



March 8, 2019

**Via email: [Eligibility2019@uspto.gov](mailto:Eligibility2019@uspto.gov)**

Hon. Andrei Iancu  
Under Secretary of Commerce for Intellectual Property and  
Director of the United States Patent and Trademark Office  
Mail Stop Comments – Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

*Re: Comments on 2019 Revised Patent Subject Matter Eligibility Guidance*

Dear Director Iancu:

Thank you for the opportunity to submit comments on the USPTO's *2019 Revised Patent Subject Matter Eligibility Guidance* ("the Guidance").

Trading Technologies International, Inc. ("TT") is a software company headquartered in Chicago and develops high-performance software for trading professionals. Since opening in the mid-90's, TT has grown to have hundreds of employees throughout the world, the majority in the United States. TT spends millions of dollars each year on research and development of new products and services and relies on its patent portfolio to protect those investments. Accordingly, TT has a strong interest in consistent and predictable application of the patent laws and ensuring that the rules of the USPTO are interpreted correctly.

## **I. OVERVIEW**

TT commends the efforts of the USPTO to clarify the subject matter eligibility analysis to yield more consistent and predictable results. While TT generally agrees with the goals of the Guidance,<sup>1</sup> the Guidance should be clarified in several respects to ensure consistent and predictable application of the subject matter eligibility analysis by examiners,<sup>2</sup> as further detailed in TT's comments below.

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<sup>1</sup> As a more general point, TT cautions against the normalization of evaluating any claim by dissecting it rather than considering it as a whole. While TT appreciates that the case law of subject matter eligibility has repeatedly taken this piecemeal approach, TT does not believe it is proper under the patent statutes.

<sup>2</sup> Throughout these comments, TT refers to actions by examiners during examination. However, because the Guidance makes clear it applies to all Office personnel, TT's comments are equally applicable to any subject matter eligibility analysis of claims in any proceeding before the Office, including appeals and post-grant reviews.

## II. SYNTHESIS OF CASE LAW

TT agrees with the Guidance that comparing claims under examination to those found to be directed to an abstract idea in various court cases has not been applied by examiners in a consistent or predictable manner. In TT's experience, different examiners interpret and apply the same case in different and inconsistent ways. TT believes that the approach presented in the Guidance to extract and synthesize the concepts identified by the courts is useful, as it will help eliminate inconsistencies.

## III. RECITATION OF ABSTRACT IDEAS

The Guidance asserts that “the abstract idea exception includes the following groupings of subject matter, when recited **as such** in a claim limitation(s) (that is, when recited **on their own or per se**)....” (emphasis added). TT agrees with the concept described by the Guidance on this point but respectfully submits that the Guidance should be reworded to emphasize and more fully explain it. TT proposes that this portion of the Guidance be reworded as follows:

The USPTO, therefore, aims to clarify the analysis. In accordance with judicial precedent and in an effort to improve consistency and predictability, the 2019 Revised Patent Subject Matter Eligibility Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas. **A claim that recites subject matter in one of the groupings identified below implicates the abstract idea exception. To be clear, such subject matter must be expressly and directly recited as such—that is, on its own or by itself—in the claim. The subject matter must itself fall within one of the identified groupings. A claim that recites elements that may be based on such subject matter is not sufficient and does not implicate the abstract idea exception. The groupings are as follows to explain that the abstract idea exception includes the following groupings of subject matter, when recited as such in a claim limitation(s) (that is, when recited on their own or per se):**

TT believes such a rewording is in accord with the intent of the Guidance but is more clear and incorporates useful discussion from the analysis in the examples, including Examples 38 and 39.<sup>3</sup>

## IV. GROUPINGS OF ABSTRACT IDEAS

Regarding the grouping of “certain methods of organizing human activity,” and in particular “fundamental economic principles or practices,” TT respectfully requests further clarification be made in the Guidance or in an example that claims must recite such principles or practices **themselves** and not merely recite acts that may be based on, or may be used as part of, such principles and practices. For example, “trading” may be regarded as a fundamental economic practice, as a core concept of an economic system, similar to hedging, insurance, and mitigating risk. Thus, a claim which recites performing an actual trade—the exchange of two things—may implicate the abstract idea exception. This stands in contrast to claims that recite improved tools that are merely used in an economically-related environment or to facilitate such principles and practices. Thus, unlike the example of “trading,” an improved user interface or tool for sending a trade order message to an electronic exchange, for example, would not implicate the abstract idea exception. See, e.g., *Trading Technologies International, Inc. v CQG, Inc.*, 675 F. App'x 1001 (Fed. Cir. 2017). TT respectfully submits that, by emphasizing a focus on what the claim is actually reciting, an overbroad application of the test can be avoided. To illustrate this point, consider that a claim to an improved calculator (a tool) likely does not contain a recitation of a fundamental economic principle or practice even if it is used as part of a cash register which participates in such a practice.

