October 15, 2022

The Honorable Kathi Vidal
Under Secretary of Commerce for Intellectual Property and Director
U.S. Patent and Trademark Office
600 Dulany St.
Alexandria, VA 22314

Via *regulations.gov*

Dear Director Vidal:

Thank you for the opportunity to submit comments on the USPTO's 2019 Guidance on Patent Subject Matter Eligibility. Intellectual Property Owners Association (IPO) is an international trade association representing a "big tent" of diverse companies, law firms, service providers and individuals in all industries and fields of technology that own, or are interested in, intellectual property (IP) rights. IPO membership includes over 125 companies and spans over 30 countries. IPO advocates for effective and affordable IP ownership rights and offers a wide array of services, including supporting member interests relating to legislative and international issues; analyzing current IP issues; providing information and educational services; supporting and advocating for diversity, equity, and inclusion in IP and innovation; and disseminating information to the public on the importance of IP rights.

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In July 2022, the USPTO published a blog post, followed by a formal request for comments in 87 Fed. Reg. 53736 on September 1, 2022, indicating the USPTO was looking to update the examination guidance, specifically the materials in the MPEP and examples. In response, IPO submits the comments that follow and suggested redlines to the MPEP to provide examples of how the changes could be implemented.

<div align="center">Summary</div>

The 2019 Revised Guidance has helped bring consistency to treatment of subject matter eligibility throughout out the examining corps, but there are several opportunities for improvement. For example, adding legal citations as footnotes would help all involved with interpreting the guidance during prosecution. To make Step 2B more meaningful, perhaps examiners should be encouraged to identify abstract ideas with descriptive text rather than by referring to claim elements. Court citations to precedential opinions could be added to the Examples so applicants need not attempt to conform claim language precisely to claim language in a specific example. The definitions of the groupings used in Step 2A could be improved to reduce their open-ended nature, which leads to over-inclusion of entire fields of technology—examples and recommendations are provided for each of the

groupings below. Finally, our comments propose changes regarding the analysis at Step 1A Prong Two to ensure examiners consider technical improvements stated in the specification.

I.   General Comments and Recommendations

A.   Change in Structure of MPEP Section 2106

The 2019 Revised Guidance has positively impacted the examination process, in part because of the effectiveness of the written guidance in the MPEP, which drew together many resources that were only available on the USPTO's website. We recommend that the USPTO now take the guidance one step further organizationally to support a better pedagogical format. It could be helpful if the MPEP described the legal principles of subject matter eligibility in hornbook or black letter law format— e.g., a set of rules and guidelines with legal citations provided only in footnotes (as/if needed). This format is used in the Trademark Trial and Appeal Board Manual of Procedure [see TBMP 309.03(c)(1) as an example, https://tbmp.uspto.gov/RDMS/TBMP/current#/current/sec-bdacef53-7b72-4ca5-8ceb-215e4afda588.html]. We propose an entirely separate section in the MPEP for examples the USPTO finds most helpful to present using the full subject matter eligibility analysis, completing both Steps 1 and 2. These examples could be referenced (as needed) in the hornbook section using footnotes or hyperlinks.

Examiners typically take what the MPEP states in the current guidance literally, as they should. The USPTO generally does not expect examiners to read legal decisions nor expect that they employ legal research techniques. The MPEP is thus designed to break down and summarize the relevant issues for examiners. In contrast, the current guidance is presented in the MPEP in the form of a legal brief on subject matter eligibility. This seems more useful for attorneys who have been trained to read this type of material. The summary sentences in the guidance currently do not provide the claim or the relevant technological facts for context. The guidance might be more helpful to examiners if it were reworked as described above.

The current format of MPEP 2106 is discussion supported by citations to relevant cases summarized in a single phrase, sentence, or a couple of sentences. Most of these cases are in Examples 1-46. Each case might appear multiple times throughout, under each of the analytical steps with a different sentence stating what the case stands for at that analytical step. However, since examiners tend to take the sentences at face value, and are not expected to read court opinions to understand the full analysis at each analytical step, examiner analysis at times can be binary—are the current claims like what the sentence describes regarding that case or not? If yes, and the case found no eligibility at this analytical step, then the examiner writes a rejection citing the case. If no, examiners have been noted to demand/require that the form of the claim include the same elements/structures or language as that in the cited case/example for the claim to be found to be drawn to eligible subject matter. In other words, an examiner will attempt to force a claim to fit a certain mold rather than analyzing the substance of the claim against the analysis associated with the example.

