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The Honorable Katherine K. Vidal
Under Secretary of Commerce for Intellectual Property
United States Patent and Trademark Office
600 Dulany Street Alexandria, VA 22314

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

BSA | The Software Alliance (BSA) appreciates the opportunity to respond to the April 30, 2024 solicitation of public comments by the US Patent and Trademark Office (USPTO) in relation to 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*.¹ The USPTO states that it 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.”²

Following an introductory discussion, BSA addresses the questions raised in the USPTO's Federal Register notice through the lens of statutory novelty and obviousness standards (35 USC 102-103), and the statutory enablement and written description standards (35 USC 112).

I. About BSA

As an association of the leading patent and copyright holders in software and other emerging technologies,³ BSA promotes policies that foster innovation, growth, and a competitive marketplace for commercial software and related technologies. BSA members invest heavily in intellectual property (IP), holding hundreds of thousands of patents.⁴ The software industry accounts for over \$100 billion in annual US research and development (R&D) investments and nearly one quarter of total US private sector R&D.⁵

Through the investments they make in emerging technologies; the thousands of patent applications that they file annually with USPTO and around the world; and their active use of post-grant review mechanisms to build a stronger and more resilient US patent system, BSA members are vigorous supporters of continued and future US leadership in emerging technologies, including Artificial Intelligence (AI).

II. Discussion

The US Constitution grants Congress the enumerated power, “to promote the progress of science and useful arts, by securing for limited times to ... inventors the exclusive right to their ... discoveries.”⁶ Upon this foundation, the America Invents Act (*hereinafter* “the Patent Act”) requires that a claimed invention meet requirements of novelty, non-obviousness, and enablement, which are detailed (in relevant part) as follows:

Section 102:

A person shall be entitled to a patent unless— (1) the claimed invention was 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...

Section 103:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, 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 to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Section 112(a):

The 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, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention. ...

USPTO poses several questions regarding the relationship between AI and these legal doctrines.

BSA submits that existing legal doctrines under sections 102 and 103 of the Patent Act are sufficiently adaptable to respond to new technologies that impact the scope and extent of prior art. AI is not the first technology to increase the global corpus of prior art, nor will it be the last. Since the Patent Act of 1790, the overall availability of relevant prior art has grown exponentially with the continual development of new information replication, generation, and communication technologies. New printing technologies; photocopy and facsimile machines; Internet search and indexing technologies; advanced data and graphics processing units; and various digital- and tele-communications technologies have produced a worldwide expansion and dissemination of available knowledge – increasing the speed and productivity of innovative and scientific endeavor, as well as prevalence of new inventions and the corpus of prior art.

At the same time, BSA also believes that USPTO should continue to scrutinize the specification of all patent applications to ensure that the claimed invention meets enablement requirements under section 112 whenever an applicant relies on the use of an AI tool within the scope of the claimed invention. As the use of AI tools become more widespread across technology classes, the enablement bar and written description requirements should remain high. This is important to ensure the issuance of high quality patents.

We elaborate on these points below.

1. Whether an AI-generated disclosure should be treated differently from a non-AI generated disclosure – and relatedly – whether prior art must be generated by humans

USPTO inquires whether an AI-generated disclosure should be treated differently from a non-AI generated disclosure – and relatedly – whether prior art must be generated by humans.

BSA respectfully submits that USPTO should not treat references generated with assistance of an AI tool in a manner that is fundamentally different from other references. BSA also submits that instituting a bright line rule that devalues or disqualifies prior art based on the amount of human contribution lacks a substantial legal basis and will produce unintended and undesirable consequences for the patent system.

First, there does not appear to be any compelling statutory or policy rationale for treating prior art generated by an AI system (as a tool to aid human endeavor) differently from prior art that is generated by other

technologies (used as tools to aid human endeavor). If patent examiners were to afford unique treatment to prior art generated with the aid of AI technologies, should they not also treat in unique way prior art generated with the aid of other advanced technologies, such as CRISPR gene editing technologies, quantum computing technologies, exascale computing technologies, Internet search and indexing technologies, new materials or transistor technologies, or another other technologies that aid the human search for knowledge? A proliferation of unique approaches to prior art based on the particular technology used to generate that prior art would undermine legal predictability and the administrability of the patent law. Furthermore, a rule that a particular technology could form the basis of a new patentable invention – but not of prior art – is a legally flawed, imbalanced view.

Second, a rule that all prior art must be wholly generated “by humans” would also raise questions about other prior art references that are generated directly or indirectly “by machines” at the behest of human creators (e.g., prior art references generated by computers and other digital tools, by digital editing and printing tools, by audiovisual recording and mixing equipment, etc.). We do not treat prior art references generated by these (historically) transformative technologies differently from prior art references written by the human hand. Nor should we treat prior art references generated with the aid of data analytics, deep learning, and other AI technologies differently.

