



## DEPARTMENT OF COMMERCE

### Patent and Trademark Office

[Docket No. PTO-P-2023-0044]

### **Request for Comments Regarding the Impact of the Proliferation of Artificial Intelligence on Prior Art, the Knowledge of a Person Having Ordinary Skill in the Art, and Determinations of Patentability Made in View of the Foregoing**

**AGENCY:** United States Patent and Trademark Office, Department of Commerce.

**ACTION:** Request for comments.

**SUMMARY:** The United States Patent and Trademark Office (USPTO or Office) seeks public comments regarding the impact of the proliferation of artificial intelligence (AI) on prior art, the knowledge of a person having ordinary skill in the art (PHOSITA), and determinations of patentability made in view of the foregoing. The increasing power and deployment of AI has the potential to provide tremendous societal and economic benefits and foster a new wave of innovation and creativity while also posing novel challenges and opportunities for intellectual property (IP) policy. Through the AI and Emerging Technologies Partnership (AI/ET Partnership), the USPTO has been actively engaging with the innovation community and AI experts on IP policy in view of AI. To build on these efforts, the USPTO is requesting written public comments on how the proliferation of AI could affect certain evaluations made by the Office, including what qualifies as prior art, the assessment of the level of skill of a PHOSITA, and determinations of patentability made in view of these evaluations. The USPTO expects that the responses received will help the Office evaluate the need for further guidance on these matters, aid in the development of any such guidance, and help inform the USPTO's work in the courts and in providing technical advice to Congress.

**DATES:** Written comments must be received on or before [INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE **FEDERAL REGISTER**], to ensure consideration.

**ADDRESSES:** Comments must be submitted through the Federal eRulemaking Portal at [www.regulations.gov](http://www.regulations.gov). To submit comments via the portal, enter docket number PTO-P-2023-0044 on the homepage and click “Search.” The site will provide a search results page listing all documents associated with this docket. Find a reference to this document and select the “Comment” icon, complete the required fields, and enter or attach your comments. Attachments to electronic comments will be accepted in ADOBE® portable document format (PDF) or Microsoft Word® format. Because comments will be made available for public inspection, information that the submitter does not desire to make public, such as an address or phone number, should not be included in the comments.

Visit the Federal eRulemaking Portal for additional instructions on providing comments via the portal. If electronic submission of comments is not feasible due to a lack of access to a computer and/or the internet, please contact the USPTO using the contact information below for special instructions.

**FOR FURTHER INFORMATION CONTACT:** Steven J. Fulk, Legal Advisor, at 571-270-0072; Nalini Mummаланeni, Senior Legal Advisor, at 571-270-1647; or Matthew Sked, Senior Legal Advisor, at 571-272-7627, all with the Office of Patent Legal Administration, Office of the Deputy Commissioner for Patents.

**SUPPLEMENTARY INFORMATION:**

**I. Background**

The USPTO has held several stakeholder interaction sessions and has issued requests for comments (RFCs) to seek public feedback regarding AI’s impact on patent

policy issues.<sup>1</sup> In August 2019, the USPTO issued an RFC on patenting AI inventions.<sup>2</sup> Among the various policy questions raised in this previous RFC, the USPTO requested comments on AI's impact on a PHOSITA and prior art considerations unique to AI inventions.<sup>3</sup> In October 2020, the USPTO published a report titled "Public Views on Artificial Intelligence and Intellectual Property Policy," which provided a comprehensive look at the stakeholder feedback received in response to the questions posed in the August 2019 RFC.<sup>4</sup> That report explained that stakeholders had varying views on how AI would impact obviousness determinations and how to assess a PHOSITA's level of skill.<sup>5</sup> Some commenters stated that AI machines are not "persons," and therefore, AI would not affect the PHOSITA assessment.<sup>6</sup> Additional commenters believed the present framework for assessing a PHOSITA's level of skill is sufficient to determine the impact of AI in a particular field.<sup>7</sup> Many commenters agreed that the increasing use of AI would affect how the USPTO and the courts assess the legal hypothetical standard of a PHOSITA.<sup>8</sup> Others indicated "the level of skill in any art has traditionally grown over time based on the introduction of new technologies and that 'once conventional AI systems become widely available . . . such accessibility would be expected to enhance the abilities of a [PHOSITA].'"<sup>9</sup> However, some commenters noted that "such wide prevalence of AI systems has not yet permeated all fields and counseled against declaring that all fields of innovation are now subject to the application of 'conventional AI.'"<sup>10</sup> Additionally, while most commenters believed there were no prior art considerations

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<sup>1</sup> See USPTO Artificial Intelligence webpage at [www.uspto.gov/initiatives/artificial-intelligence](http://www.uspto.gov/initiatives/artificial-intelligence).

