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Submitted via online portal
To the President of INPI, Dr. Julio César Castelo Branco Reis Moreira

Re: Comments in Response to the Draft Guidelines for Examination of Patent Applications Related to Artificial Intelligence (Public Consultation No. 3/2025), as issued by the Instituto Nacional da Propriedade Industrial of Brazil

Dear Dr. Julio,

The Intellectual Property Owners Association ("IPO") appreciates the opportunity to provide comments and suggestions on the Draft Guidelines for Examination of Patent Applications Related to Artificial Intelligence, as issued by the Instituto Nacional da Propriedade Industrial ("INPI") on August 20, 2025 ("Draft Guidelines").

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 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 an IP system that enables innovation and creativity; and disseminating information to the public on the importance of IP rights. IPO's vision is the global acceleration of innovation, creativity, and investment necessary to improve lives.

IPO recognizes INPI's objective of providing clarity and predictability in the examination of artificial intelligence ("AI") related inventions. IPO believes that these Draft Guidelines represent a significant step toward aligning Brazilian patent practice with global standards and it is particularly pleased to see the emphasis on technical contribution and technical effect, which are cornerstones of a robust patent system that encourages innovation. In the spirit of global harmonization, IPO offers the following comments and suggestions, which it believes will further improve the clarity and effectiveness of the Draft Guidelines.

1. General Approach and Alignment with International Standards

The focus of the Draft Guidelines on classifying AI-related inventions into AI models and techniques, AI-based inventions, and AI-assisted inventions (section 1.4) provides a helpful framework for analysis. Section 2.5's requirement for a technical solution and technical effect is

consistent with the practices of other major patent offices, including the European Patent Office ("EPO")[1] and the China National Intellectual Property Administration ("CNIPA").[2] Although the United States Patent and Trademark Office ("USPTO") does not directly invoke this approach, its AI guidelines have similar requirements.[3] IPO supports this alignment as it will provide greater certainty for innovators seeking to protect their AI-related inventions across multiple jurisdictions.

2. Subject Matter Not Considered an Invention (Art. 10 of the LPI)

Sections 2.7, 2.9 (Technical Fields): IPO proposes that the "technical field" limitation for eligibility be removed throughout the Draft Guidelines (e.g., sections 2.7 and 2.9) because it is inconsistent with other parts of section 2 which make clear that the appropriate limitation is "technical effect" or "technical solution" (e.g., sections 2.5, 2.7 first sentence). If the term "technical field" is meant to be synonymous with "technical effect" or "technical solution" it should be replaced with one of these terms.

If not, it is inconsistent with the Patent Application Examination Guidelines Regarding Patentability (Normative Instruction 169/2016) ("Examination Guidelines") issued by INPI, which describe how to determine inventive activity based on the identification of a technical solution to a technical problem and on the technical effect achieved by the invention. For example, item 2.7 of the Examination Guidelines states that "*the invention must solve technical problems, constitute the solution to such problems, and have a technical effect. Thus, it is necessary to demonstrate the technical nature of the problem to be solved by the proposed solution*."

[1] The EPO examination guidelines state that "[t]echnical character is an implicit requirement for there to be an 'invention' within the meaning of Art. 52(1)." EPO, *Guidelines for Examination in the European Patent Office*, at pt. G, ch. 1 (Apr. 2025), https://link.epo.org/web/legal/guidelines-epc/en-epc-guidelines-2025-hyperlinked.pdf. They further clarify that "the invention must relate to a technical field must be concerned with a technical problem and must have technical features in terms of which the matter for which protection is sought can be defined in the claim." *Id.* (internal citations omitted).

