends to basic mathematical and data operations (specifically including “processes of organizing information through mathematical correlations,” which are listed in footnote 12 of the *Guidance* but not currently well captured in the text describing the category). Similarly, minor clarifications would benefit the “certain methods of organizing human activity” category. Specifically, the description should include commercial and legal principles (as well as “interactions”) and financial principles and interactions (in addition to commercial and economic ones).

Finally, the USPTO should consider a process for quickly revising the *Section 101 Guidance* (and specifically the groupings and their descriptions) to reflect new court decisions and any Section 101 rejections by examiners falling outside the enumerated categories. For obvious reasons, it is important that the *Guidance* be rapidly amended to minimize the potential for issuance of invalid patents. That method should be just as consultative as the methodology implemented as was done here and elsewhere in recent PTO decision making.

b. USPTO should consider modifying the onerous approval requirements for rejecting a claim based on an abstract idea falling outside the enumerated categories.

In recognition of the fact that the “enumerated groupings” reflect recent caselaw rather than the Supreme Court’s rule against patenting abstract ideas itself and do not exhaustively describe *all* ineligible abstract ideas, the USPTO should consider easing the requirements contained in Section III.C. Requiring written approval by the Technology Center Director seems unnecessary and is likely to stifle any opportunity for the examining corps to further develop and refine what constitutes an “abstract idea.” As far as we are aware, no other type of rejection requires this high-level approval, and imposition of such an onerous procedure will be understood by examiners as a clear indication that USPTO leadership strongly disfavors any Section 101 rejection based on an abstract idea outside the three categories. Accordingly, the USPTO should consider easing this by requiring only approval of the examiner’s immediate supervisor (rather than the Technology Center Director).

¹⁵ See, e.g., *Content Extraction & Transmission v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) and *TLI Communications LLC v. AV Automotive LLC*, 823 F.3d 607, 613 (Fed. Cir. 2016); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

¹⁶ *Digitech Image Techs. v. Electronics for Imaging*, 758 F.3d 1344, 1348 (Fed. Cir. 2014) (holding that pure data is ineligible and that “[f]or all categories except process claims, the eligible subject matter must exist in some physical or tangible form”).

For similar reasons, USPTO should remove the requirement that PTAB panels submit a written request for clearance to Board leadership before concluding that a claim is invalid based on an abstract idea that is outside the enumerated categories. This approval requirement is even less justified for PTAB panels than for examiners. Unlike examiners, Administrative Patent Judges (APJs) have legal training, significant expertise derived from experience in legal practice, and are charged with reaching legal conclusions by applying the law to particular facts in the course of a proceeding. Accordingly, PTAB panels possess the training, knowledge, and expertise to correctly apply the caselaw itself (as opposed to the enumerated categories synthesizing the caselaw) on the facts of a particular case, making such an overly prescriptive clearance requirement both unnecessary and inappropriate. Also, unlike examiners (who have, until now, had the ability to issue a 101 rejection unilaterally), an eligibility determination by APJs requires agreement by a majority of the panel. These differences substantially reduce the risk of inconsistent or unfounded eligibility determinations by PTAB panels.

3. The *Guidance* should be clarified to give examiners a better understanding of how to apply the “practical application” standard in prong 2 of revised Step 2A consistent with governing caselaw.

As written, revised Step 2A of the *Guidance* directs examiners to analyze whether a judicial exception “is integrated into a practical application” of that exception. If such a “practical application” is found, this ends the eligibility inquiry and the claim is deemed to satisfy Section 101. While “practical application” is a key consideration under the current case law and captures much of what is necessary to establish eligibility, if the phrase is interpreted according to its normal meaning and usage it falls short of conveying the full eligibility standard under current law (especially as to the inventive concept requirement). To minimize the risk that claims failing to satisfy the inventive concept requirement will be deemed eligible at Step 2A and erroneously granted on that basis, the description of “integrated into a practical application” should be expanded and clarified. Without such clarification, we are concerned that some examiners might, for example, conclude that the claims involving intermediated settlement at issue in *Alice* constitutes a practical application of that fundamental financial practice. We recommend three changes to help to address this concern.

First, the *Guidance* should make clear to examiners that “integrated into a practical application” cannot be understood based on its ordinary meaning and that it is a term of art that must be understood according to the discussion in the *Guidance* (and particularly the case law as described in the categories of exemplary considerations listed in Section III.A).

Second, the *Guidance* should state clearly that the mere recitation of wholly conventional components arranged in a conventional way¹⁷ (such as generic computer components), or performance of a method or process by a such conventional components can never suffice to transform an abstract idea from any of the three categories into a patent eligible invention. This is the core holding of *Alice* and is critical to the proper examination of computer-implemented inventions. While this point is partially captured in footnote 14, it should be stated more clearly and prominently in the text of the *Guidance*, rather than in a footnote that addresses only the “mental processes” category. A clever draftsman should not be permitted to effectively monopolize an abstract idea through the recitation of a token claim limitation.

¹⁷ See *Amdocs (Israel), Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300 (Fed. Cir. 2016).