<sup>2</sup> Request for Comments on Patenting Artificial Intelligence Inventions, 84 FR 44889 (August 27, 2019). Question 1 of this RFC noted, "Inventions that utilize AI, as well as inventions that are developed by AI, have commonly been referred to as 'AI inventions.'"

<sup>3</sup> *Id.*

<sup>4</sup> The full report is available at [www.uspto.gov/sites/default/files/documents/USPTO\\_AI-Report\\_2020-10-07.pdf](http://www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf) (October 2020 AI Report).

<sup>5</sup> October 2020 AI Report at 11-13.

<sup>6</sup> *Id.* at 13.

<sup>7</sup> *Id.* at 12.

<sup>8</sup> *Id.* at iii.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.* at 13.

unique to AI, some commenters indicated there may be some unique considerations, such as the difficulty in finding prior art related to the AI technology itself (e.g., finding source code for AI technology) and the proliferation of AI-generated prior art.<sup>11</sup> Overall, commenters confirmed that more engagement with the USPTO was needed regarding how AI impacts prior art and the level of skill of a PHOSITA.

In June 2022, the USPTO launched the AI/ET Partnership.<sup>12</sup> At the June 29, 2022, inaugural AI/ET Partnership meeting,<sup>13</sup> panelists commented that the level of skill of a PHOSITA for obviousness determinations would be higher in view of the availability of AI.<sup>14</sup> One panelist argued that it may be appropriate to raise the bar for the level of skill of a PHOSITA particularly where the use of AI is common practice. That panelist also noted that AI might be able to make use of prior art from fields that humans may not have been expected to find or use, and that the universe of prior art would expand as AI advances. Another panelist commented that obviousness is always determined in view of prior art references and that the extent to which AI developments should affect the obviousness standard was unclear. After this June 2022 inaugural event, the Office held several additional AI/ET Partnership events in 2022 and 2023.<sup>15</sup>

In February 2023, the USPTO issued an RFC on AI and inventorship.<sup>16</sup> This request focused on questions of inventorship, but it also asked what other areas of focus the USPTO should prioritize in future engagements. Many commenters indicated that the

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<sup>11</sup> *Id.* at 13-14.

<sup>12</sup> Events for the Artificial Intelligence and Emerging Technologies Partnership, 87 FR 34669 (June 7, 2022).

<sup>13</sup> A video of the meeting is available at [www.uspto.gov/about-us/events/aiet-partnership-series-1-kickoff-uspto-aiet-activities-and-patent-policy](http://www.uspto.gov/about-us/events/aiet-partnership-series-1-kickoff-uspto-aiet-activities-and-patent-policy).

<sup>14</sup> A higher level of ordinary skill in the art would more likely support the conclusion that a PHOSITA would recognize that the differences between a claimed invention and the prior art are such that the claimed invention would have been obvious. *See, e.g., In re GPAC Inc.*, 57 F.3d 1573 (Fed. Cir. 1995) (*GPAC*); *see also* Section III of this notice.

<sup>15</sup> See AI and Emerging Technology Partnership engagement and events webpage at [www.uspto.gov/initiatives/artificial-intelligence/ai-and-emerging-technology-partnership-engagement-and-events](http://www.uspto.gov/initiatives/artificial-intelligence/ai-and-emerging-technology-partnership-engagement-and-events).

<sup>16</sup> Request for Comments Regarding Artificial Intelligence and Inventorship, 88 FR 9492 (February 14, 2023) (February 2023 AI RFC).

USPTO should investigate how AI impacts obviousness determinations and the PHOSITA assessment.<sup>17</sup> For example, some commenters stated that an invention developed with the use of AI should not render that invention obvious or more likely to be obvious.<sup>18</sup> Conversely, other commenters indicated that AI contributions to an invention should be *per se* obvious or that the AI contribution should have a rebuttable presumption of obviousness.<sup>19</sup> Commenters also indicated that AI has the potential to generate a vast amount of prior art, which may have an impact on the Office's anticipation and obviousness determinations.<sup>20</sup>

The increasing power and deployment of AI has the potential to provide tremendous societal and economic benefits and foster a new wave of innovation and creativity while also posing novel challenges and opportunities for IP policy. Based on the feedback that the USPTO has received from our stakeholders on the importance of AI's impact on prior art, on the knowledge of a PHOSITA, and on other patentability considerations, the Office plans to more deeply engage with stakeholders and is requesting further comments in these areas. This RFC builds on the USPTO's recent AI-related efforts associated with Executive Order 14110,<sup>21</sup> including the "Inventorship Guidance for AI-Assisted Inventions"<sup>22</sup> published on February 13, 2024.