This can be true even when the subject matter of the claim is dissimilar to that of the example in important respects. For example, Example 39 identifies as patent eligible an artificial intelligence system that includes two training phases for the neural network. We have observed this leading some examiners to find eligibility only for a claim that recites a neural network trained in two phases— which is not the basis for finding the neural network patent eligible in the example. But this type of binary analysis can lead to a false positive identification of non-statutory subject matter based on a

technology-specific detail irrelevant to eligibility. Example 39 is intended to be just that—an example of an invention found patent-eligible using the analytical framework of the guidance, which should be applied by the examiner first.

We suggest drafting the analysis like a hornbook with case citations provided in footnotes and links to relevant examples for each portion of the framework at the end. The power of including the examples in the MPEP itself using hyperlinks is easy access— examiners would have in one place a set of rules they can quote and refer to along with clear examples of how the analysis was done to reach the court's result.

This reformatting would improve the teaching ability of the MPEP by setting forth text that explains the principles of the guidance. Examiners could refer to this text to learn what the rule is rather than attempting to construct it by citing to a case. This approach would provide examiners written analysis to start with at each step, which should encourage them to put their reasoning at each step on the record. This would help practitioners better understand the rejection and help advance prosecution on all sides.

B.   Vague and Overbroad Language Issues

The current language of the MPEP can allow examiners to shortcut the analysis based on unclear or overbroad language. With respect to Step 2A, MPEP 2106.04(a) states that:

> Examiners should determine whether a claim recites an abstract idea by (1) identifying the specific limitation(s) in the claim under examination that the examiner believes recites an abstract idea, and (2) determining whether the identified limitations(s) fall within at least one of the groupings of abstract ideas listed above. The groupings of abstract ideas, and their relationship to the body of judicial precedent, are further discussed in MPEP § 2106.04(a)(2).
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> **If the identified limitation(s) falls within at least one of the groupings of abstract ideas**, it is reasonable to conclude that the claim recites an abstract idea in Step 2A Prong One. The claim then requires further analysis in Step 2A Prong Two, to determine whether any additional elements in the claim integrate the abstract idea into a practical application, see MPEP § 2106.04(d). (Emphasis added)

Corresponding MPEP 2106.07(a)(III), which discusses the analysis the Examiner needs to provide for Step 2A, states:

> When performing the analysis at Step 2A Prong One, it is sufficient for the examiner to provide a reasoned rationale that identifies the judicial exception recited in the claim and explains why it is considered a judicial exception (e.g., **that the claim limitation(s) falls within one of the abstract idea groupings).** (Emphasis added)

The bold underlined language can lead an examiner to over-identify abstract ideas because it teaches that it is sufficient to merely identify one or more abstract idea categories the claim allegedly recites, without explicitly stating or summarizing that specific category/sub-group, e.g., "fundamental economic practice." In these circumstances, an examiner interprets the guidance to sanction the identification of the abstract idea at this high level of generality. Once an "abstract idea" is identified in at least of the general enumerated groupings, the examiner can believe the guidance allows them

to move to Step 2B. This issue is compounded by groupings defined in an open-ended manner (see further discussion in Section III below).

Alternatively, the first phrase in MPEP 2106.04(a) underlined above is understood by some examiners to require starting with the entire body of the claim, removing structural elements the examiner does not deem entirely abstract (processor, memory, etc.), and leads to finding that the remaining language of the claim is the definition or description of the identified abstract idea. Under this analysis, at Step 2B examiners find that the removed elements fail to constitute anything "significantly more than" the abstract idea. Using the claim language itself to define the abstract idea means an examiner cannot separately analyze whether the combination of elements of the claim constitutes "significantly more than" or states an inventive concept on its own sufficient to confer patent eligibility. This circular analysis is a self-fulfilling prophecy; the claim is doomed from the start of the analysis to be found abstract if most of it is determined to explicitly recite the alleged abstract idea.

