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## REPORT ON THE EXPERT EXCHANGE ON LEGAL AND POLICY OPTIONS IN THE AREAS OF PATENTABILITY CRITERIA AND AI INVENTORSHIP (SCP/37), AND SUMMARY OF THE POLICY OPTIONS BASED ON RELEVANT WIPO DOCUMENTS

*Document prepared by the Secretariat*

1. At its thirty-sixth session, held in Geneva from October 14 to 18, 2024, the Standing Committee on the Law of Patents (SCP) decided that the Secretariat would organize an expert exchange at the thirty-seventh session of the SCP on legal and policy options in the areas of patentability criteria and AI inventorship, based on documents SCP/36/5, SCP/35/7 and WIPO's IP Policy Toolkit, "Getting the Innovation Ecosystem Ready for AI".

2. An expert exchange on legal and policy options in the areas of patentability criteria and artificial intelligence (AI) inventorship was held on November 5, 2025, at WIPO headquarters in Geneva as one of the activities organized by the Secretariat under the "Quality of Patents" agenda item at the thirty-seventh session of the SCP, held from November 3 to 7, 2025.

3. It should be recalled that, at its thirty-seventh session, the SCP requested that the Secretariat prepare a report on the expert exchange held during SCP/37 on legal and policy options in the areas of patentability criteria and AI inventorship, along with a summary of the policy options discussed during this exchange as well as in relevant WIPO documents. The report on the expert exchange held during SCP/37 is contained in Annex 1, and the summary of policy options is contained in Annex 2.

[Annexes 1 and 2 follow]

## ANNEX 1: REPORT ON THE EXPERT EXCHANGE ON LEGAL AND POLICY OPTIONS IN THE AREAS OF PATENTABILITY CRITERIA AND AI INVENTORSHIP (SCP/37)

### INTRODUCTION

1. The main objective of the Expert Exchange was to provide Member States and observers with a platform to share their experiences regarding legal and policy options in the areas of patentability criteria and AI inventorship. Member States have also expressed a strong interest in hearing from experts in the context of the Expert Exchange.[1]

2. The Expert Exchange was moderated by Mr. Daryl Lim, Professor, Penn State Dickinson Law, Pennsylvania, and consisted of a panel of five experts in the field:

i. Ms. Daria Kim, Senior Research Fellow, Max Planck Institute for Innovation and Competition, Munich, Germany;
ii. Ms. Ngozi Aderibigbe, Partner, Gray & Silicon Legal Advisors, Lagos, Nigeria;
iii. Mr. Bruce Dearling, Partner, Hepworth Browne, Bath, United Kingdom;
iv. Mr. Arul George Scaria, Professor, National Law School of India University, Bengaluru, India;
v. Ms. Alexandra George, Associate Professor, University of New South Wales, Australia (Discussant).

### PRESENTATIONS

#### Panelist 1: Ms. Daria Kim

3. Ms. Daria Kim opened with a broad policy perspective on AI patentability and its implications for AI innovation and innovation policy. She noted that, given AI's strategic importance and the role often attributed to patent protection, policymakers were understandably asking how patent regimes might be designed or adjusted to better support AI innovation. She explained that this raised the broader question of the role patents play in AI innovation. While stronger patent protection might appear to be a straightforward way to promote innovation, she emphasized that patents involve both costs and benefits and may either support or restrain innovation and welfare.

4. Ms. Kim stated that the key issue was how to balance the costs and benefits of patents across technological contexts. She clarified that "AI patents" was a broad and potentially confusing term covering different types of subject matter. She distinguished patents claiming AI technologies, systems, or applications from inventions assisted by AI, noting that her presentation focused on patentability issues for AI technologies. She added that this category itself was diverse, covering methods, architectures, models, algorithms, software, and hardware.

5. Ms. Kim observed that patentability issues varied by subject matter and highlighted the policy distinction between use-case-specific AI applications and more general-purpose tools. She noted that this distinction affected the scope of protection and the balance of costs and benefits, particularly for large generative AI models. She stated that, although AI was not new, large generative AI models had raised significant questions about patent eligibility. She cautioned against generalizations and located AI patentability within international patent law, noting that TRIPS imposed core obligations to protect inventions in all fields of technology and to apply novelty, inventive step, and industrial applicability requirements.

[1] The agenda and the presentations delivered during the expert exchange are available on the SCP webpage at: https://www.wipo.int/meetings/en/details.jsp?meeting_id=86309. The webcast of the expert exchange is available at: https://webcast.wipo.int/video/SCP_37_2025-11-05_126067.

6. Ms. Kim explained that national policy space remained in interpreting “invention” and “technology” and in applying substantive patentability standards. She observed that, although studies often presented extensive patent statistics, such data did not by itself provide actionable guidance on policy choices.

7. Referring to various reports and AI Index data, she emphasized that statistical associations were difficult to interpret and did not establish causation. While such data had limited policy value, she noted that some reasonable assumptions could still be made about the role of patents in AI innovation. Considering the patent functions of incentivizing innovation, diffusion, and disclosure, Ms. Kim questioned whether patents had played a major role in AI. She suggested that, for valuable assets such as data and models, factual exclusivity, technical protection, and trade secrets might be more important than patents.

8. She noted the lack of data on AI patent litigation, licensing, and corporate valuation of AI patents. She added that recent AI advances appeared to be driven by broader technological and economic factors, including data availability, computing infrastructure, AI models as a service, and open-source practices. On disclosure, she said it remained unclear whether AI patent disclosures played a distinct role, given extensive academic and industry research output. She concluded that AI patentability could be used for innovation policy purposes, but empirical knowledge remained limited and patent statistics alone were insufficient.

9. Ms. Kim stressed that maximizing patent protection did not necessarily maximize innovation. She called for a broader innovation-policy assessment, caution regarding extremes, and careful consideration of access issues, since excessive exclusivity over enabling AI technologies could hinder follow-on innovation.

**Panelist 2: Ms. Ngozi Aderibigbe**

10. Ms. Aderibigbe stated that AI was redefining both inventions and how they were made. Her presentation examined AI inventions through traditional patentability requirements and their socioeconomic implications. She noted that, absent specific policy or legislative changes, AI inventions would continue to be assessed under the familiar requirements of novelty, inventive step, and industrial applicability. She explained that patent law first asks whether the subject matter is patentable at all, noting that many laws exclude mathematical methods, algorithms, and computer programs where they are too abstract or lack a technical result. She then compared software and AI patents.

11. Ms. Aderibigbe observed that, although software and AI systems differ, both rely heavily on algorithms. Referring to the U.S. Supreme Court decision in *Diamond v. Diehr*, she suggested that well-established software patent case law could inform AI patentability by distinguishing abstract algorithms from algorithm-based inventions that produce a technical result. She noted a similar approach in *Vicom* and said AI patents should likewise be assessed according to whether they produce a technical result beyond their algorithmic basis. Referring to *Recentive Analytics,* she noted that generic machine-learning techniques applied to event scheduling were held not to go beyond the prior art. She explained that, although AI made scheduling faster, the court treated scheduling itself as prior art. Turning to novelty, she emphasized that novelty depended on prior art and raised the question of how prior art should be understood for AI inventions.

12. Ms. Aderibigbe asked how prior art should be assessed when AI systems can access, generate, and analyze vast information to produce inventions that avoid existing knowledge. She noted that this raised concerns about the pace of AI-generated inventions and the ability of human inventors to keep up. She queried whether AI-generated inventions could reduce incentives for human invention by raising the prior-art threshold. On inventive step, she stated that the issue was whether the invention improved sufficiently on the prior art to be non-obvious to the skilled person. In the AI context, she asked whether obviousness should be assessed by

reference to a human skilled person, an AI-assisted human, or another standard, and whether a solution easily generated by AI should be considered obvious.

13. On social considerations, Ms. Aderibigbe recalled the patent bargain of disclosure in exchange for exclusivity. She noted that AI “black box” inventions could make meaningful disclosure difficult, raising questions about the public benefit of such patents.

14. Regarding African countries, she observed that many had not fully benefited from either patents or AI. Citing a 2023 study showing that only about 0.6 per cent of global patents originated from African countries, she suggested that the issue might lie in how the patent system had been implemented for them. She concluded that AI inventions called for policy discussions reflecting African countries’ national interests.

**Panelist 3: Mr. Bruce C. Dearling**

15. Mr. Dearling began by referring to the economic value of AI technology in the United Kingdom, noting that a 2024 CCIA report projected it at approximately 227 billion pounds and linked it to one in 13 jobs. He said his presentation would address patentable inventions in light of international patentability standards, statutory exclusions, and national laws. He emphasized Article 27.1 of TRIPS, which required patents to be available in all fields of technology, and said that it raised questions about what constituted “technology” and what tests should apply. He explained that these questions were interpreted through national case law rather than policy and suggested that practical guidance was needed. He added that innovation was often misunderstood at the national level, by examiners, and even by courts.

16. Mr. Dearling stated that AI raised specific problem-solution issues and that particular AI applications could be highly beneficial to society. He therefore considered guidance, education, and understanding to be essential. He said that the common objective was to promote economic well-being through technical innovation. Referring to the 2025 Nobel Prize in Economics, awarded for the theory of sustained growth through creative destruction, he explained that patent law illustrated how new technologies could replace older ones, generating economic value and returns for business. He observed that some of these exclusions were very old, dating in some cases to 1623, and that the approaches in New Zealand, Australia, the United Kingdom, Europe, the United States of America, and ARIPO countries were broadly similar. However, he considered that, despite this broad alignment, practical outcomes often differed. He asked whether the real issue was what could be protected or what should be protected, and what justifications supported those choices.

17. Mr. Dearling said that collective discussion was required because much of the relevant legislation dated from the 1970s, when the future ubiquity of computers and twenty-first century technologies could not have been fully anticipated. He noted that there were no express patentability rules for assessing AI-based inventions. Traditionally, such inventions had been addressed through exclusions relating to mathematical methods, algorithms, or computer programs, but he questioned whether those exclusions were appropriate for AI technologies.

18. He said that, although AI systems might involve mathematical processes or practical computer applications, they were fundamentally different from ordinary computer programs. Based on his experience in international prosecution, he questioned whether these technological differences were always understood. He returned to the need for harmonized guidance, noting that it would support legal certainty, reduce applicant costs, and simplify approaches.

19. Mr. Dearling emphasized the importance of international consistency, economic collaboration, fairness, and objectivity. In his view, this required high-level guidance on how national offices should assess patentable inventions and exclusions, particularly for AI and future technologies. He added that consensus was needed on the nature of AI inventions and on how AI systems function. He said that examiners would benefit from a consistent approach when assessing such inventions. He explained that legal systems could be codified or

precedent-based, but that the key questions arose from TRIPS: what constituted technology, what should be excluded from patentability, and why.

20. Mr. Dearling said that core patentability questions included what constituted a mathematical method or a computer program, and how inventive step should be objectively assessed. He noted that case law was not always helpful, yet was being used to interpret the law.

21. He observed that national statutes were often decades old and that case law had produced generalized concepts that could be misapplied to future technologies. Referring to the UK *Emotional Perception* case, he said that defining a computer merely as a machine for processing information was overly broad and could cover devices such as sextants, washing machines, or ASICs. He warned that poorly reasoned cases could lead to the rejection of valuable AI and other technological inventions, to the detriment of society and the economy.

22. Mr. Dearling stated that the relationship between AI and neural networks was complex, but that applied AI used to solve a real-world technical problem should generally be patentable. He compared this to mathematical methods, computer programs, and computer-implemented inventions, noting that patent protection should be available where there was a practical application or result.