Section II of this notice provides an overview of prior art considerations and discusses some concerns relevant to AI-generated prior art. Section III discusses the current PHOSITA assessment as it is applied by the USPTO and the courts. Sections II and III are intended only to provide context for the questions presented in this notice.

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<sup>17</sup> Comments in response to the February 2023 AI RFC are available at [www.regulations.gov/docket/PTO-P-2022-0045](http://www.regulations.gov/docket/PTO-P-2022-0045).

<sup>18</sup> See, e.g., Comment PTO-P2022-0045-0052 (AUTM).

<sup>19</sup> See, e.g., Comment PTO-P2022-0045-0057 (Alliance for Automotive Innovation), and Comment PTO-P2022-0045-0063 (The Computer & Communications Industry Association and The Public Innovation Project).

<sup>20</sup> See, e.g., Comment PTO-P2022-0045-0013 (James Gatto).

<sup>21</sup> Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, Executive Order 14110, 88 FR 75191 (November 1, 2023).

<sup>22</sup> Inventorship Guidance for AI-Assisted Inventions, 89 FR 10043 (February 13, 2024).

This RFC is not a guidance document and does not announce any new Office practice or procedure. Section IV presents questions to the public on the impact of AI on prior art and the PHOSITA assessment.

## **II. Considerations for the Impact of AI on Prior Art**

“A claimed invention may be rejected under 35 U.S.C. 102 when the invention is anticipated (or is ‘not novel’) over a disclosure that is available as prior art. To reject a claim as anticipated by a [prior art] reference, the disclosure must teach every element required by the claim under its broadest reasonable interpretation.”<sup>23</sup> Under 35 U.S.C. 102(a)(1), a person is not entitled to a patent if the claimed invention was disclosed—including being patented; described in a printed publication; or in public use, on sale, or otherwise available to the public—before the effective filing date of the claimed invention (i.e., the disclosure is a “prior art disclosure”). Under 35 U.S.C. 102(a)(2), a person is not entitled to a patent if “the claimed invention was described in a patent issued under [35 U.S.C. 151], or in an application for patent published or deemed published under [35 U.S.C. 122(b)], in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.” A disclosure that is a prior art reference under 35 U.S.C. 102 may also serve as a basis for obviousness under 35 U.S.C. 103.<sup>24</sup>

To qualify as a “printed publication” under 35 U.S.C. 102(a)(1), a prior art reference must have been publicly accessible, i.e., “available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate [the reference].”<sup>25</sup> AI may be used to create vast numbers of disclosures that may have been generated without any human contribution, supervision,

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<sup>23</sup> Manual of Patent Examining Procedure (MPEP) 2131.

<sup>24</sup> MPEP 2141.01, subsection I; MPEP 2141.01(a).

<sup>25</sup> MPEP 2128, subsection I (quoting *In re Wyer*, 655 F.2d 221, 210 USPQ 790 (C.C.P.A. 1981) (quoting *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 743, 148 USPQ 537, 540 (SDNY 1966))).

or review. Because a PHOSITA is “a hypothetical person who is presumed to have known the relevant art at the relevant time,”<sup>26</sup> the proliferation of AI-generated disclosures may question the soundness of presuming that a PHOSITA knew of relevant AI-generated art when the vast amount of AI-generated disclosures was never reviewed by a human. Further, as suggested by stakeholders, there is a question whether AI-generated disclosures, especially those with no human input, review, or validation, should qualify as prior art disclosures and potentially preclude human-created inventions from being patented.

Additionally, “[w]hen the [prior art] reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable,” regardless of the type of prior art (e.g., patent, printed publication, or other prior art disclosure), and the burden is on the applicant to rebut the presumption of operability.<sup>27</sup> The presumption is that a public disclosure provides a description that enables the public to make and use the disclosure. The presumption does not (at least currently) distinguish between who or what made the disclosure, which prompts the question whether AI-generated disclosures (that have not been prepared and reviewed by a human) should be afforded the same rebuttable presumption that they are operable and enabled. In view of the above issues, the proliferation of AI-generated prior art raises questions on which the Office seeks input from stakeholders.