[2] CNIPA's examination guidelines for AI-related inventions state: "To be eligible for patent protection, an AI-related solution (i) cannot merely involve rules and methods of intellectual activities (Article 25.1(2) of the Patent Law) (e.g., merely involving abstract mathematical theories or algorithms without any technical features), and (ii) must be a technical solution (Article 2.2 of the Patent Law) which reflects the adoption of technical means that follow the laws of nature to solve a technical problem, and which achieves a technical effect (e.g., improving the internal performance of the computer system, etc.) that conforms with the laws of nature." Rengong Zhineng Xiangguan Faming Zhuanli Shenqing Zhiyin (Shixing) (人工智能相关发明专利申请指引（试行）) [Guidelines for Patent Applications for Artificial Intelligence-Related Inventions (Trial Implementation)] (promulgated by the Nat'l Intell. Prop. Admin., Dec. 31, 2024), https://www.cnipa.gov.cn/art/2024/12/31/art_66_196988.html.

[3] USPTO's examination guidelines state: "In determining patent eligibility, examiners should consider whether the claim 'purport(s) to improve the functioning of the computer itself' or 'any other technology or technical field.' This consideration has also been referred to as the search for a technological solution to a technological problem." U.S. PAT. & TRADEMARK OFF., MANUAL OF PATENT EXAMINING PROCEDURE § 2106.05(a) (2024) (internal citations omitted), https://www.uspto.gov/web/offices/pac/mpep/s2106.html#top. *See also* 2024 Guidance Update on Patent Subject Matter Eligibility, Including on Artificial Intelligence, 89 Fed. Reg. 58,128 (July 17, 2024), https://www.federalregister.gov/documents/2024/07/17/2024-15377/2024-guidance-update-on-patent-subject-matter-eligibility-including-on-artificial-intelligence.

The Guidelines for Computer Implemented Inventions (Ordinance 411/2020) ("CII Guidelines") issued by INPI, adopt the same approach by determining in item 3.3.[035] that "*[f]or the purposes of inventive step, the technical effects achieved by the computer-implemented invention must be taken into account.*" Therefore, a solution to a technical problem producing a technical effect suffices for eligibility. Adding the term "technical field" is unnecessary, and it discourages patenting inventions that have technical effects that are applicable in a wide range of technical fields as opposed to a single technical field.

Accordingly, IPO proposes that the last sentence of section 2.7 be revised from "*[m]ethods that employ mathematical concepts to solve a technical problem in a technical field are considered inventions as long as they do not fall under the other items of Art. 10 of the LPI*" to "*[m]ethods that employ mathematical concepts to solve a technical problem are eligible as long as the method is linked to an application that produces a technical effect*," in line with section 2.1.[011] of the CII Guidelines and the Examination Guidelines.

Sections 2.8-2.9 (Training): According to the Draft Guidelines, training appears to be *per se* ineligible. For example, section 2.8 states "training is viewed as a mathematical optimization problem" and section 2.9 states "Training Methods, etc., when not applied to a technical field, are considered mathematical methods . . . ."

IPO strongly believes that training should not be *per se* ineligible and also that Brazil's IP Law does not support such prohibitions. IPO notes that Article 10 of the Brazilian IP Law prohibits protection of computer programs, mathematical methods, purely abstract concepts, etc. However, training methods, even when based on mathematical concepts, may typically involve additional elements specific to computer implemented inventions, such as data selection, pre-processing, the generation of synthetic training data, the collection of physical sensor data, operating a computer-implemented model, evaluating the result, and/or updating parameters stored in non-transitory memory. This understanding is in line with the CII Guidelines, particularly with item 2.1.[011], according to which "*[a] computer implemented method involving mathematical concepts is considered as an invention, when such method is intrinsically linked to an application that produces a technical effect*." Furthermore, item 2.1.[012] of the CII Guidelines determines that "*[c]reations involving mathematical concepts may be considered as inventions, when applied to the solution of technical problems, and manipulate information associated to physical quantities or abstract data, with real or virtual result*."