23. He then raised the question of AI building blocks, noting that the forthcoming UK Supreme Court decision in *Emotional Perception* could have wider effects, particularly in Commonwealth jurisdictions. He said it was useful to examine neural-network technology more closely in that context. He explained that equating artificial neural-network neurons with computers and resistors connected by wires could make the definition apply to almost every circuit produced in recent decades. He therefore considered the decision potentially important and problematic, with possible economic implications. He also noted that neural networks and AI were not viewed consistently across jurisdictions.

24. Mr. Dearling observed that the United States of America and Japan approached AI patentability differently from the United Kingdom, Brazil, and India. He queried whether an arbitrary and inappropriate distinction was being drawn, and suggested that this was likely to be a problem. He stated that current definitions appeared to apply very broadly, including to mechanical devices, digital filters, and other technologies. Returning to Article 27.1 of TRIPS, he emphasized that the meaning of “technology,” “technical effect,” and “technical benefit” remained unclear, despite their importance for patentability.

25. Mr. Dearling said that the profession had repeatedly sought guidance on these concepts but had not received it. He suggested that it might be time for the Committee or the Organization to provide such guidance, and briefly turned to how technology might be defined. He suggested that practical applications in all fields of technology could be broadly understood, potentially including technically implemented business methods, while exclusions might be more appropriate where the claimed subject matter sought merely to control individual behavior.

**Panelist 4: Mr. Arul George Scaria**

26. Mr. Scaria said that inventorship mattered for both AI-assisted and AI-generated inventions. He recalled that historically, patent law had focused on the “true and first inventor,” with inventorship serving important attribution and other functions, traditionally linked to human inventors. He noted that inventorship had significant implications even where the inventor was not the patent owner, but that many jurisdictions still lacked precise definitions of “inventor” or “joint inventor.” He explained that conception was generally treated as the cornerstone of inventorship, reflecting a mental act and a close link between inventor and invention. In the AI context, he referred to the DABUS applications filed by Dr. Stephen Thaler in several jurisdictions for inventions claimed to have been autonomously generated by AI.

27. He observed that most jurisdictions considering DABUS had concluded that only natural persons could be inventors. He cited the United Kingdom, where the matter ultimately reached the Supreme Court, which held that an inventor must be a human being. He noted similar outcomes in the United States of America, Japan, China, and India, while South Africa remained an outlier because the relevant application had not been substantively examined. He added that recent Chinese guidance expressly recognized only natural human beings as inventors, and that India had taken a similar position in a first examination report. He emphasized that, given AI's growing role in innovation, the issue would need to be addressed.

28. Mr. Scaria referred to four policy options discussed in the WIPO AI and IP Policy Toolkit.[2] These options are: maintaining the status quo of recognizing only human inventors; allowing AI systems to be named as inventors or joint inventors; appointing a legal person as a proxy for AI; or developing a sui generis system. He expressed a preference for retaining human inventorship under patent law, unless future empirical evidence showed a need to incentivize machine-generated inventions through a sui generis system.

29. For AI-assisted inventions, he supported the USPTO approach that a human who made a significant contribution to the claimed invention could be recognized as inventor, assessed case by case and claim by claim. He said this approach preserved the integrity of the patent system while allowing AI to accelerate innovation. However, he identified disclosure as a major challenge, including what AI use should be disclosed, how it should be disclosed, and whether patent application forms should include specific AI-use information. He emphasized that disclosure requirements would be ineffective without proper enforcement, noting that consequences for incorrect inventorship declarations were currently limited in many jurisdictions. He hoped the SCP would help build global consensus on appropriate and enforceable AI-related disclosure mechanisms.

**Panelist 5: Ms. Alexandra George (Discussant)**

30. As the discussant in the panel, Ms. George said that the presentations showed that the central challenge was no longer only how AI fitted within patent doctrine, but how patent law could retain coherence and legitimacy as invention became increasingly distributed between humans and machines. She recalled that the toolkit was intended not to provide final answers, but to offer shared analytical frameworks for policymakers; two years later, the rapid advance of generative AI had made conceptual clarity even more urgent.

31. She summarized the panelists' contributions, noting that Ms. Kim questioned whether patents still stimulated innovation, Ms. Aderibigbe highlighted the strain that algorithmic opacity placed on disclosure, Mr. Dearling showed how definitional uncertainty could produce inconsistent outcomes, and Mr. Scaria outlined policy options for AI-generated invention.

32. Ms. George offered three reflections. First, she said inventorship should not be abandoned, but re-anchored for the AI age. As AI becomes embedded in research tools, the relevant human contribution may lie less in the original cognitive spark and more in recognizing, developing, and taking responsibility for inventive outputs. She suggested that future inventorship might focus on judgment, accountability, and the decision to claim an invention rather than tracing every step in the creative chain. This, she said, would preserve continuity with patent law's historical evolution while allowing it to adapt to AI. Second, on disclosure and transparency, she agreed that disclosure remained the lynchpin of the patent system, but noted that even sophisticated users often could not fully explain how AI systems generated inventive outputs. She proposed that disclosure might focus on procedural transparency: how AI was used, at what stage, with what type of system, and to what extent. Such attestation could give examiners and researchers a realistic account of inventive activity without requiring impossible algorithmic explanations. Third, recalling Ms. Kim's point, she emphasized that patents were

[2] *WIPO (2024) Getting the Innovation Ecosystem Ready for AI: An IP Policy Toolkit, available at:* https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2003-en-getting-the-innovation-ecosystem-ready-for-ai.pdf.

only one part of the wider innovation ecosystem. Reform should therefore remain proportionate, preserve the integrity of the broader IP framework, and maintain the balance between private reward and public benefit.

33. Ms. George concluded that any legal response should reinforce disclosure, transparency, human accountability, and equitable participation. The key task, she said, was not merely to define AI invention, but to determine what forms of human agency patent law should continue to recognize and reward so that AI-enabled innovation remains aligned with the social purposes of patent law.

**MODERATED DISCUSSION**

34. Mr. Lim opened with a question on AI litigation in the patent space. He noted the contrast between the significant amount of AI-related copyright litigation and the relative silence around AI and patents, apart from isolated cases. He asked whether the lack of visible patent disputes suggested that there were no major problems in the patent space, and consequently, whether the EPO would pay close attention to recent case law. He invited Mr. Dearling and then Ms. Kim to respond.

35. Mr. Dearling, in his reply, said that the UK Supreme Court's *Emotional Perception* case directly concerned the patentability of AI and neural-network technologies and could provide useful guidance for other jurisdictions. He noted that the case was being closely monitored, including by senior contacts at the EPO, and warned that divergence between the UK Supreme Court and the EPO would create inconsistent treatment of applicants across major jurisdictions. He added that, because patent law was constrained by TRIPS and other international obligations, any problematic outcome would be difficult to change quickly. He therefore hoped the Supreme Court's decision would align with the EPO approach.

36. In her reply, Ms. Kim said that *Emotional Perception* differed from AI copyright litigation because it was not an infringement case. She noted that, although a 2025 U.S. study had identified several thousand cases involving "AI patents," it was unclear what subject matter those cases actually concerned. She considered that the study might not capture the technologies at the core of current AI developments. The absence of high-profile AI patent cases could reflect detectability, burden-of-proof, or discovery issues, but also companies' reluctance to litigate, which might indicate where they see the real economic value. Ms. Kim suggested that technical protection measures and trade secrets may better capture the value of AI technologies. She pointed to AI models offered as a service through APIs, where reverse engineering is often impractical, and to open-source practices that allow companies to benefit from access and ecosystem entrenchment without relying solely on exclusivity.

37. Mr. Lim then asked how Member States should obtain the empirical data needed to make informed policy decisions in this area, inviting Mr. Scaria or Ms. Kim to respond.

38. Mr. Scaria responded to the previous question and said that he found the comparison with AI-related copyright litigation useful and identified two reasons why similar patent litigation may be limited. First, he said the consequences of inadequate inventorship disclosure were often underestimated, even though inventorship served important direct and indirect functions. Without appropriate policy measures, the value of the human inventor could decline over time. Second, he noted that many jurisdictions imposed only limited consequences for incorrect inventor disclosure, often allowing correction before the patent office. Unless the value of inventorship and enforcement consequences were strengthened, litigation in this area might remain limited. On empirical data, Mr. Scaria said each Member State should study whether a sui generis system was needed to incentivize investment in AI-related innovation. He stressed that investment alone did not make a person an inventor under patent law, although it could justify ownership. In his view, discussions on a possible sui generis system should begin only if empirical evidence showed a need for additional incentives.

39. As a follow-up to Mr. Scaria, Mr. Lim asked what a *sui generis* system would look like.

40. Mr. Scaria said that, since the discussion was still at an early stage, it was not yet possible to determine what such a system should look like. However, he emphasized that existing patent-law approaches should not simply be transposed into such a system. For example, he suggested that inventive-step analysis might need to be revisited and that any new system could involve a shorter term of protection, possibly around five years. He stressed, however, that the appropriate term and design should depend on empirical evidence gathered from Member States.

41. Mr. Lim then asked who should lead the collection of empirical data (Member State governments, academia, or others) and how far data and conclusions from the United States of America or the European Union could be applied to local contexts, particularly in resource-constrained countries in the Global South.

42. Mr. Scaria responded by stating that, although resources were limited in the Global South, creating a new monopoly carried social costs and therefore warranted some investment of time, effort, and money by Member States. He considered that academic institutions should ideally lead this work, since relying too heavily on governments or industry could produce undesirable consequences.

43. Mr. Lim introduced his third and final question. He asked Mr. Scaria, speaking as an academic from India rather than on behalf of his Member State, what India was doing in this area.

44. Mr. Scaria said that, given the absence of a final conclusion even in the DABUS discussions, India appeared to be taking a wait-and-watch approach. Speaking as a researcher, he emphasized the need for further discussions on this issue in all Member States, including India.

45. Mr. Lim then asked Ms. Aderibigbe about the equity issue she had raised at the end of her presentation. Referring to patents as a social contract between society and the inventor, he asked whether that contract needed to be recalibrated for AI and patents.

46. In reply, Ms. Aderibigbe agreed that the patent social contract may need to be reconsidered for AI. Aligning with Mr. Scaria, she suggested that a sui generis system could help ensure that AI-related inventions deliver benefits to society. She noted that traditional disclosure-based approaches may remain difficult in this context, but emphasized that the system should still promote and incentivize innovation. In her view, countries, including African countries, should determine for themselves what policy choices would best support innovation within their own circumstances.

47. As a follow-up, Mr. Lim asked whether differing needs in the Global North and Global South could lead to bifurcated, or even multiple, sui generis systems at the intersection of AI and patents.

48. Ms. Aderibigbe said she did not expect entirely disparate principles to emerge. While discussions might begin with different national or regional considerations, she expected convergence on core issues, particularly where differences could affect international trade. She added that such alignment need not require sacrificing local realities. She explained that local circumstances could still shape policy design while broader principles remained aligned. Drawing an analogy with copyright, she noted that systems could share common principles despite jurisdictional differences and still encourage innovation and creativity.

49. Mr. Lim asked Ms. Aderibigbe how she saw the debate developing and materializing in Nigeria.

50. Ms. Aderibigbe said that, in Nigeria and some other African countries, AI discussions were focused on using the technology to solve local problems. She noted that many current AI systems relied on non-localized data and infrastructure, making local data capacity essential for developing AI inventions that respond to specific national needs. She added that, although patent-related discussions would likely follow, they had not yet become a priority; the immediate focus was on building solutions that addressed local problems.

51. Mr. Dearling agreed with Ms. Aderibigbe, noting that the appropriateness of a sui generis right depended on the nature of the invention and could be justified partly by current patent-office grant timelines.

52. Mr. Lim then invited a skeptical view on whether a sui generis system was needed.

53. In reply, Ms. Kim cautioned that the discussion was still at the stage of defining what problem a sui generis system would solve. She said assumptions about AI's transformative impact on innovation and innovation processes required further factual and economic investigation before modifying the patent system or creating a new regime.