Third, a rule that all prior art must be generated “by humans” would also raise questions regarding the treatment of prior art that embodies a natural occurring phenomenon (such as a newly discovered chemical compound or law of nature), which may be discovered – but not generated by – a human. While the discovery of such a new law of nature may not itself be patentable, it could contribute to the corpus of available prior art.

There is no clear statutory basis or policy rationale to exclude prior art on the basis of whether it is generated “by a human.” As noted above, the central Constitutional and statutory questions are whether a claimed invention belongs to the purported inventor, and more particularly whether it is new, non-obvious, and enabled. If a claimed invention is anticipated or obvious in light of the prior art, then the claimed invention is not patentable. USPTO should not depart from this core principle of the patent system.

2. Whether prior art generated by an AI system is sufficiently “accessible” to allow interested or skilled persons to locate the reference

USPTO also asks whether prior art generated by an AI system is sufficiently “accessible” to allow interested or skilled persons to locate the reference.

BSA respectfully submits that existing legal standards for determining accessibility of prior art are sufficiently adaptable to allow for nuanced, case-by-case determinations as to whether a particular AI-generated prior art reference should be considered to have been accessible to a PHOSITA in any particular scenario.

As stated in Section 2128 of the Manual of Patent Examining Procedure:

An electronic publication, including an online database or Internet publication (e.g., discussion group, forum, digital video, or social media post), is considered to be a “printed publication” within the meaning of 35 U.S.C. 102(a)(1) provided the publication was accessible to persons concerned with the art to which the document relates. ...

Public accessibility is determined on a case-by-case basis taking into consideration factors such as, where the information is posted, privacy restrictions placed on the posting, the length of time it was posted, and whether the information is indexed for searching. ...

A reference is considered publicly accessible 'upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable

diligence, can locate it.' 'If accessibility is proved, there is no requirement to show that particular members of the public actually received the information.'⁷

Furthermore, existing legal practice contains the following important safeguards to avoid the improper conferral of prior art status on any particular reference.

First, to qualify as prior art, there must be a clear publication date or retrieval date for any digital content. Absent such evidence, the reference "cannot be relied upon as prior art."⁸ Thus, a prior art reference generated with the aid of AI must be accompanied by evidence of the date of its publication, generation, or retrieval.

Second, references that are not systematically indexed or searchable may not be treated as prior art. For these purposes, references were deemed to be "inaccessible" in – for example – *In re Coryn* (in which doctoral theses were shelved and indexed by index cards filed alphabetically by student name and kept in a shoe box in a school's chemistry library) or *In re Bayer* (in which access to a doctoral thesis was restricted to only three members of a graduate committee).⁹ Similarly, creation of a reference through a generative AI tool would not necessarily satisfy prior art accessibility requirements if the reference was not thereafter made publicly available. On the other hand, accessibility requirements may be met in the case of an output from a generative AI tool, if that output was made publicly available prior to the critical date.

As summarized above, existing legal doctrines are adaptable enough to address a wide array of questions regarding the accessibility of prior art, including prior art references generated with the aid of AI tools. The USPTO has never adopted a brightline rule that digitally generated content is *per se* insufficiently accessible to a PHOSITA. Nor should it do so in the case of AI-generated content.

3. 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?

USPTO inquires whether the increasing availability of AI as a tool will produce any across-the-board effects on the level of skill of a PHOSITA.

BSA respectfully submits that – in cases involving any new technology (including AI) – the determination of the level of ordinary skill in the art should remain a case-by-case determination that draws upon factors including: (1) "type of problems encountered in the art;" (2) "prior art solutions to those problems;" (3) "rapidity with which innovations are made;" (4) "sophistication of the technology; and (5) "educational level of active workers in the field."¹⁰ BSA does not believe that a new bright-line rule regarding PHOSITAs in all cases is appropriate.

As the USPTO has observed, the "hypothetical 'person having ordinary skill in the art' to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art."¹¹ However, depending upon the pertinent art, AI tools may be more or less prevalent. For example, in some fields (e.g., computer-aided design and computer-aided manufacturing), PHOSITAs may have available to them AI-enhanced software tools to assist with the research and development of new products and processes. At the other end of the spectrum, in fields that are no longer at the technological cutting edge (e.g., wheelwrighting and coopering), PHOSITAs may rely more heavily on hands-on learning techniques and apprenticeships – and there may be little or no practice of relying on AI tools to advance the art.

Existing legal doctrines used to determine the level of ordinary skill in the art have long been, and remain, sufficiently adaptable to address the wide array of factors (including the availability and adoption of new technological tools, including AI) that help determine the role of the PHOSITA in patentability analysis.

4. 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)?

USPTO inquires whether the availability to a PHOSITA of AI as a tool impact the enablement determination under 35 U.S.C. 112(a).