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<sup>3</sup> Examples 38 and 39 both explain, in their respective analyses, that “[w]hile some of the limitations may be based on mathematical concepts, the mathematical concepts are not recited in the claims.”

Regarding the grouping of “mental processes,” TT respectfully submits that additional guidance is required in order to evaluate whether a claim “covers performance in the mind but for the recitation of generic computer components ... unless the claims cannot **practically** be performed in the mind.” (emphasis added). Specifically, the Guidance should identify the standard or test for evaluating whether an element of a claim can or cannot be “practically” performed in the mind. To aid in crafting such guidance, TT poses a number of questions for consideration:

In whose mind—a genius, an infant, any human, a person of skill in the art? How would either an examiner or an applicant argue this? Is evidence needed, and if so, what form could it take? Does the entire scope of the claim element have to be capable of being practically performed or is it sufficient that the examiner contrive a single, trivial embodiment within the scope of the claim element that could be practically performed, even if, in any real-world application, the invention could not be? Are time limitations relevant to the evaluation? What drives those limitations, other elements of the claim or common sense?

TT urges that the Guidance take a narrow view of what can be “practically” performed in the mind, otherwise, based on TT’s experiences, there is a high likelihood that an examiner could utilize this grouping to arbitrarily declare any computer-implemented invention as directed to an abstract idea because all of the elements are mental processes. Because computers are deterministic machines, given sufficient time and paper, a human could, theoretically, “mentally” perform any algorithm that a computer-based invention can perform. Such an unreasonable interpretation must be precluded with clear guidance.

TT proposes that the Guidance adopt a presumption that a claim which recites features performed by a computer cannot be practically performed in the mind. The examiner would then have to present reasoning to rebut the presumption to which the applicant could respond. TT respectfully submits that without further clarification of how to determine whether or not something can be “practically” performed in the mind, no consistent and predictable determination of whether a claim recites a mental process can be made.

## V. IDENTIFICATION OF CLAIM ELEMENTS

TT respectfully requests clear and precise guidance on how claim elements that recite an abstract idea are identified. The identification of claim elements that allegedly recite an abstract idea is central to the subject matter eligibility analysis. Specifically, the Guidance for Revised Step 2A, Prong One requires an examiner to “identify the specific limitation(s) in the claim ... that the examiner believes recites an abstract idea.” The remaining elements of the claims (i.e., those not so-identified), which the Guidance deems the “additional elements,” are then examined to evaluate whether there is an integration of the judicial exception into a practical application under Revised Step 2A, Prong Two and/or whether the additional elements recite an “inventive concept” under Step 2B. Consequently, the analysis turns on which elements of the claims are the identified elements corresponding to the subject matter alleged to implicate the abstract idea exception, making this portion of the analysis **critical** to consistent and predictable application.

Based on the Guidance and the examples, TT respectfully submits that only elements of the claims that **directly** correspond to the category of abstract idea should be identified as reciting the abstract idea, with care taken to **narrowly** make such identifications. For example, Example 41, relating to cryptography, recites a “transforming” step in addition to an “encoding” step. While the analysis focuses on the “encoding” step as reciting a mathematical formula or calculation, in TT’s experience it appears likely that an examiner could easily conclude that the “transforming” step, which provides an input to the “encoding” step, should also be viewed as an abstract idea, either as (1) part of the same mathematical formula or calculation as the “encoding” step or (2) as its own recitation of an abstract idea of a mathematical concept or mental process. While it is the case that the proper analysis intended by the Guidance (as articulated in the example) would be that the “transforming” step merely uses mathematical concepts without reciting them and/or such a transformation cannot practically be performed in the human mind, TT believes that different examiners could easily reach different conclusions on this point.

Requiring express and direct recitation coupled with a narrow tying to specific claim elements would help achieve more consistent and predictable application by examiners. In the above example, because the “transforming” step does not expressly and directly recite a mathematical concept or mental process and is clearly a distinct element from the mathematical concept in the “encoding” step, it should not (as per Example 41) be included as an identified claim element corresponding to the mathematical concept in the “encoding” step.