Similarly, according to item 1.7 of the Examination Guidelines, methods using mathematical concepts for solving a technical problem inserted in a technical field are considered inventions. Thus, training methods do not fall under these prohibitions. In other words, Brazilian regulations adopt the logic that if "[t]raining a model *per se*" is solely a mathematical calculation, then it should be ineligible. However, a "[t]raining method with a technical effect in a field of technology" should be eligible for patentability, particularly if the training itself solves a technical problem. Therefore, what matters is the application and its technical effect. Thus, training algorithms *per se* can be analyzed as: if the training is abstract/purely mathematical then it is excluded, but if the training is concretely applied to a technical problem with a technical effect, then it can be patent-eligible in Brazil.

Accordingly, IPO requests that the training requirements be made consistent with the overall intent of the draft guidelines. For example, if training (and all other examples) provide a technical solution to a technical problem, there is no reason to consider it to be ineligible. This understanding is supported by item 2.1.[013] of the CII Guidelines, which states that "[013] Artificial intelligence (AI) techniques, including machine learning and deep learning tools, among others, when applied to solving technical problems, may be considered inventions." IPO also notes that the example of an eligible claim in section 3.15 does not cover training methods per se.

Section 2.9: This section of the draft guidelines precludes AI models and techniques "as such" and other excluded subject matter (e.g., commercial methods) from patentability, even if they use AI. The Draft Guidelines focus on whether an invention provides a "technical solution to a technical problem." However, they appear to draw a sharp line that may be too rigid. For instance, the draft guidelines state that claims directed to neural networks or genetic algorithms will not be eligible. This could be too rigid if, for example, a new AI model itself provides a technical advantage/effect to the operation of a computer (e.g., improves the functioning of an existing AI model, modifies an existing AI model to solve a technical problem, etc.).

Furthermore, the term "AI model" is commonly used to refer to both a mathematical model and computer-implemented embodiments that solve specific technical problems. Excluding "AI models" *per se* can therefore appear to apply a limitation that is broader than what the law supports. In this context, section 2.1.[013] of the CII Guidelines states that "AI techniques encompassing machine learning and deep learning tools, among others, when applied to solving technical problems may be considered as an invention," following the approaches adopted by the USPTO and the EPO, as well as the patentability requirements established by the Brazilian IP Law. It should also be noted that neural networks and other AI models may themselves be implemented in hardware, e.g., as application specific integrated circuits (ASICs), field programmable gate arrays (FPGAs), or physical neural networks. A broad statement that neural networks and other AI models are excluded risks excluding these implementations, which cannot reasonably be considered to be abstract or purely mathematical.

IPO proposes that the Draft Guidelines clarify that tangible implementations of AI models and techniques, including, but not limited to, Neural Networks, Support Vector Machines, Genetic Algorithms, Regression Methods, Training Methods, etc., are eligible regardless of their technical field/context.

Section 2.10: IPO proposes that Section 2.10 be amended to clarify that technical improvements to AI technology are not ineligible merely because the result can be applied to excluded subject matter. Therefore, IPO recommends emphasizing that although section 2.10 is directed to the incidence of AI-related patent applications onto other excluded subject matters, according to Article 10 of the Brazilian IP Law, there are exceptions. For example, in the CII Guidelines, item 2.1 (mathematical methods), item 2.2 (methods of a commercial, accounting, financial, educational, publishing, lottery, or fiscal nature), item 2.3 (computer programs *per se*), item 2.4 (presentation of information), and item 2.5 (operating, therapeutic, or diagnostic methods for use on the human or animal body) clearly show and describe what is patent eligible within these "excluded" areas. IPO requests that this section of the Draft Guidelines be amended to incorporate these eligible examples.

3. Enablement and Written Description (Arts. 24 and 25 of the LPI)

IPO submits that the sufficiency of disclosure requirements (e.g., sections 3.7, 3.9(a), (b), (c), (d), 3.11) are too rigid and are not consistent with Brazilian IP law. Art. 24 of the Brazilian IP Law provides a flexible standard, stating that "the specification should clearly and sufficiently describe the subject matter so that it can be carried out by a skilled person in the art and indicate, where appropriate, the best way to execute it." Furthermore, in the context of sufficiency of the disclosure, item 2.15 of the Examination Guidelines states that:

> [I]t should be ensured that the application contains sufficient technical information to enable a person skilled in the art: (i) to put the invention into practice as claimed without undue experimentation; and (ii) to understand the contribution of the invention to the state of the art to which it belongs. Undue experimentation means that a person skilled in the art, based on what is disclosed in the invention, needs additional experimentation to carry it out.