Third, the *Guidance* should instruct examiners that, as suggested in *Alice*, an improvement to the functioning of the computer itself is perhaps the most important indication that a claim satisfies the requirement of revised Step 2A.¹⁸ This should be emphasized in the text of the *Guidance*, along with a clarification that the application of an abstract idea must not only be “practical” but also that it must be technical.¹⁹ This explanation should be accompanied by examples based on fact patterns drawn from the caselaw to ensure that examiners understand how this factor is properly applied.

These changes are essential to ensuring that only those claims that would likely be held eligible under current law are deemed satisfy Section 101 at Step 2A without the benefit of the further analysis contained in Step 2B. While technological improvement (*i.e.*, improvement to the functioning of a computer or in some other field of technology) is not the only relevant criterion, it is clearly the preeminent consideration in the judicial decisions that have found computer-implemented inventions to be eligible in the wake of *Alice* as the result of a “practical application.” As such, this factor deserves much greater emphasis and a more detailed discussion in the text of the *Guidance*.

Finally, if the Office chooses to retain the approval requirements necessitating sign-off from a TC Director before finding a claim ineligible based on an abstract idea outside the enumerated categories, it should also consider including a parallel approval requirement before examiners conclude that a claim reflects an “integration into a practical application” based on factors that are not listed in the exemplary considerations enumerated in Section III.A.

4. HTIA commends the USPTO for its focus on the enablement and written description requirements and supports the new *Section 112 Guidance* relating to computer-implemented inventions.

HTIA commends the Office for its efforts to enhance the enforcement of the enablement and written description requirements embodied in Section 112. While we welcome improved application of Section 112, it is critical to recognize that this is not a substitute for careful enforcement of the patent eligibility standard. As discussed above, Section 101’s limitation to the “useful arts” is not replicated by either the enablement or the written description requirement, which relate to ensuring that an applicant accurately describes what was actually invented and that such disclosure is adequate to satisfy the patent bargain.²⁰ In the past, HTIA members have expressed concerns regarding inadequately rigorous application of Section 112’s requirements, particularly in the area of computer-implemented inventions, and we welcome the additional guidance the Office has provided to examiners. We are pleased with the renewed focus on Section 112 and support both the new *Guidance* and the accompanying examiner training.

In general, the *Section 112 Guidance* represents a clear, balanced, and accurate description of the relevant case law, especially with respect to enablement and functional claiming. However, HTIA would respectfully suggest that the *Guidance* would benefit from a more fulsome discussion of two aspects of Section 112’s requirements.

¹⁸ *Alice*, 134 S. Ct. at 2359. See also *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016); and *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314-16 (Fed. Cir. 2016).

¹⁹ *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (discussing “technical solution”). See also *Amdocs*, 841 F.3d at 1300-01.

²⁰ See *Eldred v. Ashcroft*, 537 U.S. 186, 216 (2003) (discussing the patent bargain or “quid pro quo”).

First, while the discussion of enablement does an excellent job of emphasizing that the full scope of the claim must be enabled, this focus on examining the full scope of the claim is largely absent from the explanation of written description. This is a key concept, and the discussion should be expanded to emphasize that applicants must describe and show “possession” of everything within the scope of a claim to satisfy the written description requirement.

Second, there is little or no discussion of step-plus-function claims in the explanation of Section 112(f) or elsewhere in the *Guidance*. It is understandable that the bulk of the discussion focuses on means-plus-function claim, given that they are more commonly employed and thus more frequently encountered by examiners. While it is unnecessary to provide a separate detailed discussion of step-plus-function claims or to add “or step” after “means” in every instance, the *Guidance* should clearly convey to examiners that the principles discussed in relation to means-plus-function claims generally apply with equal force and in the same manner when examining step-plus-function claims. Additionally, the *Guidance* should include a short discussion regarding the identification of step-plus-function limitations (particularly in method claims), emphasizing the need to carefully examine claim language for limitations reciting the underlying function without disclosing the specific acts for performing that function.

In addition, the *Guidance* should encourage examiners to use the technology available to them to improve examination under Section 112. For example, examiners should use computerized searches for terms that appear in the claims that do not appear to be in the specification. If the term cannot be found, the claim should be rejected or at the least the examiner should use Rule 105 to require the applicant to specify where in the patent specification that the claim is supported. Over time, the Office should automate this function for the examiners.

Finally, to ensure rigorous and consistent application of Section 112, HTIA would respectfully urge the USPTO to formulate a plan for assessing the impact of 112 training, monitoring how the guidelines are being applied, and identifying strategies for continued improvement. The issuance of guidance alone, without these additional steps, is unlikely to change long entrenched practices that have led to inconsistent or inadequately rigorous application of Section 112 in the past.

In sum, although not a substitute for rigorous application of Section 101’s eligibility requirement, improved examiner understanding and application of Section 112 is a positive step that has the potential to significantly improve patent quality and reduce unnecessary litigation.

5. Conclusion

HTIA again commends the USPTO for its many efforts to improve the consistency and quality of patent examination and appreciates the opportunity to provide feedback on both the *Section 101 Guidance* and the *Section 112 Guidance*. Improved patent quality is critical to the continued health and efficacy of the U.S. patent system, and HTIA and its members stand ready to aid the Office in any way possible to advance this goal.