Under eligibility analyses performed prior to the Guidance, TT has seen numerous Office Actions where an examiner has effectively stated that all of the elements of the claim, other than a generically-recited computer, are directed to a single, broadly-stated alleged abstract idea, even though the claims recite numerous, specific elements and acts that address technical problems such as bandwidth, latency, accuracy, and efficiency. TT respectfully requests that the Guidance be expanded to address what the proper criteria are for identifying and effectively traversing what claim elements are part of the alleged judicial exception and which ones are instead “additional elements.”

## VI. INTEGRATION INTO A PRACTICAL APPLICATION

TT agrees with the Guidance that the focus of Supreme Court precedent has been on the distinction between claiming a principle itself and claiming practical applications of those principles. Further, TT agrees that claims reciting a practical application of a judicial exception are not “directed to” the judicial exception. The Supreme Court has repeatedly emphasized, including in *Alice*, that “the concern that drives [the §101] exclusionary principle [is] one of pre-emption.” As the Supreme Court explained in *Alice*, the driving concern is preventing preemption of fundamental “building blocks of human ingenuity.” TT believes that practical applications of alleged abstract ideas do not preempt those abstract ideas and that the Guidance reflects the relevant inquiry. However, TT respectfully submits that certain clarifications should be made to aid in determining whether a claim recites a practical application of an alleged judicial exception recited in the claim.

The Guidance helpfully identifies exemplary considerations indicative that additional elements may have integrated a judicial exception into a practical application. The provided list of considerations includes “an additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technical field” and “an additional element effects a transformation or reduction of a particular article to a different state or thing.” TT notes that while the case law certainly supports that such factors indicate that a claim recites eligible subject matter, it is unclear how these two examples aid in determining whether there is an integration into a practical application of a recited judicial exception because these examples, unlike the others, do not reference any relationship between the additional elements and the judicial exception. TT respectfully requests the Guidance be clarified to explain how such considerations should be evaluated with respect to the identified judicial exception and that examples be provided.

The Guidance also provides a list of identified examples in which a judicial exception has not been integrated into a practical application. This list includes “an additional element adds insignificant extra-solution activity to the judicial exception.” TT respectfully submits that the Guidance should be expanded to make clear that extra-solution activity does not include claim elements that are required to effectuate the solution—such activity is not “extra-solution” (i.e., pre- or post-solution), but rather **part of the solution itself** by giving effect to it. TT respectfully submits that this is in accord with MPEP 2106.05(g) which describes “extra-solution activity” as “activities **incidental** to the primary process or product that are merely a **nominal or tangential** addition to the claim.” (emphasis added). TT believes that an affirmative articulation of what is not extra-solution activity (i.e., activity that is required to effectuate the solution and not incidental), as proposed here, will increase the consistency and predictability of the analysis.

In addition, TT notes that the Guidance states that “examiners are reminded that a claim that includes conventional elements may still integrate an exception into a practical application, thereby satisfying the subject matter eligibility requirement of Section 101.” TT agrees and respectfully requests that this point be further emphasized. Specifically, in the context of computer-implemented inventions, it is equally (if not more important) that the Guidance emphasize that the presence of a generic computer does not alter the

analysis at all, much less doom the claim. That is, there is nothing wrong with using a generic computer and the presence of a generic computer in the claim creates no presumption that the rest of the claim only recites an abstract idea. In TT's experience, such recitations have been used as a basis to maintain 101 rejections improperly and further clarification in the Guidance would aid consistent and predictable application of the law.

Further, TT respectfully submits that it would be helpful for the Guidance to be expanded to illustrate how a claim can fail to recite a practical application under Prong Two of Revised Step 2A and yet recite an "inventive concept" under Step 2B. As formulated, the only apparent way for a claim to fit into this category is for it to recite a judicial exception and then also recite features that are: (1) not well-understood, routine, and conventional; and (2) not tied or linked to the exception (and consequently cannot be a practical application of the exception). Such a scenario appears to be overly narrow (and unlikely) and not in accord with cases such as *BASCOM* and *Berkheimer*. TT respectfully requests the Guidance be clarified to explain and provide an example of how such a scenario could occur and be resolved under the revised analysis.

## **VII. CONCLUSION**

TT applauds the USPTO's efforts, including the Guidance and corresponding examples, towards consistent and predictable application of the law regarding subject matter eligibility. TT appreciates your consideration of these comments on the Guidance and welcomes the opportunity to discuss them further.

Respectfully submitted,

**Trading Technologies International, Inc.**  
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