Neither of these approaches resemble how the courts conduct the analysis. A court uses descriptive text separate from the claim language that identifies what it believes the abstract idea to be and then considers the claim language, both as individual elements and an ordered combination. This approach is described in some of the examples, but because the examples are not in the MPEP, it is observed that some examiners default to what the language in the MPEP itself appears to teach them to do.

An example of hornbook style is provided as a redline of MPEP 2106.04 below.

II.   Issues relative to Examples

In the MPEP, both hypotheticals and real-life examples are provided. Although hypotheticals may track real life examples, the single-step presentation in the MPEP generally oversimplifies the analysis or is not helpful because the claims that appear in a real case seldom include as few elements as a hypothetical. We recommend that the use of hypotheticals be discontinued and in favor of fully analyzed real-life examples including the full claim being analyzed. Furthermore, we strongly recommend that precedential decisions (or informative, in the case of PTAB decisions) be used as examples, because non-precedential opinions do not constitute binding authority.

We also encourage the USPTO to solicit and use examples provided by the public for various technological areas. Not all examples currently being used are helpful. As mentioned previously, Example 39 suffers from the defect that it leads an examiner to take away that the two training steps for the neural network involved are a core reason the claim was allowed found to be patent eligible.

The USPTO might consider designating additional *ex parte* appeals decisions as informative or precedential to help establish the boundaries of subject matter for certain technologies more clearly. The dearth of informative and precedential PTAB *ex parte* decisions in some technology areas means Federal Circuit cases must be relied on exclusively; the range of technologies represented has some gaps, and cases in some areas might have internal inconsistencies. Establishing more precedential and informative PTAB *ex parte* decisions in these areas and using them as the examples could help fill these gaps or how the USPTO interprets any conflicting opinions, which could be adjusted as needed based on subsequent opinions.

Fewer and better examples, or at least an arrangement of examples by technology bucket, might allow examiners and practitioners to find examples that pertain to a given claim. If technology buckets are used (e.g., diagnostic assays, research tools or other inventions implicating bioinformatics), examiners could be trained to apply the examples without being overly literal or restricting the analysis to one possible bucket. (For example, if a technology implicated AI and biology, one bucket's examples or rules should not be applied to the exclusion of the other.) Also, several current examples do not contain citations to a court case or file wrapper, making it impossible to know whether it is a hypothetical or a real-life example. It would be valuable to examiners and practitioners if citations were provided.

Some examiners have reported that they will not get approval from their SPE unless the claim is amended to conform to an example. This is alarming—the examples, which are limited, were not created to be strictly followed or interpreted by examiners to withdraw a statutory subject matter rejection. These issues underline the importance of training examiners to use these examples merely as examples of how to conduct statutory subject matter analysis rather than blueprints that must be followed to find statutory subject matter.

III.   Issues re Step 2A Groupings

Leaving the abstract idea groupings open-ended subjects certain technologies (i.e., those that can arguably be classified as "economic" or "mathematical") to 101 rejections. This was not the Supreme Court's stated intent in applying its subject matter eligibility analysis in this area. The open-ended nature of the groupings causes the determination of whether a claim is directed to an abstract idea to be discretionary, rather than by reference to an objective and consistent standard or definition. Examples of open-ended groupings are below:

Mathematical Concepts Grouping:

- MPEP 2106.04(a)(2) defines the Mathematical Concepts grouping, the Certain Methods of Organizing Human Activity grouping, and the Mental Processes grouping using numerous examples that are included in the groupings, with sparse examples that are not. The implication is that the groupings should be applied broadly, and there is scant demonstration for examiners of when groupings should not be applied.
- Compounding the above problem, the groupings are defined by example, with the reader (i.e., Examiner) placed in the awkward position of having to divine a best-fit definition covering the groupings where categorization-by-analogy is now no longer easy. If groupings are expected to be reliably and consistently applied, the groupings need proactive definitions using words that define their boundaries rather than just using examples of cases found to be within the groupings.
- For instance, MPEP 2106.04(a)(2)(I), defining Mathematical Concepts, provides only one unhelpful and circular exception to the Mathematical Concepts category: "A claim does not recite a mathematical concept (i.e., the claim limitations do not fall within the mathematical concept grouping), if it is only based on or involves a mathematical concept." Ostensibly, there's a difference between reciting a mathematical concept and merely being based on that concept. However, the very next paragraph undermines this distinction: "It is important to note that a mathematical concept need not be expressed in mathematical symbols, because "[w]ords used in a claim operating on data to solve a problem can serve the same purpose as a formula." Ultimately, it is now quite unclear what it means to "recite" a mathematical concept rather than simply be "based on" one. Since the MPEP broadly describes of the grouping and provides the