As to the definition of a person skilled in the art, it is important to note that the Examination Guidelines state, in item 5.4, that "[t]he definition of a person skilled in the art for the purposes of inventive activity is the same as for the purposes of checking sufficient disclosure." This same item determines that "[t]he person skilled in the art may be someone with average knowledge in the technique in question at the time of filing the application, with technical-scientific background, and/or someone with practical operational knowledge on the subject matter."

The facts likewise do not support the use of an inflexible list of technical details that must be provided in the specifications of AI patents. As AI is a rapidly developing area of technology, the factual assumptions which these rigid rules rely upon are very likely to change in the near future. Accordingly, it is too early to set rigid criteria for examiners to apply for sufficiency determinations. Further, the examination process needs to account for the variety of AI inventions that may be described and claimed in patent applications before the Patent Office, and this can best be accomplished by allowing some discretion regarding what can be used to establish sufficiency. Therefore, at present, examiners and applicants will benefit from a system that allows examiners some discretion. As AI develops, further harmonized criteria may become more evident but, based on the evolving state of AI technology, that point has not yet been achieved.

An examination of the nature of AI inventions supports that a flexible standard should be used. IPO notes that academic papers written by and for those of skill in the art have proved readily reproducible without the level of detail cited in the guidelines. For example, a paper by Szegedy, Vanhoucke, Ioffe, Shlens, and Wojna, entitled "Rethinking the Inception Architecture

for Computer Vision,"[4] which purportedly does not disclose all of the technical details required by the Draft Guidelines, was later implemented as an open source project, "PyTorch Vision Inception v3,"[5] by an entirely separate team, Stewart and Hug.

The rigid sufficiency requirements in the Draft Guidelines are also at odds with the requirements of other jurisdictions and would make Brazil an outlier with a significantly higher standard for allowance of AI patents than in other jurisdictions. This would tend to inhibit AI innovation in Brazil. Jurisdictions such as the U.S. and Europe do not specify sufficiency requirements in such detail but rather follow more flexible principles. For example, the USPTO examination guidelines of the USPTO specify:

> Detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention.
> . . . .
> A patent need not teach, and preferably omits, what is well known in the art.
> . . . .
> The specification may require a reasonable amount of experimentation to make and use the invention and what is reasonable will depend on the nature of the invention and the underlying art.[6]

The EPO examination guidelines likewise specify: "[i]ndeed, in some technical fields (e.g. computers), a clear description of function may be much more appropriate than an over-detailed description of structure."[7]

IPO suggests that the sufficiency requirements of the Draft Guidelines focus on the aspects of the invention that distinguish it from the prior art, and not on other aspects. IPO further suggests that post-filing evidence to show compliance with the requirements should be allowed. In addition, the requirements should only apply to cases with priority dates that are a reasonable time after promulgation of the Draft Guidelines in order to allow for reasonable notice.

Our comments on specific sections follow below.

Sections 3.2-3.4: Sections 3.2, 3.3, and 3.4 relate to sufficiency of disclosure for "AI-related creations" and their "black box" nature, which is useful to address because such AI systems may achieve useful effects and, despite the "black box" nature, one skilled in the art may be able to reproduce the technical effect of the AI invention without undue experimentation. IPO proposes that sufficiency of disclosure should only require the disclosure of elements required for a person skilled in the art to reproduce the invention without undue experimentation, in accordance with the Brazilian IP Law and the Examination Guidelines. The legal standard is

[4] CHRISTIAN SZEGEDY, VICENT VANHOUCKE, SERGEY IOFFE, JONATHAN SHLENS & ZBIGNIEW WOJNA, RETHINKING THE INCEPTION ARCHITECTURE FOR COMPUTER VISION (Cornell Univ.: arXiv 2015), https://arxiv.org/abs/1512.00567.