BSA respectfully submits that the enablement and written description requirements should remain a critical check on the drafting of overbroad claims involving AI-enabled inventions. To maintain patent quality, examiners should scrutinize whether these requirements are met in cases in which the inventor claims to achieve a particular result with the assistance of AI technology. In such cases, examiners should examine the specification to ensure that a “person skilled in the art of manufacture [is enabled to] make, construct, or use” the claimed invention.¹² As stated by the Supreme Court most recently in *Amgen v. Sanofi*, a patent must not “claim much but enable little.”¹³

A rigorous application of the *Wands* factors should apply to claims that invoke use of a new and emerging technologies, including AI tools.¹⁴ A description in a specification that simply calls for the “entry of prompts into a generative AI tool” - without more - may not adequately teach a PHOSITA how to practice a particular AI-enabled claim in the same patent. An examiner faced with such a simplistic “black-box” description of how to practice the invention should carefully evaluate exactly how the specification teaches a person how to practice the claims covering an AI-enabled invention in a particular field of technology.

That is not to suggest that a PHOSITA in a field that uses AI tools must have a doctorate in data science or years of computing coding experience. In many non-software sector contexts in which AI tools are adopted, such advanced computing programming and data analytics qualifications are not necessary to the PHOSITA. However, even in such a field, an enabled specification would normally require more information about the capabilities and operation of the AI model in a particular technology context than a mere directive for “entry of prompts into an AI tool.”

As the USPTO has noted, “[n]ascent technology... must be enabled with a ‘specific and useful teaching.’ The law requires an enabling disclosure for nascent technology because a person of ordinary skill in the art has little or no knowledge independent from the patentee’s instruction. Thus, the public’s end of the bargain struck by the patent system is a full enabling disclosure of the claimed technology.”¹⁵ Likewise, the USPTO has explained that the more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. In contrast, if little is known in the prior art about the nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling.¹⁶

In sum, BSA submits that existing legal doctrines governing enablement and written description are sufficiently adaptable to address the types of factual and technology questions that will likely arise as inventors claim inventions that are implemented in an AI-enabled context. We urge USPTO to continue to scrutinize patent specifications in these situations to ensure that enablement requirements are met.

III. Conclusion

BSA thanks the USPTO for the opportunity to provide these comments. Please do not hesitate to reach out to Joseph Whitlock (josephw@bsa.org) if you have any questions or comments.

¹ US Patent and Trademark Office, *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*, 89 Fed. Reg. 34217, Docket No. PTO-P-2023-0044 (April 30, 2024).

² 89 Fed. Reg. 34217.

³ BSA's members include: Adobe, Alteryx, Asana, Atlassian, Autodesk, Bentley Systems, Box, Cisco, CNC/Mastercam, Cohere, Databricks, DocuSign, Dropbox, Elastic, EY, Graphisoft, Hubspot, IBM, Informatica, Kyndryl, MathWorks, Microsoft, Notion, Okta, OpenAI, Oracle, PagerDuty, Palo Alto Networks, Prokon, Rubrik, Salesforce, SAP, ServiceNow, Shopify Inc., Siemens Industry Software Inc., Splunk, Trend Micro, Trimble Solutions Corporation, TriNet, Twilio, Workday, Zendesk, and Zoom Video Communications, Inc.

⁴ BSA member companies accounted for 13,715 U.S. patents issued in 2021 to the top ten patent grantees. This figure corresponds to 84.37% of the 16,256 U.S. patents issued to those grantees headquartered in the United States, and 38.26% of the 35,847 US patents issued to grantees from all countries (including China, Japan, Korea, Taiwan, and the United States). See IFI Claims Patent Services, 2021 Top 50 U.S. Patent Assignees, available at: https://www.ificlaims.com/rankings-top-50-2021.htm?utm_medium=pr-blogs&utm_campaign=rankings-2021

⁵ Software.org, Support US through COVID (2021), available at: <https://software.org/wp-content/uploads/2021SoftwareJobs.pdf>

⁶ See *United States Constitution*, Article I, Section 8, Clause 8 (emphasis added).

⁷ *USPTO Manual of Patent Examining Procedure*, section 2128 (internal citations omitted)

⁸ *Id.*

⁹ *Id.*

¹⁰ See MPEP, Section 2141 (citing *In re GPAC*, 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995); *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962, 1 USPQ2d 1196, 1201 (Fed. Cir. 1986); *Environmental Designs, Ltd. V. Union Oil Co.*, 713 F.2d 693, 696, 218 USPQ 865, 868 (Fed. Cir. 1983).

¹¹ *Id.* (citing *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988)).

¹² *Bonito Boats Inc. v. Thunder Craft Boats*, 489 U.S. 141, 150-151 (1989).

¹³ *Amgen v. Sanofi*, 598 U.S. ___ (2023) (Among other things, the Court ruled that “if a patent claims an entire class of processes, machines, manufacturers, or compositions of matter, the patent’s specification must enable a person skilled in the art to make and use the entire class.”)

¹⁴ *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

¹⁵ *Id.* (citing *Chiron Corp. v. Genentech Inc.*, 363 F.3d 1247, 1254, 70 USPQ2d 1321, 1326 (Fed. Cir. 2004) (other citations omitted)).

¹⁶ See MPEP, Section 2164.04 (citing *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970)).