above guidance that a claim is directed to an abstract idea if "the claim limitation(s) falls within one of the abstract idea groupings" in MPEP 2106.07(a)(III) creates a situation in which Examiners find claims directed to mathematical concepts far more often than they should. We recommend that the guidance clarify that the Mathematical Concepts grouping is to be interpreted as "A claim recites a mathematical concept only if it expresses a mathematical relationship (for example, states a mathematical relationship and/or expresses a mathematical relationship using words) without tying it to a practical application thereof."

Fundamental Economic Practices or Principles Grouping:

- The term "fundamental economic practices or principles" is defined in a distorted fashion in the MPEP that leads to overinclusive outcomes. The *Alice* Court refers to such concepts as those that comprise a "…fundamental economic practice long prevalent in our system of commerce."[1] However, the MPEP omits the "long prevalent in our system of commerce" language. The MPEP also abrogates the term "fundamental" without adequate discussion, stating that "[t]he term 'fundamental' is not used in the sense of necessarily being 'old' or 'well-known,'" (MPEP 2106.04(a)(2)(II)(A)). However, the MPEP then and states that an economic practice may be regarded as fundamental by "being old or well-known may indicate that the practice is fundamental."
- The MPEP does not define "economic" as used in connection with this category.
- The MPEP also fails to provide any negative examples of things that are not fundamental economic practices.
- In practice, the members are observing that Examiners routinely interpret this guidance as meaning that "fundamental economic practice" merely means "any practice that could conceivably relate to the economy or money in some fashion." This kind of interpretation, however, is exactly what the *Alice* court cautioned against, as the exception, so broadly defined, can cover an entire technological area regardless of the actual nature of the subject matter being claimed.

Commercial or Legal Interactions Grouping:

- The USPTO created this grouping on its own when including it in the MPEP and defines it as broadly including "…agreements in the form of contracts, legal obligations, advertising, marketing or sales activities or behaviors, and business relations." MPEP 2106.04(a)(2)(II)(B). In practice, the members are observing that the Examiners are routinely interpreting any claim that has to do with any of these things (regardless of how ancillary the commercial or legal interaction) as automatically falling into this category.

Practically Performable in the Human Mind/Mental Processes Grouping:

- In the case of machine learning inventions, the demarcation line for "not practically performable in the human mind" is not clear. Can a model really be trained or executed in the human mind? How many layers and/or parameters does a model need to have to not be performable in the human mind? Example 39, directed to training a neural network, states summarily "the claim does not recite a mental process because the steps are not practically performed in the human

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[1] *Alice Corp. Pty. Ltd. v. CLS Bank Int'l,* 573 U.S. 208, 219-20, 110 USPQ2d 1981-82 (2014).

mind." However, the analysis proffers no analysis to support its conclusion, so examiners and practitioners are left without guidance.

- Little guidance is given in MPEP 2106.04(a)(2) regarding what "practically performed in the human mind" means besides a few examples. Providing examples to examiners in the absence of clear guiding principles is likely to result in short-circuiting the analysis and lead to unnecessary rejections. In practice, some examiners treat this grouping as only requiring a thought experiment to assess if the claim limitations could theoretically be performed in the human mind. If so, the claim is found to recite an ineligible mental process. However, this is a difficult standard for the applicant because essentially all algorithms can conceivably, or theoretically, be performed in a human mind. This is true at least because a human mentally conceived the algorithm and can be a self-fulfilling prophecy. Additional guidance on "practically performed in the human mind" would be helpful. It should be based on a definition of "practical" such as a dictionary definition. See following paragraphs.