### **III. Considerations for the Impact of AI on the Knowledge of a PHOSITA**

“A patent for a claimed invention may not be obtained . . . if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention

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<sup>26</sup> MPEP 2141.03, subsection I.

<sup>27</sup> MPEP 2121, subsections I and II. Note, however, “[e]ven if a reference discloses an inoperative device, it is prior art for all that it teaches” and “may qualify as prior art for the purpose of determining obviousness under 35 U.S.C. 103.” MPEP 2121.01, subsection II.

to a person having ordinary skill in the art to which the claimed invention pertains.”<sup>28</sup>

Thus, obviousness is to be determined with regard to a PHOSITA.<sup>29</sup> As reiterated by the Supreme Court in *KSR International Co. v. Teleflex Inc.*<sup>30</sup> (*KSR*), obviousness is a question of law based on underlying factual inquiries established in *Graham v. John Deere Co. (Graham)*.<sup>31</sup> The *Graham* factual inquiries are: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the claimed invention and the prior art, (3) resolving the level of ordinary skill in the art, and (4) evaluating any objective evidence of nonobviousness.<sup>32</sup> Once these factual findings are made, a determination of obviousness should focus on “what a person of ordinary skill in the pertinent art would have known at the relevant time, and on what such a person would have reasonably expected to have been able to do in view of that knowledge.”<sup>33</sup>

Likewise, a patent “specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any *person skilled in the art to which it pertains . . .* to make and use the same.”<sup>34</sup> The courts have analyzed written description and enablement issues from the vantage point of a PHOSITA.<sup>35</sup> However, the role of a PHOSITA goes beyond these statutory considerations for obviousness under 35 U.S.C. 103 and the requirements under 35 U.S.C. 112. For example, claim terms are construed in

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<sup>28</sup> 35 U.S.C. 103 (emphasis added).

<sup>29</sup> MPEP 2141.

<sup>30</sup> 550 U.S. 398, 406 (2007).

<sup>31</sup> 383 U.S. 1, 17-18 (1966). The Office recently published “Updated Guidance for Making a Proper Determination of Obviousness” (89 FR 14449 (February 27, 2024)), which provides a review of the flexible approach to determining obviousness required by *KSR*.

<sup>32</sup> MPEP 2141, subsection II.

<sup>33</sup> *Id.*

<sup>34</sup> 35 U.S.C. 112(a) (emphasis added).

<sup>35</sup> MPEP 2163.02 (“An objective standard for determining compliance with the written description requirement is, ‘does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.’ *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989)”); MPEP 2164.02 (“*Allergan, Inc. v. Sandoz Inc.*, 796 F.3d 1293, 1310, 115 USPQ2d 2012, 2023 (Fed. Cir. 2015) (‘Only a sufficient description enabling a person of ordinary skill in the art to carry out an invention is needed.’)”).

the manner in which a PHOSITA would understand them.<sup>36</sup> Additionally, claims can be anticipated by prior art inherently if “the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.”<sup>37</sup>

The Court of Appeals for the Federal Circuit has identified several factors to consider when determining a PHOSITA’s level of skill, including the type of problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the education level of active workers in the field.<sup>38</sup> Each case may vary, not every one of the aforementioned factors may be present, and one or more factors may predominate the analysis.<sup>39</sup>

Accordingly, it is often critical in a patentability inquiry to assess the PHOSITA’s level of skill in the relevant art,<sup>40</sup> including for claim construction, anticipation, obviousness, written description, and enablement. In view of the above issues, the proliferation of AI as a tool for a PHOSITA raises questions on which the Office seeks input.

#### **IV. Questions for Public Comment**

The questions enumerated below should not be taken as an indication that the USPTO has taken a position on or is predisposed to any particular views. The USPTO welcomes comments from the public on any issues that are relevant to this topic, and is particularly interested in answers to the following questions:

##### *A. The Impact of AI on Prior Art*

1. In what manner, if any, does 35 U.S.C. 102 presume or require that a prior art disclosure be authored and/or published by humans? In what manner, if any,

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<sup>36</sup> MPEP 2111.

<sup>37</sup> MPEP 2131.01, subsection III (citing *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)).

<sup>38</sup> MPEP 2141.03, subsection I (citing *GPAC*, 57 F.3d at 1579).