## STATEMENTS MADE FROM THE FLOOR

### Delegation of Estonia

54. The Delegation of Estonia, speaking in its national capacity, thanked the speakers for their insightful presentations and asked which priority policy areas Member States should consider to ensure balanced and effective approaches to AI-related inventions.

55. In his reply, Mr. Scaria said that AI co-creativity was already a reality. He noted that attention had focused too much on DABUS-style cases where AI was declared as inventor, while overlooking the many situations in which AI contributed to inventions without any declaration. In his view, disclosure should therefore be a priority, and a forum such as the SCP was well placed to build global consensus on minimum disclosure expectations.

56. In her reply, Ms. Kim said the priority was to identify the actual problems clearly and avoid being driven by hype or uncertain technical assumptions. She cited DABUS as an example, noting that cases often described as AI-generated inventions were, on closer examination, better understood as AI-assisted inventions. She cautioned that misleading claims could distort policy analysis. On disclosure, she said further analysis was needed to determine whether there was a genuine justification for requiring disclosure of AI use in the inventive process, given that inventions commonly involve many tools and aids. In her view, AI tools were automated means of processing data and performing computations, not necessarily different in kind from other tools. She therefore questioned why AI should be singled out for disclosure unless the specific problem and factual basis were more clearly established.

57. Responding to the query from the Delegation of Estonia, Mr. Dearling approached the issue from the perspective of guidance. He said AI clearly had implications for prior art, including the risk of spurious AI-generated examples, particularly in chemistry, which could undermine incentives to invent. He suggested that patentability may require validation of a real-world effect through sufficiency and enablement requirements. He added that governments should examine the economic role of patents and creative destruction, as well as the identity of the skilled person in the AI context. Returning to Article 27.1 of TRIPS, he emphasized the unresolved questions of what constituted technology and technical effect, and said these issues should be addressed now as they would become increasingly important for AI, quantum technologies, and future technologies.

58. In her reply, Ms. Aderibigbe said that countries should first ask why they have a patent system and what benefits it brings nationally, since patents are rooted in economic advancement and AI-related challenges may differ across countries. She favored a bottom-up approach focused on each country's specific problems and priorities. For some African countries, particularly where substantive examination is limited or absent, she suggested that AI

inventions might also create opportunities to support examination. Ultimately, she said, each country should look inward to identify its main pain points and priorities.

**Delegation of Japan**

59. The Delegation of Japan thanked the panelists for their informative insights and said it would first explain the current discussions in Japan before posing a question to the panel. It explained that the Japan Patent Office was considering how the patent system should respond to advances in AI technology. One issue was AI inventorship; another was whether AI-generated technical data or information could itself qualify as an invention under the Patent Act. Under current law, technical ideas generated by a person using tools such as computers may qualify as inventions, while ideas generated entirely autonomously by AI may not, due to the absence of human involvement.

60. The Delegation noted that, since the purpose of the Patent Act was to encourage innovation and contribute to industrial development, questions arose as to whether technical ideas without human participation should be eligible for patent protection. It stated that this remained under discussion, while expressing the view that an invention should qualify where a natural person used AI in the inventive process, regardless of the extent of AI involvement. It added that the interpretation of “invention” would affect other related issues. A third issue was whether AI-generated technical ideas should be treated as prior art in the examination of other patent applications. Japan observed that AI could generate and publicly disclose large volumes of technical information, some of which might be hypothetical or infeasible in practice. If such information were used as the basis for rejection, it could undermine the incentives of those who had genuinely developed workable inventions.

61. The Delegation also noted the difficulty of verifying whether a document or technical idea had in fact been generated by AI. It said the JPO was therefore examining criteria for recognizing cited inventions and asked whether, and how, AI-generated technical ideas should be treated as prior art in patent examination.

62. The Delegation clarified that this matter concerned the treatment of AI-generated information when evaluating other inventions, rather than the patentability of AI inventions themselves, and invited the panelists’ views.

63. In responding to the question, Mr. Dearling said the question turned on how the skilled person was defined and how AI interacted with that standard. He noted that AI was not fully cognizant and could assimilate information to produce conclusions that might be wrong. He suggested that, where an AI-generated disclosure or prior-art document proved incorrect, the key issue would be whether it was enabled. This, he said, brought the analysis back to enablement and sufficiency. He added that declarations by inventors might help address false statements and possible invalidation, although he was uncertain how this would operate for prior art. In chemistry, he noted that AI could generate many alternative compounds or structures, but small stereochemical differences could have major practical consequences. Accordingly, he questioned whether a mere dump of concepts or unworkable solutions should qualify as prior art without validation. In his view, examiners should not simply accept such documents as true; the answer would depend on national office policy or guidance from the Committee.

64. Ms. Kim in her reply said that it was first necessary to clarify what was meant by “AI-generated technical ideas.” In her view, automated AI outputs should not automatically be treated as technical teachings, inventions, or prior art. At most, such systems currently generate predictions, and predictions should not be equated with inventions. Referring to molecular science and AlphaFold, she noted that AI systems could make highly accurate predictions, but that prediction alone did not solve the underlying scientific problem or necessarily amount to an invention or meaningful prior art. She emphasized that human input was still needed to interpret, sort, and assess whether AI-generated outputs were workable. Accordingly, she cautioned against assuming that AI-generated material could diminish genuine human

invention, and considered that the skilled-person standard remained relevant, including where the skilled person could use AI tools.

65. Mr. Dearling agreed with Ms. Kim and reinforced that AI systems remained largely under human control and influence. He explained that, at a technical level, neural-network systems were based on human-devised concepts, even if their implementation operated at a different level of generality. In his view, some degree of human supervision or interaction still appeared to be present and could remain relevant to patentability.

**Delegation of the United Kingdom**

66. The Delegation of the United Kingdom thanked the speakers and moderator for an interesting and wide-ranging discussion, noting that the issues raised gave Member States considerable work to consider. The Delegation asked what the most pressing challenges, risks, or priority areas were in light of the increased use of AI, and whether the inventive-step threshold needed to be raised when assessing AI-related inventions.

67. In her reply, Ms. Kim said the first question had largely been addressed, but cautioned that describing inventive step as “raising the bar” was misleading. In her view, the standard was not being raised; rather, it was applied in light of the relevant state of the art and knowledge in each context. She added that, where AI tools became routinely used by the skilled person, they should be factored into the ordinary inventive-step analysis. She noted that, although pharmaceutical companies already used computational teams, examination practice did not always ask whether a skilled person or team with AI expertise would have arrived at the invention. In her view, incorporating routine AI tools into inventive-step assessment would be important, while recognizing jurisdictional differences.

68. Mr. Dearling warned that raising the inventive-step threshold could have negative economic effects. He considered the more fundamental issue to be what counted as an invention and what technology should be protected, rather than inventive step itself. He added that possible developments in the United Kingdom might soon affect how these issues were addressed.

69. Ms. Aderibigbe suggested that lessons could be drawn from other IP fields, particularly copyright, where creativity is judged by the outcome rather than the creative process. She queried whether inventiveness in AI-assisted inventions should similarly focus on the outcome, the benefits delivered, and the degree of technical improvement, rather than on every step that produced the result.

70. Mr. Dearling cautioned that focusing only on the end result could be problematic, as it might lead examiners to dismiss inventions as non-technical without properly assessing the invention itself. He said the assessment should consider the technical contribution, including the technical process, implications, and embodiments through which the invention was developed and used. Losing sight of those elements, he warned, could lead to unsound exclusions. He added that overly broad exclusions could endanger patentability for existing and future technologies not yet anticipated.

71. Mr. Scaria added that excluding patentability in specific circumstances might sometimes be desirable, since innovation was cumulative. He suggested that inventive step standards, or perhaps subject matter exclusions, could help keep certain outputs available for follow-on innovation. Using the example of an LLM proposing an alternative compound for a disease, he asked whether such outputs might be better treated as discoveries, which are generally excluded from patentability. In his view, this could expand access to knowledge for other innovators.

**Delegation of Samoa**

72. The Delegation of Samoa thanked the presenters for their thought-provoking presentations and recalled that, in earlier interventions, it had approached the issue from a human rights perspective, viewing patent rights as property rights and therefore as human rights. It stated that, unless AI were given legal personality, it would be difficult to grant AI patent rights, since questions would arise concerning ownership, management, and liability. The Delegation also recalled the need for greater patent awareness and capacity in the Pacific region, noting that recent discussions on genetic resources and associated traditional knowledge had brought these issues into sharper focus.

73. The Delegation asked whether, rather than investing primarily in human capacity, Pacific countries might use AI to generate inventions addressing technical and health challenges, potentially improving access to medicines and strengthening their bargaining position.

74. Responding to the query, Mr. Dearling referred to UK copyright legislation, under which ownership of computer-generated works is attributed to those who make the arrangements for their creation. He suggested that a similar approach might be considered for AI inventorship.

75. Ms. Aderibigbe supported that view by noting that, even in copyright, ownership may vest in the entity that invested in and arranged the creation of a work, such as a film. She said it was not inconsistent with IP principles to recognize investment-based ownership by companies or other non-human entities that enabled the invention or creative work, and suggested this could inform broader policy choices.

76. Ms. Kim cautioned against assuming that the inventive process could simply be outsourced to AI, noting that if this were straightforward, major unmet medical needs would already have been solved. She said technical assumptions should be clarified before addressing who the inventor was, whether AI could invent, and how such invention would occur.

77. Mr. Scaria added that current AI systems mainly produced predictions, many of which could be wrong, even if some were accurate. He said that the continuing need for a patent system should be assessed against the theoretical justifications for patents, which in his view remained relevant across jurisdictions.

**Delegation of the United States of America**

78. The Delegation of the United States of America thanked the Chair and experts for the discussion on patentability criteria and AI inventorship and provided an update on U.S. subject matter eligibility for AI inventions. It noted that, in July 2024, the USPTO issued guidance clarifying how existing eligibility rules apply to AI-related claims in critical and emerging technologies. As per the Delegation, the guidance added examples on anomaly detection, data transmission, AI-based speech separation, and AI-based medical treatment, while confirming that AI inventions are not treated differently from other inventions. The Delegation added that, in April 2025, the Federal Circuit reaffirmed that the usual two-part eligibility test applies to AI inventions: whether a claim is directed to a judicial exception and, if so, whether additional elements amount to significantly more. It further noted that, in August 2025, the USPTO issued a memorandum reminding examiners how to assess software-related inventions, including AI and machine learning. In September 2025, in *Ex parte Desjardins*, the USPTO found AI machine-learning claims eligible because they integrated a mathematical algorithm into a practical application.

79. The Delegation said the decision confirmed that AI machine-learning claims should not be categorically barred merely because they recite mathematical algorithms and noted that the USPTO had designated *Desjardins* as precedential.

**Delegation of China**

80. The Delegation of China thanked the Chair, moderator, and presenters for the informative and thought-provoking presentations, and noted that AI's development posed new challenges for the patent system. It stated that China's patent authority had been studying and exploring these issues. On inventorship, the Delegation reported that China had not made major changes and continued to recognize only natural persons as inventors. It noted that patentability criteria, applicants' entitlement, application drafting, subject matter eligibility, and examination quality were addressed through patent-application guidance, interpretation, and case explanations. It added that, in December 2024, China published guidance on applications involving AI inventions, covering common types and models of AI-related inventions and associated legal issues, including inventor identity, subject matter criteria, disclosure, and inventiveness. The guidance was intended to help applicants understand relevant provisions and obtain patents in the field.

81. The Delegation said China continued to study these complex and varied issues, including through research and consultations with enterprises and businesses, and would maintain an open, adaptive approach as AI developed. It asked what principles or norms should guide the examination and assessment of differing needs among AI-related enterprises and inventors.