- The proposed change below to MPEP 2106.04(a)(2)(III)(A) clarifies in MPEP 2106.04(a)(2) that claims directed to medical devices or systems reciting specific, technical limitations that improve medical technology do not recite mental processes that practically can be performed in the human mind of a doctor. Some examiners disregard technical claim limitations when deciding whether the human mind is equipped to perform the claim limitations. The Federal Circuit[2] has explained that disregarding technical claim limitations is error when evaluating whether a claim practically can be performed in the human mind. The proposed MPEP change provides further guidance to applicants and examiners on the necessity of giving proper weight to specific, technical limitations recited in the claim that improve medical technology and cannot be practically performed in the human mind:

- "Claims do not recite a mental process when they do not contain limitations that can practically be performed in the human mind, for instance when the human mind is not equipped to perform the claim limitations." *See SRI Int'l, Inc. v. Cisco Systems, Inc*., 930 F.3d 1295, 1304 (Fed. Cir. 2019) (declining to identify the claimed collection and analysis of network data as abstract because "the human mind is not equipped to detect suspicious activity by using network monitors and analyzing network packets as recited by the claims"); *CyberSource,* 654 F.3d at 1376, 99 USPQ2d at 1699 (distinguishing *Research Corp. Techs. v. Microsoft Corp*., 627 F.3d 859, 97 USPQ2d 1274 (Fed. Cir. 2010), [[and]] *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 94 USPQ2d 1607 (Fed. Cir. 2010), as directed to inventions that ''could not, as a practical matter, be performed entirely in a human's mind''); and *CardioNet, LLC, Braemar Manufacturing, LLC v. InfoBionic, Inc*., 955 F. 3d 1358 (Fed. Cir. 2020) (finding it "difficult to fathom how doctors mentally or manually used 'logic to identify the relevance of the variability [in the beat-to-beat timing] using a non-linear function of a beat-to-beat interval' as required" in the claimed device for detecting and reporting the presence of atrial fibrillation or atrial flutter in a patient)."

Organizing Human Activity Grouping:

- Does any user interaction with the system that might influence the user's decision-making qualify as also organizing that user's activity? Further clarification as to the reach of this grouping would be helpful, as experience indicates that examiners seem inconsistent in applying this doctrine. IPO appreciates that the October 2019 Guidance calls out the emphasis on "certain" in the "certain methods of organizing human activity" category. However, some

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[2] *CardioNet, LLC, Braemar Manufacturing, LLC v. InfoBionic, Inc*., 955 F. 3d 1358 (Fed. Cir. 2020)

examiners ignore this distinction, and it would be helpful for the guidance to provide further clarity on the distinction between "*certain* methods of organizing human activity" and "methods of organizing human activity" so that examiners can take this into account while performing their analysis. It would be helpful if the guidance enabled examiners to properly articulate that distinction in a rejection.

The groupings-based approach to statutory subject matter analysis is better than the previous approach used by the USPTO. However, because of the open-ended ways in which groupings can be defined, surviving Step 2A, Prong One can be near impossible when a rejection is predicated on an "abstract idea" rationale. If the groupings-based approach is continued, effective, limiting definitions would be helpful (versus summaries of additional cases as examples of what is and what is not within each grouping).

IV.   Issues relative to the Analysis at Step 1A Prong Two:

The proposed changed language below clarifies in MPEP 2106.04(d)(1) that claims that recite components or steps of the invention described in the specification as providing a technical improvement are patent eligible, and in such cases, the examiner's statutory subject matter analysis should stop at Step 2A Prong Two. The examiner should not contradict or contest the stated improvements provided by the specification if they are expressly identified as such. Currently, the language of the MPEP and experience in practice indicates that examiners have wide discretion to argue, without evidence, that a claimed invention does or does not provide the stated technical improvement in the specification. The proposed MPEP language requires the examiner to take the technical improvement(s) recited in the specification as true, as the *CardioNet* court did.