<sup>39</sup> *Id.*

<sup>40</sup> MPEP 2141.03.

does non-human authorship of a disclosure affect its availability as prior art under 35 U.S.C. 102?

2. What types of AI-generated disclosures, if any, would be pertinent to patentability determinations made by the USPTO? How are such disclosures currently being made available to the public? In what other ways, if any, should such disclosures be made available to the public?
3. If a party submits to the Office a printed publication or other evidence that the party knows was AI-generated, should that party notify the USPTO of this fact, and if so, how? What duty, if any, should the party have to determine whether a disclosure was AI-generated?
4. Should an AI-generated disclosure be treated differently than a non-AI-generated disclosure for prior art purposes? For example:
  - a. Should the treatment of an AI-generated disclosure as prior art depend on the extent of human contribution to the AI-generated disclosure?
  - b. How should the fact that an AI-generated disclosure could include incorrect information (e.g., hallucinations) affect its consideration as a prior art disclosure?
  - c. How does the fact that a disclosure is AI-generated impact other prior art considerations, such as operability, enablement, and public accessibility?
5. At what point, if ever, could the volume of AI-generated prior art be sufficient to create an undue barrier to the patentability of inventions? At what point, if ever, could the volume of AI-generated prior art be sufficient to detract from the public accessibility of prior art (i.e., if a PHOSITA exercising reasonable diligence may not be able to locate relevant disclosures)?

*B. The Impact of AI on a PHOSITA*

6. Does the term “person” in the PHOSITA assessment presume or require that the “person” is a natural person, i.e., a human? How, if at all, does the availability of AI as a tool affect the level of skill of a PHOSITA as AI becomes more prevalent? For example, how does the availability of AI affect the analysis of the PHOSITA factors, such as the rapidity with which innovations are made and the sophistication of the technology?
7. How, if at all, should the USPTO determine which AI tools are in common use and whether these tools are presumed to be known and used by a PHOSITA in a particular art?
8. How, if at all, does the availability to a PHOSITA of AI as a tool impact:
  - a. Whether something is well-known or common knowledge in the art?
  - b. How a PHOSITA would understand the meaning of claim terms?
9. In view of the availability to a PHOSITA of AI as a tool, how, if at all, is an obviousness determination affected, including when:
  - a. Determining whether art is analogous to the claimed invention, given AI’s ability to search across art fields? Does the “analogous” art standard still make sense in view of AI’s capabilities?
  - b. Determining whether there is a rationale to modify the prior art, including the example rationales suggested by *KSR* (MPEP 2143, subsection I) (e.g., “obvious to try”) or the scientific principle or legal precedent rationales (MPEP 2144)?
  - c. Determining whether the modification yields predictable results with a reasonable expectation of success (e.g., how to evaluate the predictability of results in view of the stochasticity (or lack of predictability) of an AI system)?

- d. Evaluating objective indicia of obviousness or nonobviousness (e.g., commercial success, long felt but unsolved needs, failure of others, simultaneous invention, unexpected results, copying, etc.)?
10. How, if at all, does the recency of the information used to train an AI model or that ingested by an AI model impact the PHOSITA assessment when that assessment may focus on an earlier point in time (e.g., the effective filing date of the claimed invention for an application examined under the First-Inventor-to-File provisions of the America Invents Act)?
11. How, if at all, does the availability to a PHOSITA of AI as a tool impact the enablement determination under 35 U.S.C. 112(a)? Specifically, how does it impact the consideration of the *In re Wands* factors (MPEP 2164.01(a)) in ascertaining whether the experimentation required to enable the full scope of the claimed invention is reasonable or undue?

*C. The Implications of AI That Could Require Updated Examination Guidance and/or Legislative Change*

12. What guidance from the USPTO on the impact of AI on prior art and on the knowledge of a PHOSITA, in connection with patentability determinations made by the Office, would be helpful?
13. In addition to the considerations discussed above, in what other ways, if any, does the proliferation of AI impact patentability determinations made by the Office (e.g., under 35 U.S.C. 101, 102, 103, 112, etc.)?
14. Are there any laws or practices in other countries that effectively address any of the questions above? If so, please identify them and explain how they can be adapted to fit within the framework of U.S. patent law.
15. Should title 35 of the U.S. Code be amended to account for any of the considerations set forth in this notice, and if so, what specific amendments do you propose, and why?

**Katherine K. Vidal,**

*Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.*

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