82. In response, Mr. Dearling said the issue returned to the basic question of what constituted an invention. In his view, once there was a practical application producing a real-world technical effect, the threshold for patentability was likely met, leaving inventive step to be assessed separately. He contrasted this with AI-based systems that merely automate human decision-making, such as determining whether a person should receive a bank loan based on standard personal and financial data. In such cases, he said, AI would simply replace routine human activity or control behavior, and patent rights should generally not be granted. By contrast, where an AI-related invention was tangible and delivered a real benefit to society, he considered that it should overcome the patentability threshold.

83. Ms. Kim, in her reply, cautioned that discussions on priority areas were often driven by perceptions of rapid AI progress and expectations of imminent superintelligence. In her view, current advances still operated within a prediction-based paradigm, with AI systems functioning as prediction engines. She therefore considered it necessary to examine whether AI posed genuine challenges requiring reconsideration or redesign of the patent system, or whether the issue was instead how existing standards could be applied so as to continue serving their purpose.

**Delegation of Germany**

84. The Delegation of Germany, speaking on behalf of Group B, thanked the Chair, panelists, moderator, and Secretariat for the expert exchange on AI. It requested the Secretariat to prepare a report on legal and policy options, building on the experts' interventions and relevant existing materials, including document SCP/36/5 on patents and emerging technologies.

85. The Delegation also asked that the report take into account the 2019 Secretariat draft issues paper on IP policy and AI (WIPO/IP/AI/2/GE/20/1 REV.) and the 2024 WIPO publication on AI inventions. It proposed that, at SCP/38, patent practitioners and industry representatives be invited to comment on the report so the Committee could better understand how different approaches might affect innovation and the patent system.

**Delegation of Israel**

86. The Delegation of Israel thanked the moderator and speakers for the enriching discussion and, referring to the comparison with copyright law, asked whether innovation and creativity were similar concepts or distinct fields, and whether both remained human-driven.

87. Ms. Kim thanked the Delegation for the question and said that, in patent law, creativity was closer to ingenuity and remained grounded in patent-law philosophy. She emphasized that AI-driven prediction should not be equated with invention, since human creativity, insight, and interpretation were still needed to turn a useful prediction into a solution to a technical problem.

88. Ms. Aderibigbe added that innovation and creativity could be viewed differently in legal and IP terms. Innovation was rooted in creativity but, in patent law, required a specific technical contribution to the state of the art, whereas creativity more broadly covered original human expression without necessarily solving a technical problem.

**Third World Network (TWN)**

89. TWN observed that, despite some divergent views, the panel broadly emphasized the role of patents in facilitating AI innovation, the usefulness of case-by-case approaches, and the need for empirical evidence. However, TWN questioned whether the large scale of recent AI investment already challenged the economic justification for patent protection, since investment was occurring despite legal uncertainty. TWN added that AI also raised deeper questions about whether some outputs, particularly in chemistry, were moving from invention toward discovery and whether core concepts such as inventive step and disclosure needed rethinking. It therefore considered AI-assisted inventions to be a policy issue informed by socioeconomic realities, rather than merely a legal question.

90. Against that background, TWN asked whether a country currently had the policy space to exclude all AI-assisted technologies. It noted that TRIPS Article 27.1 might be invoked in response, but argued that key terms such as “invention” and “inventive step” were not defined in TRIPS. TWN therefore questioned whether case-by-case and empirical approaches were adequate for issues that should be addressed through socioeconomic policy choices. TWN invited the panelists to address these questions to avoid repeating difficulties experienced in earlier debates on computer-assisted technologies and software patents.

**Knowledge Ecology International (KEI)**

91. KEI asked whether, if AI significantly disrupted the patent system and a sui generis regime were considered, such a regime should be uniform or tailored to specific sectors, such as drug development.

92. In reply, Ms. Kim said that, before considering a sui generis system, it was necessary to define clearly the problem it was intended to solve and its purpose, goals, and objectives. She emphasized that this remained the first-order question.

93. Ms. Aderibigbe addressed whether all AI-related or AI-assisted inventions could be excluded. She cautioned against a blanket exclusion, noting that more inventions were likely to involve AI working with, or assisting, humans, and that such a radical approach could produce undesirable outcomes. On a sui generis model, she favored a system tailored specifically to AI-related inventions, while leaving the traditional patent system largely intact, subject to possible amendments. In her view, this would better reflect the distinct inventive process in AI-assisted or AI-generated inventions and avoid uncertainty over which rules should apply.

94. Mr. Dearling cautioned against overregulation. Drawing on the longstanding exclusion of computer programs in European and UK patent law, he warned that AI-specific exclusions or rules should be adopted only with great care and only if they were clearly justified.

95. Mr. Scaria said investment data should be treated as only one relevant input for policymaking. On whether a sui generis system should follow a one-size-fits-all model, he said there was no sufficient clarity as yet, since the answer depended on the specific problems to be addressed. He added that lessons should be drawn from the difficulties encountered with computer-related inventions, where the absence of a tailored system had created challenges in many jurisdictions.

96. In closing, the Chair thanked all panelists for their excellent contributions and for a lively and interesting morning session.

[End of Annex 1]

**ANNEX 2: SUMMARY OF THE POLICY OPTIONS BASED ON RELEVANT WIPO DOCUMENTS**

## I. INTRODUCTION AND BACKGROUND

1. Artificial intelligence (AI) is reshaping industries, accelerating discovery, transforming creativity and changing how innovation is conceived, developed, and deployed. Investment in AI-related intangible capital such as software, data, R&D and organizational capabilities has grown sharply. Investments in software and databases, key resources for AI development, grew faster than any other intangible asset category, at 7.3% annually from 2013 to 2023. Thus, the AI boom is unfolding in two waves: first, infrastructure build-out, and second, broader investment in the software, data, skills and organizational changes needed to put AI into productive use.[1]

2. This surge is reflected in global patent activity. As an illustrative example focused specifically on generative AI as one sub-field, the number of generative AI patent families rose from 733 in 2014 to more than 14,000 in 2023, an increase of over 800 percent since transformer-based architectures emerged in 2017. More than a quarter of all generative AI patents were published in 2023 alone, with applications across life sciences, transportation, security, finance, and education.[2]

3. The patent system's original purpose is to incentivize innovation, offering time-limited exclusivity in exchange for public disclosure. However, as AI becomes a subject of invention, a tool for human inventors, a component of products and services, and potentially an autonomous generator of outputs, whether and how patent systems can accommodate these developments to remain suitable for that purpose has become an important policy discussion. Therefore, it is not uncommon to have divergent views on the role of patents for AI innovation. Some take the view that recent AI technological advances may be driven by a broader variety of factors, including data availability, trade secret protection, computing infrastructure, AI models as a service, and open-source practices that allow companies to benefit from access on the one hand and ecosystem entrenchment (lock-in effect) on the other, without relying solely on patent-type exclusivity.[3]

4. This document summarizes key policy options at the intersection of AI and patent law, drawing on relevant WIPO documents. It considers (i) subject matter eligibility, followed by patentability criteria, starting with specific horizontal issues, namely (ii) AI-generated prior art and (iii) person having ordinary skill in the art, then turning to (iv) novelty, (v) inventive step, (vi) industrial applicability, as well as (vii) sufficiency of disclosure, before addressing inventorship issues, namely (viii) AI-assisted and (ix) AI-generated inventions. The approach adopted in the document is to present an analysis of issues, current approaches and challenges posed by AI to patentability and inventorship, followed by a summary of policy options. Its purpose is to give Member States a structured overview of available policy options, without assessing feasibility, legal implications beyond what is necessary, or broader harmonization effects.

### A. Limited nature of the mandate and limitations in identifying policy options

5. It is recalled that the mandate adopted by the Committee at its thirty-seventh session (SCP/37) required that the Secretariat prepare a summary of policy options based on relevant WIPO documents.[4] The mandate did not require comprehensive legal analysis; legal considerations are addressed only to the extent necessary for understanding the policy options

[1] *WIPO (2026) World Intangible Investment Highlights 2026, p. 13.*
[2] *WIPO (2024) Patent Landscape Report on Generative Artificial Intelligence, pp. 7 and 67-70.*
[3] SCP/38/6 (Annex 1), paras 7-9 and 36.
[4] SCP/37/11, p.5.

presented. While the document identifies the principal advantages and disadvantages of available options, no impact assessment (economic or otherwise) of their feasibility was carried out, and policy options are not further elaborated in terms of detailed legal implications or consequences. In some cases, further studies are recommended. The Committee did not request the Secretariat to seek additional input from Member States in the preparation of this document.

6. Certain WIPO documents perused here address broader related issues, namely data protection, copyright, trade secrets, contractual measures, technical protection measures for data, and the use of AI tools in patent examination. Such considerations, while relevant to a holistic approach to intellectual property protection for AI inventions, fall outside the scope of the present document. These issues that move beyond patent policy as defined under the mandate given by the Committee are accordingly not addressed. Issues have been identified only where policy options in the patent domain may carry consequences that require consideration beyond the boundaries of patent law.

7. Several limitations in identifying policy options should be noted at the outset. The relevant WIPO documents do not always identify discrete policy options. Some options in this document are derived from national practices and academic commentaries recorded in relevant WIPO documents.

8. Not all AI inventions raise the same patent policy challenges, and the suitability of any approach will depend on economic policy choices, cultural views, legal traditions and local innovation ecosystems. The options presented are therefore general and not tailored to individual jurisdictions.

9. Although national AI patent policy continues to evolve, no jurisdiction has yet enacted comprehensive statutory amendments in patent law specifically for AI inventions. Most rely on existing administrative guidance and case law within existing frameworks, supplemented by targeted AI guidelines, where deemed appropriate. This applies to both developed and developing countries, although smaller or less-resourced IP offices may face added capacity constraints in formulating specific AI patent guidelines.

10. Although AI-generated inventions and AI inventorship have received significant attention, they are only one set of AI-related patent policy challenges. This paper addresses a more comprehensive set of potential dimensions at the intersection of AI and patent law. Caution must be exercised during deliberations on different policy options, as they can be cross-cutting and thus apply to different types of AI inventions.

## B. Relevant WIPO documents referred

11. The following WIPO documents were used for the preparation of this paper:

- ***WIPO Issues Paper on Intellectual Property Policy and Artificial Intelligence (WIPO/IP/AI/2/GE/20/1 REV. Revised Version, 2020).*** Developed as part of the WIPO Conversation on IP and Frontier Technologies, this paper frames the key open policy questions raised by AI across all IP disciplines including patents

- ***WIPO (2024) Getting the Innovation Ecosystem Ready for AI: An IP Policy Toolkit.*** The WIPO AI and IP Policy Toolkit provides a structured classification framework for AI inventions (i.e. AI models, AI-assisted, AI-based, and AI-generated inventions) and examines the questions AI raises for patent law provisions related to each of these categories, including subject matter eligibility, inventive step, disclosure, and inventorship. The toolkit also sets out a spectrum

of guidance for IP Offices and policy options that provide much of the conceptual architecture for this document.

- ***SCP/38/4 Emerging Technologies and the Patent System: A Background Document.*** Drawing on inputs from Member States, regional patent offices and academic commentaries, this document provides detailed comparative analysis of national approaches to subject matter eligibility, novelty, inventive step, industrial applicability, and sufficiency of disclosure as applied to AI inventions, serving as the primary source for comparative national practice material in Sections II and III of this summary.

- ***SCP/38/5 Artificial Intelligence and Inventorship****.* This document provides a comprehensive legal and historical analysis of inventorship under national and international patent law, surveys the DABUS proceedings across more than a dozen jurisdictions, and examines the legal consequences of inaccurate inventorship designation, serving as the primary source for Section IV of this summary document on AI and the inventive process: AI-assisted and AI-generated inventions.