[5] *Inception v3*, PYTORCH, https://pytorch.org/hub/pytorch_vision_inception_v3/ (last visited Oct. 8, 2025).

[6] U.S. PAT. & TRADEMARK OFF., MANUAL OF PATENT EXAMINING PROCEDURE § 2164 (2024) https://www.uspto.gov/web/offices/pac/mpep/s2164.html.

[7] EPO, *Guidelines for Examination in the European Patent Office*, at pt. F, ch. III, § 1 (Apr. 2025), https://www.epo.org/en/legal/guidelines-epc/2024/f_iii_1.html.

whether the technical effect can be reproduced, not whether every intermediate step can be fully described. The Draft Guidelines should explicitly state that there is no requirement to explain or disclose aspects of an AI invention unless it is necessary for one skilled in the art to reproduce the technical effect of the AI invention without undue experimentation.

Section 3.5: The Draft Guidelines require detailed disclosure of AI models, algorithms, and parameters to avoid "undue experimentation." The examples provided (such as the neural network for noise cancellation in section 3.7) are specific. However, as AI models grow in complexity, requiring full disclosure of every parameter and hyperparameter could be impractical and burdensome. Many techniques for parameter determination are well-known and widely used. For example, gradient descent with backpropagation is widely used to determine neural network parameters (weights), and is easily implementable using freely available, open-source frameworks, such as PyTorch and Jax. Similarly, Bayesian Optimization and Grid Search are well-known techniques for hyperparameter optimization, and are readily performable using open-source software, such as Open-Source Vizier.

A more flexible approach, as seen in some EPO practices, is to require disclosure of enough detail for a skilled person to reproduce the technical effect, even if the exact numerical results vary slightly. For instance, the section of the EPO's Guidelines for Examination relating to AI and machine learning states:

> If the technical effect is dependent on particular characteristics of the training dataset used, those characteristics that are required to reproduce the technical effect must be disclosed unless the skilled person can determine them without undue burden using common general knowledge. However, in general, there is no need to disclose the specific training dataset itself.[8]

Furthermore, since many AI systems include a large number of techniques and parameters, the Draft Guidelines should clarify that the level of detail required is limited to those details that would enable a person skilled in the art to reproduce the invention, and that extraneous details unrelated to the technical improvement are not required.

In light of the above, IPO proposes that Section 3.5 be amended to state: "Thus, AI-related inventions must provide technical details that are sufficient for a person skilled in the art to reproduce the proposed solution without undue experimentation."

Section 3.7: In the example provided to illustrate section 3.7, the Draft Guidelines state that "[a]s the technical contribution resides precisely in the new AI model adapted to the real-time noise cancellation problem, the omission of these elements implies a lack of enablement." However, it should be clarified that an omission of technical elements only implies a lack of enablement if the omission prevents a person skilled in the art from reproducing the invention without undue experimentation.

Section 3.8: IPO suggests that the Draft Guidelines clarify that it is not always necessary to provide the specific training dataset itself, which can be voluminous and/or proprietary. Instead,

[8] *Id.* at pt. G, ch. II, § 3.3.1, https://www.epo.org/en/legal/guidelines-epc/2024/g_ii_3_3_1.html.

it should be sufficient to describe the defining characteristics and methodology used to create or curate the dataset, along with evidence of its effectiveness, as long as this information allows a person skilled in the art to practice the invention without undue experimentation. The section also states that "[t]he specification must contain a description of the dataset . . . ." Again, this statement should include a caveat that an omission of a description of the dataset (or the correlation between input and output data) only implies a lack of enablement if the omission prevents a person skilled in the art from reproducing the invention without undue experimentation.