Insert the following after this paragraph in MPEP 2106.04(d)(1):

> The courts have not provided an explicit test for this consideration but have instead illustrated how it is evaluated in numerous decisions. These decisions, and a detailed explanation of how examiners should evaluate this consideration are provided in MPEP § 2106.05(a) (s2106.html#ch2100_d29a1b_13c69_10). In short, first the specification should be evaluated to determine if the disclosure provides sufficient details such that one of ordinary skill in the art would recognize the claimed invention as providing an improvement. The specification need not explicitly set forth the improvement, but it must describe the invention such that the improvement would be apparent to one of ordinary skill in the art. Conversely, if the specification explicitly sets forth an improvement but in a conclusory manner (i.e., a bare assertion of an improvement without the detail necessary to be apparent to a person of ordinary skill in the art), the examiner should not determine the claim improves technology. Second, if the specification sets forth an improvement in technology, the claim must be evaluated to ensure that the claim itself reflects the disclosed improvement. That is, the claim includes the components or steps of the invention that provide the improvement described in the specification. The claim itself does not need to explicitly recite the improvement described in the specification (e.g., "thereby increasing the bandwidth of the channel").
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> If the claim itself reflects the disclosed improvement by including the components or steps of the invention described in the specification that provide the improvement, the examiner bears the burden of proving that the claimed invention fails to provide an

improvement in the functioning of a computer, or an improvement to a technology or technical field. *CardioNet, LLC, Braemar Manufacturing, LLC v. InfoBionic, Inc*., 955 F. 3d 1358 (Fed. Cir. 2020) (stating that "important to our determination was the fact that the written description described technical 'advantages offered by' the claimed memory system…We accept those statements as true and consider them important in our determination that the claims are drawn to a technological improvement.").

The next change proposed to MPEP 2106.06(b) is meant to emphasize that this section provides a process for the streamlined analysis of patent claims directed to clear improvements to a technology or computer functionality. Under the current streamlined analysis, such patent claims do not require the full eligibility analysis. In *CardioNet*, the court decided that it did not need to reach step 2 of the *Alice* analysis because the claimed cardiac monitoring system for detecting and distinguishing atrial fibrillation and atrial flutter from other various forms of cardiac arrythmia was a clear improvement to computer-related technology.

> For instance, claims directed to clear improvements to computer-related technology do not need the full eligibility analysis. *Enfish*, 822 F.3d at 1339, 118 USPQ2d at 1691-92 (claims to a self-referential table for a computer database held eligible at step 1 of the *Alice/Mayo* test as not directed to an abstract idea). Claims directed to improvements to other technologies or technological processes, beyond computer improvements, may also avoid the full eligibility analysis. *McRO, Inc. v. Bandai Namco Games Am. Inc*., 837 F.3d 1299, 1316, 120 USPQ2d 1091, 1103 (Fed. Cir. 2016) (claims to automatic lip synchronization and facial expression animation found eligible at Step 1 of the *Alice/Mayo* test as directed to an improvement in computer-related technology); *CardioNet, LLC, Braemar Manufacturing, LLC v. InfoBionic, Inc*., 955 F. 3d 1358 (Fed. Cir. 2020) (claims to cardiac monitoring system for detecting and distinguishing atrial fibrillation and atrial flutter from other various forms of cardiac arrythmia by determining the beat-to-beat variability in heart rate over a series of successive heartbeats found eligible at Step 1 of the *Alice/Mayo* test as directed to an improvement in computer-related technology). In these cases, when the claims were viewed as a whole, their eligibility was self-evident based on the clear improvement, so no further analysis was needed. Although the Federal Circuit held these claims eligible at Step 2A as not being directed to abstract ideas, it would be reasonable for an examiner to have found these claims eligible at Pathway A based on the clear improvement, or at Pathway B (Step 2A) as not being directed to an abstract idea.

This proposed MPEP language to MPEP 2106.04(a)(1) is also intended to include *CardioNet* as another example of streamlined analysis. We propose inserting the following example under the list titled "Non-limiting hypothetical examples of claims that do not recite (set forth or describe) an abstract idea include:"

> viii. A medical device or system comprising one or more sensors configured for sensing physiological parameters of patient and processing circuitry configured to determine one or more physiological conditions or disease states of a patient using the sensed physiological parameters of patient.

MPEP 2106.04(a)(1) already includes a set of examples of claims that do not recite abstract ideas. The proposed change adds an example of a medical device or system to this list to provide applicants and examiners with more guidance for those inventions that constitute eligible subject matter.

We thank you for considering IPO's comments and welcome any further dialogue or opportunity to provide additional information to assist your efforts in developing guidance on statutory subject matter in the MPEP.

Sincerely,

Karen Cochran
President