- ***SCP/38/6 Report on the Expert Exchange on Legal and Policy Options in the Areas of Patentability and AI Inventorship Held at SCP/37 (Annex 1 of this document).*** The Annex records a structured expert discussion on the principal patent policy challenges raised by AI inventions covering subject matter eligibility, prior art, inventive step, inventorship, and disclosure, while documenting areas of agreement, open questions, and divergent views on policy responses that inform the policy options presented throughout this summary.

- ***WIPO Generative AI Patent Landscape Report (2024).*** The report provides comprehensive empirical data on global patent filing trends in generative AI technologies across major jurisdictions, mapping the relationship between patent activity and broader AI investment flows and informing assessments of the patent system's role as an incentive mechanism for AI innovation.

- ***WIPO (2025) Learning Machines: An Introduction to AI and IP for Small and Medium-Sized Enterprises (SMEs).*** The document provides practical guidance on available IP protection mechanisms for AI innovations tailored to SMEs.

- ***WIPO and Luiss Business School (2026): World Intangible Investment Highlights 2026.*** The report updates the analysis of how AI and intangibles interact.

- ***SCP/35/8 Report of the Sharing Session on the Patentability Criteria of Inventions Using Artificial Intelligence and by Artificial Intelligence Held at SCP/34.*** The report provides a summary of the presentations delivered by Member States on how their IP offices were at various stages of policy making at the intersection of AI, patentability and inventorship, followed by discussions from the floor.

- ***SCP/34/5 Further Study on the Sufficiency of Disclosure (Part I).*** The study examines the sufficiency of disclosure requirement across various technological fields and includes analysis of issues arising in the context of AI inventions, including challenges related to the disclosure of training data, model

architecture, and computational parameters, drawing on examination guidelines and case law from multiple jurisdictions.

## C. Terminology around AI inventions

12. While there is no single, universally accepted definition of AI, legal and policy instruments that do define AI systems generally adopt broad and technology-neutral and capability-based formulations, reflecting the evolving and diverse nature of AI technologies. In this context, the EU AI Act and the OECD definition both describe an AI system as a machine-based system that, with varying levels of autonomy and adaptiveness, infers from inputs how to generate outputs such as predictions, content, recommendations, or decisions that may influence physical or virtual environments.[5] Only a few jurisdictions have offered elaborate definitions. The Republic of Korea has definitions of “AI”, “AI Systems” and “AI Technology” in its 2025 Framework Act on the Development of Artificial Intelligence and the Creation of a Foundation for Trust. The term "artificial intelligence system" is defined as “an artificial intelligence-based system that infers outputs such as predictions, recommendations, and decisions that affect real and virtual environments for a given goal with various levels of autonomy and adaptability”, while AI itself is defined as “the electronic implementation of human intellectual abilities, such as learning, reasoning, perception, judgment, and language comprehension”.[6] While these definitions have primarily developed in the regulatory realm rather than patent law contexts, they illustrate a broad global convergence and understanding that cover the latest developments in AI technologies.

13. The WIPO AI and IP Policy Toolkit distinguishes between four types of “AI inventions” depending on the nature of the inventions and the role that AI plays in the innovation process.[7] This taxonomy is useful because AI may be the subject of innovation itself, a tool used by human inventors, a component incorporated into an invention, or, in a future scenario, an invention that is made by an AI system with little or no material human input.[8]

- The first category is an **AI model**, meaning a new AI model or algorithm. This may include a new model architecture, optimization method, training technique, or an algorithmic improvement that makes an AI system more accurate, efficient or adaptable. Examples include an AI model that predicts the performance of toothbrushes to determine compliance with industrial standards, and a novel optimization algorithm that accelerates training convergence.

- The second category is an **AI-assisted invention**, where humans use AI as a tool in the inventive process. In this category, AI may help screen options, identify patterns, select candidates, optimize a design or test possible solutions, but the invention remains human-directed. An example is the use of AI in drug discovery to identify or select drug candidates.

- The third category is an **AI-based invention**, where the invention incorporates AI, and the AI forms part of the basis of the product, process, or service. In these cases, AI is not merely a research tool used in the background as an aid in the inventive process; it is part of how the invention operates. Examples may include a translation device using AI deep learning, AI-based image enhancement, diagnostic tools or other systems whose functionality depends on AI.

[5] SCP/38/4, paras 8 and 9.
[6] Ibid.
[7] WIPO AI and IP Policy Toolkit, pp. 12-14.
[8] SCP/38/4, para 95.

- The fourth category is an **AI-generated invention**, which captures a future scenario in which an invention is generated autonomously by AI without material human input. This category is useful as a conceptual boundary for policy discussion because it helps distinguish current uses of AI from possible future cases where AI may play a more independent role in the inventive process.

## II. SUBJECT MATTER ELIGIBILITY

14. Subject matter eligibility, a foundational patentability requirement, determines whether the subject matter described in a patent application is susceptible to qualifying for patent protection: whether it qualifies as an invention, and whether it is excluded based on specific permitted policy grounds. While the TRIPS Agreement establishes minimum international obligations,[9] national laws retain significant policy space, resulting in considerable divergence in applicable standards across jurisdictions.[10]

15. In the context of AI inventions, the key questions concerning subject matter eligibility relate to innovation in AI models.[11] Patent systems were historically developed to protect mechanical and physical inventions. Depending on jurisdictional specificities, abstract ideas such as mathematical concepts, mental processes, and methods of organizing human activity are excluded. Some other jurisdictions also exclude algorithms, business methods and computer program “as such”. Various policy rationales exist for such exclusions (e.g. that they are discoveries rather than inventions, building blocks for technical implementations, inherently intangible nature, methods of cognition, lack of technical character etc.). Subject matter eligibility directly affects innovation incentives, fair competition, and public access to knowledge.

16. For AI models, the distinction between a mathematical method and a patentable invention can often be ambiguous.[12] Mathematical methods that lack technical character or do not demonstrate technical effects are ineligible for patent protection. Without sufficient guidance, inventions related to AI models such as computational formulas for artificial neural networks (ANNs), probability distributions, and optimization methods that are foundational to AI may be characterized as mathematical concepts. Certain AI-enabled tasks, such as classification or evaluation, may similarly be treated as mental processes, while AI-powered scheduling or content personalization may be regarded as methods of organizing human activity.

17. Most AI models are software-based.[13] Machine learning (ML) models, which rely on computational algorithms for classification, regression, and related tasks, are particularly characterized as software-oriented solutions.[14] Hence, concerns around patenting computer software are also mirrored in discussions on patenting AI inventions. Computer programs “as such” are excluded from patent eligibility in a number of jurisdictions, while no equivalent restriction applies in others. As software and computer-implemented inventions (CII) emerged, patent law adapted by requiring inventions to demonstrate technical character and technical effect, in light of excluded subject matter.[15]

18. Some other jurisdictions do not explicitly exclude software and business methods patents but require that abstract ideas be transformed into patent-eligible inventions by making a technical contribution. As case-law on CII remains complex across jurisdictions, this divergence means that a software-related AI invention may qualify for protection in one

[9] Article 27 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, opened for signature Apr. 15, 1994, 33 I.L.M. 81 (1994) (entered into force Jan. 1, 1995) [hereinafter TRIPS Agreement].
[10] SCP/38/6 (Annex 1), paras 15, 19 and 24.
[11] WIPO AI and IP Policy Toolkit, p. 15.
[12] WIPO AI and IP Policy Toolkit, pp. 7-8.
[13] WIPO (2025) Learning Machines, p. 23.
[14] SCP/38/4, para 113.
[15] WIPO AI and IP Policy Toolkit, p. 13.

jurisdiction while being excluded in another, raising the question of whether national legislation should expressly address if AI applications or algorithms constitute patentable subject matter, and if yes, under what conditions.[16]

19. Although AI is a branch of computer science**,** there is significant debate over whether AI models and algorithms can readily qualify as CII.[17] AI's statistical, probabilistic, and non-deterministic nature presents novel complexities that existing CII frameworks may not adequately address. Unlike conventional computer programs, which involve explicit and deterministic functional steps, trained neural networks are defined by numerical parameters whose relationship to network behavior may remain opaque (i.e. the so-called "black box" problem).[18] Computer programs consist of programming and instruction-based output, while AI models and machine learning systems function through an internal logic based on training rather than programming.

20. These differences between CII and AI inventions raise some fundamental doctrinal issues from a subject matter eligibility perspective. Judicial developments (overturned on appeal) in at least one jurisdiction have raised such concerns, offering instructive policy insights at two fundamental levels.[19] First, the CII framework was developed around human-authored, step-by-step programmatic instructions, whereas machine learning systems derive logic through training data to reconfigure themselves in solving specified problems, meaning that a trained ANN does not correspond neatly to the traditional concept of a "program for a computer". Second, the existing framework may be poorly suited to determining what is actually claimed and whether a relevant technical effect exists in AI inventions. Even though a computer program was featured in the training stage, it constituted only a subsidiary element of the claimed invention, a situation markedly different from conventional CII where the program and inventive contribution typically coincide.

21. To date, no jurisdiction has enacted amendments to its patent legislation specifically addressing the patent eligibility of AI inventions. Nonetheless, broader legislative proposals have emerged in certain jurisdictions which, if adopted, could materially affect the treatment of AI inventions by limiting judicially developed subject matter exclusions and replacing them with a closed, statutory list of ineligible categories. Under such proposals, eligibility assessments would consider the claimed invention as a whole, as understood by a person having ordinary skill in the art, focusing on whether the invention exists in nature independently of human activity or solely in the human mind. Such legislative reform proposals remain pending and no jurisdiction has enacted them.[20]

22. The potential unsuitability of the CII framework for AI inventions carries dual risks: it may exclude genuine AI inventions by characterizing them as unpatentable mathematical methods despite substantive technical contributions, or conversely, it may extend protection too broadly by characterizing purely mathematical advances as technical in order to preserve patent protection for commercially significant AI innovation. Both outcomes are problematic from a patent policy perspective.

23. A contrasting perspective holds that current AI advances remain within a prediction-based paradigm, with AI systems functioning as tools that accelerate pattern recognition and probability analysis rather than constituting a categorically new form of technical capability. As per this view, genuine legal uncertainty may stem not from inherent deficiencies in the patent system, but from inconsistencies in how existing requirements are applied to AI inventions, suggesting that principled and consistent application of current standards may be sufficient to

[16] WIPO (2020) Revised Issues Paper, para 18.
[17] WIPO AI and IP Toolkit, p. 13.
[18] SCP/38/4, paras 80 and 81.
[19] Ibid. paras 115-117.
[20] Ibid. paras 118-119.

address the challenges identified.[21] Thus, the existing CII framework currently serves as the primary reference for evaluating AI inventions. So far, only a limited number of patent offices have issued AI-specific examination guidelines. Emerging case law in some jurisdictions has begun addressing AI-specific eligibility challenges within the CII framework, yet significant gaps remain.[22]

24. Within the CII framework, AI models, computational methods, and algorithms may qualify for patent protection provided they deliver a technical solution to a technical problem. In several jurisdictions (e.g., EPO, UK, India), “technicality” constitutes a threshold criterion for patent eligibility. Mathematical methods, considered to lack technical character, are generally excluded from patentability. Case law and office practices have accordingly elaborated concepts such as “technical problem,” “technical means,” “technical effect,” and "technical purpose" to delimit the scope of such exclusions.[23]

25. Similarly, to overcome exclusions related to abstract ideas (i.e. mathematical concepts, mental processes and methods of organizing human activity), some other jurisdictions (e.g., US) assess whether claims, considered as a whole, are directed at excluded subject matter and, if so, whether the excluded elements are integrated into a practical application. Some jurisdictions additionally examine whether AI or ML computational models contribute a technical solution to a technical problem, including through specific technical implementations that improve computational performance or reduce resource consumption.[24] However, considerable differences exist between different jurisdictions in how they assess subject matter eligibility of AI inventions in the context of application of the CII framework.[25]

26. A distinct challenge concerns the patent eligibility of claims related to training data, data structures, and trained models. Some common approaches have emerged:[26]

- Methods of generating training data, or methods that concretely perform information processing based on technical properties of an object, may satisfy eligibility requirements where software and hardware are found to operate together;
- Claims directed to training data “per se” are generally considered mere presentations of information and do not qualify as patentable subject matter, notwithstanding the critical role of training data in ML performance;
- Data structures, including those arising in Internet of Things contexts, may qualify where the data structure is functionally equivalent to a program satisfying the software-hardware interaction requirement;
- Trained models characterized as programs may satisfy the software-hardware interaction requirement; those not so characterized may not.