Section 3.9: As with sections 3.7 and 3.8, any listing of technical elements that may be required for an adequate disclosure should include a caveat that the omission of technical elements only implies a lack of enablement if the omission prevents a person skilled in the art from reproducing the invention without undue experimentation.

Section 3.10: This section correctly states that it is admissible to omit details that are not necessary for one skilled in the art to reproduce the invention. However, the wording of the Draft Guidelines may appear to limit this principle in a way that is not supported by Brazilian IP law. For example, the word "exceptionally" suggests that this limitation of the disclosure requirements is not common. However, a written description of an AI invention will omit certain implementation details to focus on the key inventive concept, and even the notion of what may be "exceptional" will only change with advancements in AI technology. Accordingly, IPO suggests that the term "exceptionally" be removed.

Section 3.10 also requires that the list of three items (I-III) must be "simultaneously met." This is an unnecessarily rigid standard. IPO submits that any one of those individual items can be a justification for concluding that a detail is not required. Accordingly, IPO proposes that the phrase "simultaneously" be removed and that the term "and" after item II be replaced with an "or."

Section 3.11: IPO proposes that section 3.11 include a caveat that only those aspects of specialized hardware that are necessary for one skilled in the art to reproduce the invention without undue experimentation need to be disclosed.

Section 3.12: This section suggests that using AI to assist in the discovery or implementation of an invention creates an additional burden on the inventor to demonstrate an expected technical effect. Any such additional limitation could discourage the use or disclosure of AI in developing inventions. Therefore, IPO proposes that this section be modified to clarify that AI-assisted inventions are subject to the same requirements for showing the existence or plausibility of a technical effect as any other invention. The possibility of algorithmic "hallucination" by an AI is no different, in principle, from the possibility that a human inventor could be mistaken about a technical effect, and such algorithmic "hallucinations" should not entail additional disclosure requirements. Furthermore, the suggestion that the additional requirement can be waived when an AI system is "reliable" is vague, impractical, and not verifiable. It would require a whole new field of law to determine the degree of reliability of AI systems, as well as the degree of reliance on an AI system that could trigger an additional legal question of whether the system is reliable.

Section 3.13: The Draft Guidelines state that claims "directed exclusively to the AI model or technique itself" will not be admitted. This includes claims for "neural networks, genetic algorithms, [and] methods of training," among others. However, as discussed above (*see supra* comments to section 2, especially sections 2.9-2.10), the terms "training" and "AI model" are commonly used to refer to some inventions that are eligible under current Brazilian IP law and the CII Guidelines. Furthermore, the standard set out in section 3.13 is more rigid than the EPO standard, which considers whether a mathematical method or computer program "as such" is being claimed. In particular, AI models or techniques that contribute to producing a technical effect that serves a technical purpose are permitted in Europe (see EPO's Guidelines for Examination G-II 3.3: 3.3 Mathematical methods, where it is noted that AI techniques are considered to be mathematical methods).[9] Furthermore, where an AI model is deemed to serve a technical purpose, the steps of generating the associated training set and training the AI model may also contribute to the technical character of the invention if they support achieving that technical purpose (see EPO's Guidelines for Examination G-II 3.3.1: 3.3.1 Artificial intelligence and machine learning). The EPO allows patents for these if they solve a technical problem. For example, the EPO has granted patents for AI models used in image classification. One example - which is referred to in the section on artificial intelligence and machine learning of the Case Law of the Boards of Appeal at the EPO (I D 9.2.11(e): e) Artificial Intelligence and Machine Learning) - is European Patent No. EP1418509B1, which relates to a method for improving image classification by training a semantic classifier with a set of exemplar color images.[10] By listing specific categories, the Draft Guidelines might be seen as precluding patentability for new, technically inventive AI models that could improve the functioning of a computer system itself (which is a recognized path for patentability at the EPO and the USPTO).

Sections 3.14 and 3.15: The guidance on claim drafting is logical and aligns with the substance-over-form approach. IPO proposes that claims be evaluated based on the technical improvements made by the AI model. The proposed reformulations (e.g., from "method of training a neural network" to "method of face recognition using a neural network") may be unduly restrictive as long as the technical effect is understood from the claims.