27. Translating subject matter eligibility requirements into practical compliance guidance for patent applicants presents considerable challenges. Several distinct approaches have emerged across jurisdictions:[27]

- *Examination Guidelines with examples*: Most jurisdictions (e.g. USPTO, JPO, KIPO) provide concrete pass/fail examples illustrating claims that satisfy or fail eligibility criteria, offering practical reference points for applicants.[28] Some offices have expressly recognized as patentable AI inventions that reduce storage

[21] SCP/38/6 (Annex 1), para 83.
[22] SCP/38/4, paras 120-139.
[23] Ibid. Also, see SCP/35/8, para 12.
[24] Ibid.
[25] SCP/38/6 (Annex 1), para 24.
[26] SCP/38/4, paras 141-145.
[27] SCP/38/4, paras 120-140.
[28] Ibid.

capacity, lower system complexity, and enable continual learning while mitigating catastrophic forgetting.[29]

- *Examiner Instructions*: Certain jurisdictions instruct examiners to refrain from rejecting claims in borderline cases, requiring eligibility determinations to be supported by a preponderance of evidence.[30]
- *Subject Matter Eligibility Declarations (SMEDs)*: Some jurisdictions permit applicants to voluntarily submit supplementary factual evidence such as demonstrated technological improvements to support eligibility assessments, without supplementing original disclosures.[31]

28. Additionally, judicial decisions have provided important clarity on the scope of subject matter exclusions as applied to AI inventions. Courts have held that claims lacking working examples and demonstrable technical effects do not satisfy eligibility requirements. Conversely, inventions combining hardware and software to streamline user experience through enhanced personalization have been recognized as constituting a clear technical advancement.[32]

29. Significant recent case law has addressed the patent eligibility of ANNs. A court determined that an ANN generating media file recommendations constitutes a computer program, regardless of the physical hardware used, since it comprises instructions designed to manipulate data to produce a defined result. While the necessity of hardware was found sufficient to establish technical character (meaning the invention is not a computer program “as such”), the court cautioned that the “any hardware” threshold is low. It proposed additional intermediate analytical steps to exclude non-contributing technical or non-technical features from novelty and inventive step assessments, thereby ensuring that patentability analysis focuses on elements genuinely contributing to the technical character of the invention as a whole.[33]

30. The CII framework presents particular difficulty with respect to "gray-zone" AI technologies, most notably AI simulations. Such technologies employ data-driven algorithms to detect patterns, generate outputs, and improve processes without explicit programming. As mathematical functions converting inputs into outputs through learned parameters, AI simulations primarily produce informational outputs (namely predictions, classifications, or recommendations) without necessarily causing concrete changes to hardware. A patent may accordingly be refused on the grounds that the output constitutes informational content based on an abstract mathematical concept. However, an AI simulation used to assist in design or verification of other solutions may retain technical character, provided the claimed technical effect is clearly established and claims are appropriately limited.[34]

31. Application of the CII framework to AI inventions presupposes a sufficiently developed legal regime for CII subject matter eligibility, supplemented by case law or administrative guidance. Where such a regime is underdeveloped, legal uncertainty may persist until courts or administrative bodies provide definitive clarification.

32. AI-specific guidelines developed within the CII framework provide short- to medium-term certainty but carry inherent limitations. Provisions exceeding the authority of the underlying patent statute will not endure judicial review: only elements consistent with the national statutory framework will have lasting effect.

[29] SCP/38/4, para 136. Also, see SCP/38/6 (Annex 1), paras 78-79.
[30] Ibid. para 137. Also, see SCP/38/6 (Annex 1), paras 78-79.
[31] Ibid. para 137.
[32] Ibid. paras 127-128.
[33] Ibid. para 131.
[34] Ibid. para 117.

33. Extending the CII framework to AI inventions is seen by some as a pragmatic, near-term approach that leverages existing legal infrastructure, but does not address some key challenges raised specifically by AI models for subject matter eligibility. Furthermore, jurisdictional divergences in eligibility standards, evolving judicial interpretations, unresolved issues regarding methods of generating training data and techniques for trained models, and the inherent limitations of administrative guidelines present ongoing challenges.

**Summary of policy options**

34. Member States electing to extend the existing CII framework to AI inventions face a fundamental policy choice regarding the degree of permissiveness applied to subject matter eligibility standards. Two principal policy orientations may be identified.

**a)** **Restrictive patent eligibility:** *A restrictive regime is characterized by broad application of subject matter exclusions. Given AI's inherent mathematical foundations, claims incorporating algorithms, abstract ideas, or mathematical methods would by default trigger eligibility exclusions.*

Key features of this approach include:

- *High technical character threshold:* AI inventions must demonstrate a specific, concrete technical effect manifesting tangibly beyond ordinary computer interactions. Computational improvements, efficiency gains, and informational outputs, namely including predictions, simulations, classifications, and recommendations, for example could be considered insufficient.

- *Strict integration requirement:* Incorporation of abstract elements into practical applications requires meaningful limitations on claim scope, rather than mere recitation of computer implementation. The assessment asks whether the claim improves computer functionality or merely adds a general-purpose computer, post hoc, to an abstract idea. For example, the dynamic generation of hybrid webpages or particular server architecture for storing organized digital images qualify the integration requirements may satisfy the integration requirements. Additional claim elements must substantially exceed the excluded subject matter and cannot be routine or conventional.

- *Limited eligibility for AI-specific subject matter:* Training methodologies and trained models are predominantly treated as mathematical constructs or mere information, and are therefore ineligible. Applicants bear a correspondingly high burden of proof, with examiners exercising broad discretion in issuing eligibility rejections and narrowly interpreting technical contributions.

**b)** **Permissive patent eligibility:** *A permissive regime is characterized by a narrow application of subject matter exclusions. The presence of mathematical methods or algorithms within a claim does not automatically render it ineligible, provided the claim as a whole is directed toward a technical application.*

Key features of this approach include:

- *Low technical character and technical effect threshold:* Certain jurisdictions consider implementation of an AI invention on computer hardware as sufficient to confer technical character. A broad spectrum of technical effects, including improvements to training efficiency, reductions in computational costs, enhanced neural network architectures, and hardware optimization is recognized as supporting eligibility.

- *Flexible integration assessment:* Technical character is assessed holistically across the claim rather than element by element. Methods relating to training data generation or analysis, data structures equivalent to programs, and trained models functioning as programs are broadly recognized as patent-eligible subject matter.

- *Reduced applicant burden:* Examiners are directed to resolve borderline cases in favor of eligibility. Concrete examination guidelines and voluntary applicant declarations further reduce procedural burdens. Patent claims relating to AI simulations may be granted where claims are appropriately limited to demonstrated technical effects.

35. A threshold question beyond the restrictive or permissive orientation of subject matter eligibility frameworks concerns the fundamental suitability of the current legislative framework, including the CII framework as extended to AI inventions, for adequately addressing the distinctive characteristics of AI technologies.

36. Based on the above discussion that highlights the practical and doctrinal challenges posed by the nature of AI models to the current CII framework, an alternative policy direction emerges in the context of subject matter eligibility or patent eligibility of AI inventions.

**c) Modify the current legislative framework to accommodate AI inventions within existing patent law:** *This option would involve targeted amendments to patent statutes to explicitly recognize AI inventions as a distinct, positively defined category of patentable subject matter.*

Specifically, such amendments could:

- *Redefine statutory exclusions:* Limit the application of existing exclusions relating to mathematical methods, abstract ideas, and computer programs so that they do not automatically extend to AI inventions that produce genuine technical effects in a technically characterized domain.

- *Establish an affirmative technical effect standard:* Define a single, positive technical effect criterion as the primary basis for AI patent eligibility. An AI invention would qualify where it produces a specific, concrete, and reproducible impact in a technological field extending beyond conventional computing functions. Relevant legislative clarifications could include that technical effects may be produced indirectly through outputs with specific technical relevance in a defined domain, without requiring direct physical world interaction, while excluding effects arising from routine electrical interactions inherent in computation.

37. This alternative option replaces the prevailing framework in which applicants for AI inventions must navigate and evade exclusionary categories with a positive eligibility model. Given that the relative merits and practical feasibility of this approach remain untested across jurisdictions, further comprehensive studies may be warranted before any legislative action is considered.

38. The choice between restrictive and permissive policy options or modifications to the current legislative framework carries significant implications for innovation incentives, competitive dynamics, and the breadth of public domain knowledge. In this regard, it is worth considering how the balance between these policy orientations aligns not only with broader national and international patent policy objectives concerning AI inventions, but also with national AI strategies, incentive structures, competition policy, digital economy goals, and the

overall AI innovation ecosystem. All such policy initiatives and strategies may be materially affected by choices made at the level of subject matter eligibility.

## III. PATENTABILITY CRITERIA

39. Beyond subject matter eligibility, the assessment of AI inventions against standard patentability criteria, namely novelty, inventive step (non-obviousness), industrial applicability (usefulness), and sufficiency of disclosure, raises specific challenges warranting examination, although existing legal tests continue to apply. These requirements, particularly novelty and inventive step, serve the foundational purpose of preventing exclusive rights over existing or trivial contributions. This rationale must be carefully adapted to match the scale and pace of AI-driven innovation. As these criteria remain among the least harmonized aspects of the international patent system, Member States retain considerable policy space, and practices continue to evolve in response to comparative developments across jurisdictions.

40. Where patent offices have issued guidance on AI inventions, similarly to subject matter eligibility, such guidance has generally extended examination standards developed for CII. However, AI inventions present distinct characteristics, including their reliance on training data, statistical and probabilistic functioning, and speed of development, that make some degree of departure from CII-based assessment inevitable in the domain of patentability criteria as well. The challenges are primarily owing to the new features of AI technologies that have an impact on key concepts involved in patentability.

41. At least two areas have horizontal implications across all the key criteria (i.e. novelty, inventive step and sufficiency of disclosure): *AI-generated prior art* and the legal construct of the *person having ordinary skill in the art (PHOSITA)*. The emergence of AI systems capable of generating and evaluating large volumes of technical information at an unprecedented speed raises specific cross-cutting concerns for the identification, availability, and legal status of prior art in the context of both novelty and inventive step when assessing patent applications in any technological field. As AI tools become more widely available across technological fields, tasks previously considered inventive may become routine, progressively altering what may be attributed to the hypothetical skilled person (PHOSITA).[35] Similar questions arise in the context of what common general knowledge could be imputed to PHOSITA since AI tools are reaching sophistication levels that make tasks conventionally requiring human inventiveness routine for AI.[36] Since these issues have wider implications, they are discussed below first, as horizontal issues affecting the patentability criteria for any invention in any technological field.