As discussed previously, none of these categories of claims violates Art. 10, I of the Brazilian IP Law, since they do not necessarily involve pure mathematical methods, but instead involve several technical aspects that can solve a technical problem and result in a technical effect. This understanding is supported by item 2.1.[013] of the CII Guidelines, which states, "[013] Artificial intelligence (AI) techniques, including machine learning and deep learning tools, among others, when applied to solving technical problems, may be considered inventions."

Although IPO understands that the Draft Guidelines are trying to direct the drafting of the preamble to "make the application explicit at the beginning of the claim," IPO believes that such a requirement is too restrictive since a person skilled in the art or any interested party would understand what the invention is directed to from the claims. Additionally, section 3.14, as drafted, appears to exclude eligibility for inventions that improve the functioning of AI itself.

[9] *Id.* at pt. G, ch. II, § 3.3, https://www.epo.org/en/legal/guidelines-epc/2024/g_ii_3_3.html.

[10] EPO, *Case Law of the Boards of Appeal*, at pt. I, ch. D, § 9.2.11(e) (10 ed., 2022), https://www.epo.org/en/legal/case-law/2022/clr_i_d_9_2_11_e.html.

IPO proposes that additional examples be included such as “Method of training a machine learning model,” “Method of operating a computer implemented neural network,” etc.

Section 3.15 is confusing and could be interpreted to involve an additional requirement for AI inventions. Art. 25 of the LPI states that the claims must be substantiated in the specification, characterizing the particularities of the application and defining clearly and precisely the subject matter to be protected. Claims directed to improvements in AI models or techniques should be sufficiently clear, provided that they include technical features corresponding to the technical solution sufficient to achieve the desired technical effect without undue experimentation. In some cases, improvement of a particular AI technique could be applied to multiple related categories. Furthermore, the example suggests that training a neural network is not an acceptable category of invention, which is not supported by Brazilian IP Law and the Examination Guidelines. In other words, if training a neural network involves a solution to a technical problem that results in a technical effect, then it should be accepted as a claimed category *per se*.

Examples: The inclusion of examples is highly beneficial. IPO recommends adding more examples that demonstrate both a successful and an unsuccessful claim, similar to the format used for an inventive step. This would provide applicants with a clearer understanding of the line between patentable and non-patentable subject matter.

4. Inventive Step (Arts. 8 and 13 of the LPI)

The analysis of an inventive step in the Draft Guidelines is well-structured and provides reasonable guidance. The examples provided for "mere automation," "mere combination," and "mere substitution" are particularly helpful in illustrating what constitutes an unexpected technical effect. However, many of these requirements for inventiveness are too rigid and are not supported by Brazilian IP Law, the Examination Guidelines, or the CII Guidelines. Our comments on specific sections follow.

Section 4.2: This section states that a person skilled in the art for purposes of determining whether an invention includes an inventive step could be considered to be a “*group* of people with knowledge *both* of AI methods and techniques *and* of the technical field” (emphasis added). Note, however, that in practice before the EPO, for instance, the situations in which the skilled person may be a group of people are limited. As stated in the Case Law of the Boards of Appeal at the EPO (I D 8.1.2: 8.1.2 Competent skilled person – group of people as "skilled person"), “the person skilled in the art was normally not assumed to be aware of patent or technical literature in a remote technical field.”[11] Indeed, it may be inventive to combine aspects from two different fields in a way that would not be obvious to any individual in either field. However, in some cases a non-obvious invention may appear obvious if a group of people with specific areas of expertise are selected *post hoc*, when it was not obvious to convene such a group at the time of the invention. Therefore, it should be clarified that the “group of people” refers only to groups that would have been obvious to convene prior to the time of the invention.

[11] *Id.* at pt. I, ch. D, § 8.1.2 (10 ed., 2022), https://www.epo.org/en/legal/case-law/2022/clr_i_d_8_1_2.html.