42. The issues of AI-generated prior art and PHOSITA are intertwined. Since the person skilled in the art is presumed to have known the relevant art at the effective filing date, AI systems generating technical disclosures at unprecedented volume without human contribution or review call into question whether the PHOSITA standard remains sustainable.

### A. AI-generated prior art

43. AI systems can generate new technical disclosures continuously at a pace and scale that existing prior art search infrastructure may be ill-equipped to manage (e.g., AI-generated outputs such as protein structure predictions that have implications for structural biology, drug discovery, molecular biology and biotechnology). To date, no jurisdiction has undertaken administrative or legislative reform specifically addressing AI-generated prior art. Some patent offices (e.g., EPO) have clearly stated that AI-generated material may constitute prior art where it was made publicly available before the relevant date and contains enabling technical teaching that a person skilled in the art could reduce to practice. The concept of state of the art generally

[35] WIPO AI and IP Toolkit, p. 15.
[36] Ibid.

encompasses all publicly available information irrespective of origin, geographical location, or form of disclosure. Accordingly, existing prior art frameworks do not restrict prior art to human-generated material, meaning AI-generated disclosures are assessable under prevailing patentability standards without requiring legislative modification.[37]

44. Some other patent offices (e.g. USPTO) are actively examining the issue.[38] A few key questions have emerged from such discussions initiated by patent offices, which can be extrapolated as general issues of interest for patentability.[39]

- Does patent law require human authorship and publication of a prior art disclosure, and does AI-generated prior art affect its availability for the purposes of patentability standards?
- The type of AI-generated disclosures pertinent for patentability determinations and the ways they are or should be made available to the public.
- If evidence of prior art is submitted to the patent office, what duty must the party have to determine if the disclosure was AI-generated, and if they have knowledge of it, should there be a system to notify the patent office thereof?
- Whether AI-generated disclosures warrant treatment distinct from human-generated prior art, including:
    - whether the degree of human contribution to an AI-generated disclosure affects its prior art status;
    - how the presence of inaccuracies, including hallucinations, affects its consideration as enabling prior art; and
    - how the AI-generated character of a disclosure impacts related prior art considerations, including operability, enablement, and public accessibility.

45. The unprecedented volume of AI-generated technical disclosures risks creating undue barriers to patentability and may place significant burdens on both applicants and examiners in identifying and classifying relevant prior art. Patent offices currently apply existing guidance on internet-based prior art disclosure to AI-generated publications, treating such material as publicly accessible where it was made available to at least one member of the public who was free in law and equity to use or disseminate it.[40]

46. A central question in the context of AI-generated prior art concerns its enabling character. A prior art reference generally anticipates a claimed invention only if it is sufficiently detailed to enable an ordinarily skilled person to practice the claimed invention. A mere mention of a concept or structural feature does not suffice for this purpose. However, reduction to practice is not required for a disclosure to constitute prior art. A purely theoretical AI-generated output that has never been empirically tested may nonetheless anticipate a claimed invention for novelty purposes, provided it is practicable by a person skilled in the art. For the purposes of inventive step assessment, the relevant inquiry is whether a person skilled in the art would have taken the AI-generated disclosure as a realistic starting point for further development toward the claimed invention.[41]

47. AI-generated prior art presents particular challenges for enablement assessment given its speculative and potentially error-prone character. The underlying parameters, algorithms, and training data upon which AI outputs depend are frequently not ascertainable from the disclosure itself, making reproducibility difficult to establish or refute. AI outputs are also susceptible to hallucinations, factual errors, and imprecision, which may further affect their enabling character. The more substantive and novel policy question concerns whether the unprecedented volume

[37] SCP/38/4, paras 156-163.
[38] Ibid.
[39] Ibid.
[40] Ibid.
[41] Ibid.

of AI-generated technical outputs (e.g., speculative, prophetic, unverified, or technically incoherent disclosures) entering the public domain warrants revision or clarification of existing thresholds governing what qualifies as admissible prior art.[42] This has not been specifically addressed in current standards on prior art admissibility.

48. The prevailing approach across jurisdictions is that the origin of a disclosure, whether human or AI-generated, is not determinative, provided there is certainty as to its disclosure date and public accessibility. A technically reproducible AI-generated disclosure may accordingly destroy novelty and affect inventive step, whereas a speculative disclosure or a bare concept without enabling detail would not suffice. While various jurisdictions have begun to require specific labeling of AI-generated content, patent laws have not linked such existing labeling requirements with any specific disclosure obligation. At most, submitting AI-generated citations without individual review may violate applicable professional responsibility obligations (duty of candor) in some jurisdictions.[43]

**Summary of policy options**

49. To date, no jurisdiction has issued explicit guidance on how to assess AI-generated prior art. Potential policy options include:

**a)** **Maintain existing prior art frameworks without modification:** *Under this option, the origin of a disclosure - whether human or AI-generated - is treated as irrelevant, with public accessibility and enabling character remaining the decisive criteria. Existing guidance on internet-based disclosures is considered sufficient, with accessibility assessed on a case-by-case basis. Existing enablement standards adequately address speculative or error-prone AI content, and no legislative or administrative reform is required.*

**b)** **Develop new or modified frameworks specifically addressing AI-generated prior art:** *This option recognizes that the volume, speed, and reliability concerns associated with AI-generated disclosures may necessitate targeted reforms.*

Potential elements of such a framework could include:

- *Admissibility standards*: Establishing an admissibility threshold based on reasonable scientific grounds rather than presuming that the cited prior art qualifies, given the risks of speculation, hallucination, and factual error in AI-generated content.

- *Accessibility mechanisms*: Developing mechanisms to determine when privately generated AI outputs enter the public domain as prior art, including mandatory labeling and registration in specialized repositories with defined quality and reliability standards.

- *Disclosure obligations*: Introducing notification and procedural requirements linking mandatory labeling to disclosure obligations, potentially including expanded documentation requirements for AI-related non-patent literature. Establishing evidentiary rules and disclosure obligations governing the deliberate publication of AI-generated outputs as prior art. However, these regulatory-styled measures may require broader deliberations beyond the current contours of the patent system.

[42] Ibid.
[43] Ibid.

50. Given that no jurisdiction has proposed specific reforms in this area, further study is required to determine the precise contours and practical feasibility of this option before policy recommendations can be advanced.

## B. Person having ordinary skill in the art (PHOSITA)

51. The advent of AI introduces significant uncertainty into the legal construct of the PHOSITA, which is a foundational standard underpinning the assessment of both novelty and inventive step, as well as sufficiency of disclosure of any invention in any technological field. Due to the wider availability of AI tools, the question of what is routine for PHOSITA in the context of any AI-assisted invention has emerged as a key challenge, particularly in the context of judging inventive step (obviousness).[44]

52. To date, no jurisdiction has adopted special guidance on how PHOSITA should be defined, whether AI should form part of that construct, or what common general knowledge should be attributed to the notional skilled person.[45] PHOSITA is relevant to inventive step, claim construction, anticipation, written description and enablement; accurately characterizing the skilled person's level of knowledge and capability is fundamental to the entire patent system.

53. Central policy questions have emerged regarding whether, and to what extent, AI capabilities should be recognized as forming part of the skilled person standard, or whether AI should be treated exclusively as a tool available to that person.[46] More specific questions have been raised by patent offices (e.g. USPTO), and they can be extrapolated as general concerns in this context. The main issues include:[47]

- Whether the PHOSITA standard continues to presuppose a natural person, or whether it should be reconceived as an interdisciplinary team with AI-augmented capabilities?
- How widespread AI tool availability alters assessments of common general knowledge, claim construction, and analogous art under an obviousness analysis?
- How does the probabilistic and non-deterministic nature of AI systems affect the assessment of reasonable expectation of success from the perspective of a skilled person?
- Whether AI-augmented search capabilities should inform prior art identification for the purposes of novelty and inventive step.
- How does temporal alignment between AI training data and the effective filing date of an invention affect accurate PHOSITA characterization?
- How the availability of AI tools to the person skilled in the art affects the sufficiency of disclosure and enablement assessment, including whether the level of experimentation required to enable the full scope of a claimed invention remains reasonable or becomes undue where the skilled person has access to AI-assisted experimentation and optimization capabilities (see Section III.F).

54. The PHOSITA may increasingly need to be understood as an interdisciplinary team capable of utilizing AI tools. For example, an AI-based image-recognition system applied to security and surveillance may require expertise spanning both AI technology and the relevant application domain.[48] As AI tools become routine in fields such as life sciences and mechanical

[44] WIPO AI and IP Policy Toolkit, p. 15.
[45] Ibid.
[46] SCP/38/6 (Annex 1), para 12.
[47] SCP/38/4, paras 164-169.
[48] Ibid. Also, see SCP/35/8, para 13.

engineering, it may be necessary to consider whether a degree of AI literacy has become part of the common general knowledge of the skilled person in those fields, rather than being treated as specialist computer-science expertise.

55. Additional challenges arise from the continuously developing nature of AI technology, models and tools employed in the inventive process. Where inventive step is challenged on the basis that two or more prior art references would have been combined using an AI tool, it is unclear how an examiner would determine which version of the AI tool was available and applicable at the priority date. Given the significant variation in capabilities between successive versions of AI tools, such assessments carry a material risk of hindsight bias. Further clarification may be warranted regarding the evidentiary burden on applicants to maintain records, including digital trails or timestamping, of the specific tool versions used during the inventive process.[49]

**Summary of policy options**

a) **Preserve and adapt the human-centric PHOSITA standard:** *This option broadly reflects current practice. PHOSITA would be retained as a human-centric legal construct, with AI treated exclusively as a tool available to the skilled person.*

b) **Re-conceptualize PHOSITA as an AI-augmented standard:** *This alternative, yet untested, option would formally re-conceptualize PHOSITA to reflect AI-augmented capabilities, treating the skilled person as an interdisciplinary team with domain expertise and proficiency in relevant AI tools. Common general knowledge would be updated dynamically on a field-by-field basis, informed by documented AI adoption rates. AI-assisted prior art search capabilities would inform novelty and inventive step assessments, and the probabilistic and non-deterministic character of AI tools would be addressed within the standard. This option prioritizes systemic accuracy and future relevance but may require legislative action and raises unresolved questions regarding its interaction with human-inventorship requirements for AI-assisted inventions. As this option has not been widely tested or discussed, further studies are needed to explore this option.*

## C. Novelty

56. The general principles governing novelty assessment continue to apply to AI inventions without material modification. Across jurisdictions, novelty is assessed by determining whether the claimed invention has been disclosed in the prior art, including prior publication or prior use, generally on a worldwide basis. Consistent with the approach applied to CII, AI inventions are assessed as a whole in light of prior art rather than divided into arbitrary technical and non-technical components. AI-specific examination guidelines generally afford limited novelty-specific guidance, confirming that offices may consider all claimed features, including both technical algorithmic elements and non-technical features related to the invention.[50]

57. No specific or immediate challenges have been identified in applying existing novelty standards to AI inventions, and no distinct policy options have emerged in this context.[51] AI-generated prior art and PHOSITA, both of which bear directly on novelty, are discussed in Sections III.A and III.B.

[49] Ibid.
[50] SCP/38/4, para 149.
[51] Ibid.

## D. Inventive step

58. Inventive step (or non-obviousness) is widely regarded as the most subjective among the core patentability requirements. Its assessment in relation to AI inventions raises particular conceptual and practical challenges, owing to the mixed technical and non-technical character of many AI-related claims and the evolving nature of the relevant prior art and common general knowledge. Inventive step is generally assessed by reference to a hypothetical person skilled in the art, taking into account relevant prior art and common general knowledge at the applicable date (see Section III. B). The other pertinent issues relating to inventive step can be summarized as follows.