Additionally, with the recent advances in generative AI and the rapid advancements in this field, it is conceivable that many inventions may not involve knowledge of the AI methods at all but involve a technical advancement in a technical area. Also, a person skilled in a first technical area may be aware of potential improvements in a second technical area (without "knowledge" of the second technical area) and use AI-assisted tools to make their conceptions viable.

Accordingly, IPO proposes that the statement be revised to state that "the 'person skilled in the art' is considered to be a person with knowledge of: (a) AI methods or techniques, or (b) knowledge of the technical field." In case the INPI wants to retain the "group of people" standard, IPO proposes that the statement be revised to state that "the 'person skilled in the art' is considered to be a person or a group of people with knowledge of: (a) AI methods or techniques, or (b) knowledge of the technical field, where such a group would have been obvious to convene prior to the time of the invention."

Section 4.4(a): This section excludes "mere automation by means of AI" unless "such automation results in an unexpected technical effect." IPO believes that this is unduly restrictive and requests that section 4.4(a) be revised to clarify that the specific means by which AI automates something may also be patentable.

Section 4.4(b): IPO believes section 4.4(b) is unduly restrictive. It states that "mere combination of known AI models and techniques … *only* confers inventive step when such combinations produce an *unexpected* technical effect for the skilled person." (Emphasis added). This section contradicts statements in section 3 regarding the capabilities of a person skilled in the art. The assertion that it is common to combine known AI models and techniques should not be used as a blanket rule to deny inventive step. AI is a vast field, and a combination may be inventive if it involves models from disparate subfields of AI that have not previously been combined, or if it overcomes a technical prejudice against such a combination. The problem-solution approach for inventive step should be applied on a case-by-case basis, just as it is for combinations in any other technical effect. IPO requests that section 4.4(b) be revised to clarify that "such combinations confer an inventive step when a technical solution to a technical problem is presented, and the combinations would not have been obvious to a person skilled in the art prior to the time of the invention."

Section 4.4(d): While routine parameter adjustments may not confer an inventive step, IPO suggests clarifying the distinction between routine and non-routine optimization. An optimization procedure may be non-obvious if it is tied to a specific technical problem and/or demonstrates a functional synergy with hardware. The example for the "method for classifying images in a convolutional neural network" that considers latency and memory resources is a strong illustration of a patentable non-obvious optimization. IPO recommends adding more such examples to this section.

Section 4.6: The Draft Guidelines require "human intellectual work" and a "real contribution to the conception of the invention." As AI becomes more sophisticated, the "human intellectual work" required might shift from direct conception to a more abstract level of problem formulation or AI system design. It is recommended that Brazil consider a more flexible, more adaptable standard to foster innovation where the AI's contribution is significant but a human's input is key. For example, section 4.6 requires that a technical solution must be 1) structured, 2)

validated, and 3) claimed by a natural person. This section is directed to avoid a proliferation of inventions by AI without human contribution. IPO believes that the other sections of the Draft Guidelines provide adequate safeguards against such a future possibility. Therefore, the section should be brief and flexible, rather than lengthy and prescriptive, to accommodate future developments.

Lastly, IPO also recommends adding, in a convenient and emphasized place in the Draft Guidelines, that the examples provided throughout the document are non-exhaustive and illustrative for clarification purposes only.

5. Harmonization with Other Jurisdictions

INPI's draft guidelines are already well-aligned with the prevailing standards in the U.S., Europe, and China. This is a significant achievement and a positive step for international trade and innovation. By reinforcing a technical problem/solution approach, the INPI is creating a transparent and predictable environment that will attract innovators from around the world. IPO believes its suggestions could help improve the clarity and effectiveness of the Draft Guidelines and harmonize Brazil's approach with that of other innovative jurisdictions.

IPO thanks INPI for its attention to its comments and welcomes further dialogue and opportunity to provide additional input.

Sincerely,

Krish Gupta

Krish Gupta
President