59. Jurisdictions apply varied methodological frameworks. In a simplified manner, the three most commonly used inventive step standards are as follows:

- *Problem-solution approach: Involves three sequential steps — identifying the closest prior art; defining the objective technical problem; and determining whether the claimed solution would have been obvious to the skilled person.*

- *Windsurfing/Pozzoli approach: Involves identifying the inventive concept from the claims, identifying differences between that concept and the prior art, and determining whether those differences would have been obvious to the skilled person, avoiding hindsight bias.*

- *Holistic and combinational approaches: Identify one or more realistic starting points in the prior art rather than applying a fixed* concept of closest prior art, offering greater flexibility in complex technological contexts.[52]

60. These divergent methodologies give rise to concerns regarding consistency and overall predictability of outcomes across jurisdictions, particularly in the context of AI inventions where the boundaries of relevant prior art and common general knowledge are shifting.

61. AI-based inventions frequently combine technical features — such as algorithmic architecture or hardware configuration — with non-technical elements, including business rules, data processing methods, or domain-specific applications. A survey of jurisdictional practices indicates that algorithmic features are generally considered to support inventive step where they demonstrate a specific technical relationship with a computer system, improve internal performance or user experience, or solve a technical problem in a specific field through functional interaction with technical features producing a technical effect.[53]

62. Some jurisdictions require an intermediate analytical step prior to full inventive step analysis in the context of mixed inventions. Under this approach, before identifying the closest prior art or assessing distinguishing features, examiners must identify which features of the claimed invention actually contribute to its technical character when assessed as a whole, and filter out features that do not. Only features contributing to technical character are then considered in the inventive step analysis. Accordingly, algorithmic, mathematical, business method, or data processing features are relevant only to the extent that they interact with technical features and produce a technical effect. Recent judicial guidance in at least one jurisdiction has confirmed this approach, affirming that established inventive step methodologies remain valid for AI inventions subject to the application of this intermediate step.[54]

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[52] SCP/38/4, paras 146-155.
[53] Ibid.
[54] Ibid.

63. Emerging AI technologies create additional practical difficulties for examiners, including rapidly evolving prior art, rapidly evolving common general knowledge, and the absence of settled administrative or judicial guidance. These factors may affect the reliability and consistency of inventive step determinations and warrant attention in the development of examination guidance. Further issues concerning AI-generated prior art and the person having ordinary skill in the art, both of which bear directly on inventive step, are discussed above (see Sections III.A and III.B).

64. It has been observed that characterizing the policy question in terms of “raising the inventive step bar” for all types of AI inventions may be misleading when considered from the perspective of person skilled in the art. The applicable standard is not modified in response to AI; rather, it continues to be applied by reference to the relevant state of the art and common general knowledge at the effective filing date. As AI tools become routinely available to PHOSITA, such tools should be factored into the ordinary inventive step analysis accordingly. It has further been noted that examination practice does not always reflect this consideration consistently, notwithstanding that AI-augmented capabilities are already demonstrably routine in certain sectors, including pharmaceutical research. Incorporating routine AI tool availability into inventive step assessments constitutes a necessary adaptation of existing practice rather than a substantive modification of the applicable legal standard. Jurisdictional differences in the pace of AI tool adoption warrant acknowledgment in this regard.[55]

65. While most jurisdictions maintain a human-centric PHOSITA construct and treat AI as a tool in the inventive process, some patent offices have provided guidance on how a person of ordinary skill in the art would be expected to assess specific categories of AI-models related claims. The following principal indications have emerged:[56]

- *Mere application of AI to a field of technology*: Implementing functions performed by hardware by means of software is generally considered within the ordinary craftsmanship of the skilled person. Similarly, applying a common software procedure from one field to another, where the function is the same, may fall within the skilled person's ordinary capabilities. Implementing a known human-performed business method by computer may also fall within ordinary creative ability where routine system analysis suffices.

- *Modification of training data*: Under many existing practices, unexpected technical effects that do not form part of common general knowledge can support inventive step. In the AI context, where input data are combined using a previously unknown correlation and the introduction of specific training parameters yields an unexpected technical effect, inventive step may be present. Conversely, using variables likely to correlate with an output to improve machine-learning reliability or accuracy may fall within common general knowledge, and thus lack inventive step.

- *Pre-processing of training data*: Although a skilled person may generally be expected to improve neural network accuracy through pre-processing of training data, such modifications are not automatically obvious. Inventive step may reside where the specific modification is not disclosed in the prior art, is not part of common general technical knowledge, and produces a significant and unexpected technical effect beyond routine optimization. Assessment should sequentially consider the nature of the modification, the prior art, common general knowledge, the obviousness of the specific training configuration, and the resulting technical effect.

[55] SCP/38/6 (Annex I), para 68.
[56] SCP/38/4, paras 170-173.

- *Application of well-known deep-learning methods*: Where deep-learning training and estimation using trained neural networks are well known and the cited invention addresses the same problem and function, the skilled person may be expected to apply that art. High-precision estimation through a trained neural network lacks inventive step where the sole contribution of the claimed invention over the prior art consists in applying a known deep-learning method to achieve a predictable result.

**Summary of policy options**

66. The following policy options are identified in connection with the assessment of inventive step for patent-eligible AI models and AI-based inventions. As foundational inventive step standards differ, the policy options below are not addressing those, but are confined to two overall approaches.

**a)** **Apply existing framework:** *Existing methodological frameworks could be continually applied to AI inventions. Leave interpretation of these frameworks to the courts, which can over time produce fact specific case law, and would also allow flexibility as the technology advances.*

**b)** **Develop specific framework for assessing inventive step for AI models and AI-based inventions:** *Guidance could, in particular, provide concrete worked examples illustrating where inventive step resides in representative categories of AI inventions and how it is to be assessed. This option maintains systemic coherence and avoids legislative complexity while addressing specific gaps through administrative means.*

Such clarifications could address, in particular:

- *Intermediate step requirement*: Patent offices could formally clarify the obligation to apply an intermediate step in the inventive step analysis of mixed AI inventions distinguishing features contributing to technical character from those that do not and confirm that only technically contributing features may support inventive step.
- *Scope of technically relevant features*: Offices could confirm that algorithmic, mathematical, business method, and data processing features (e.g., model weights, training-data curation, architecture, training methods, and processing scale or speed) are relevant to inventive step assessment only where they interact with technical features and produce a technical effect, and specify that AI-related features must demonstrate a technical relationship with a computing system, improve system performance or user experience, or solve a technical problem through functional interaction.
- *Targeted supplements for AI-specific gaps*: Where existing standards do not adequately address AI-specific issues, targeted supplementary guidance could be introduced addressing identified gaps, including through exhaustive examples covering inventions that involve the mere application of AI to a given field of technology, modification of training data, or pre-processing of training data.

67. The assessment of inventive step for AI inventions highlights the broader challenge of adapting established patent-law doctrines to technologies whose functioning and outputs may not conform to the assumptions underlying those doctrines, for example, whether obviousness should be assessed by reference to prompt engineering, the degree of AI assistance, or whether the inventive concept was driven by AI or by a human. There is a need to consider whether existing guidance sufficiently addresses the specific challenges identified above and

whether coordinated or comparative approaches could contribute to greater consistency and predictability in the treatment of inventive step for AI models and AI-assisted inventions.

## E. Industrial Application

68. While industrial applicability does not require an applicant to practice the invention, many jurisdictions require demonstration of a plausible, concrete benefit or a specific, substantial, and credible use. AI systems, particularly deep learning and neural network-based inventions, present additional challenges in this regard, owing to their complexity and opaque decision-making, which may make consistent and reproducible performance difficult to demonstrate.

69. No jurisdiction has issued AI-specific guidance on industrial applicability standards, and no relevant AI-specific case law has emerged on this question.[57] It is pertinent to note that the key industrial applicability challenge for AI inventions (i.e. mostly, AI models) substantially overlaps with subject matter eligibility questions: a finding that an AI algorithm lacks industrial applicability may, in many systems, be functionally equivalent to a finding that it constitutes a mathematical method lacking technical character. This overlap may explain why specific industrial applicability challenges for AI inventions have not been widely addressed in isolation from broader eligibility discussions.

## F. Sufficiency of disclosure and enablement

70. National and regional patent laws generally require applicants to disclose the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. This enabling disclosure requirement underpins the patent system's knowledge-dissemination function by making technological information publicly accessible, expanding the stock of technical knowledge, promoting technology transfer, and avoiding duplicative research and development.[58] For AI models and AI-based inventions, applicants face a practical and legal dilemma: how much of the AI model, architecture, and training data must be disclosed, and in what form, to satisfy sufficiency requirements and protect the patent against later invalidity challenges.[59] This question remains a developing area of law, and many jurisdictions have not yet established settled case law or issued comprehensive AI-specific guidance.[60]

71. A foundational question for AI models and AI-based inventions concerns how much detail relating to the algorithm, neural network architecture, training process, training data, hardware components, and associated elements must be included in a patent application to satisfy enabling disclosure. Particularly for AI-based inventions that incorporate AI as part of a novel product or process, applicants must decide how much of the AI model and training data needs to be disclosed in the patent specification, and in what form, both to fulfil the sufficiency requirement and to safeguard their patent rights against invalidity challenges.[61] One difficulty arising from contemporary deep-learning techniques is that it may be impractical for humans to identify each processing step in a deep neural network or to explain precisely how a network reaches its output. Where a system contains tens of millions of weighted parameters contributing to a classification result, expressing its full operation in human-comprehensible form may be technically infeasible. In some cases, credibly explaining AI outputs may also require real-world experimental data that are not available at the time of filing.[62]

72. The extent of disclosure required in the description is directly linked to claim scope. Where an invention applies AI to solve a problem by training a deep-learning algorithm on a specific dataset, broader claims may correspondingly require disclosure of all dataset types necessary

[57] SCP/38/4, paras 201-203.
[58] SCP/38/4, para 175.
[59] SCP/34/5, paras 68-71.
[60] SCP/38/4, paras 146-161.
[61] WIPO AI and IP Policy Toolkit, p.16.
[62] SCP/38/4, paras 174-180.

for a skilled person to carry out the claimed invention across its full scope. Overly broad functional claims unsupported by adequate technical disclosure present a recurring challenge in AI patent examination.[63]

73. A further challenge arises from the non-deterministic character of deep-learning technologies, including randomized initialization during training. Even where identical training data and neural network architecture are employed, model training may produce variations in behavior or performance outcomes. Analogous to the treatment of biological materials, where some degree of variability is unavoidable, consideration may need to be given to whether reproducibility or plausibility of the claimed invention is adequately established by the patent application disclosure.[64]

74. In many AI models and AI-based inventions, the core of the claimed invention resides in a technical correlation between a specific type of input data such as medical images, sensor readings, or textual data and a particular output or result, such as a diagnosis, prediction, or classification. The foundational plausibility of this technical relationship must be established in the specification by providing a sufficient basis for concluding that the claimed correlation actually exists and is technically justified.[65]

75. A mere assertion that a correlation exists, without supporting rationale, is insufficient. The description must substantiate the claimed correlation through theoretical explanation of why it holds, empirical data, statistical results, experimental outcomes, or other embedded technical justifications. This requirement addresses the quality and sufficiency of the supporting disclosure within the written description, independent of the claim scope question.[66]

76. A related concern is whether actual empirical performance data from AI models that have been constructed and tested (for e.g. accuracy rates, precision and recall metrics, or benchmark comparisons) are presented in the specification to validate the claimed correlation. This distinguishes a conceptually described AI system from one that has been demonstrated to function as claimed, and guards against speculative or prophetic AI claims where the model has never been tested.

77. Pre-processing of input data encompassing data cleaning, normalization, feature extraction, transformation, and augmentation is a technically significant component of many AI-based inventions. Where pre-processing steps are described only in vague or generic terms, the specification may fail to meet the enablement requirement, as a skilled person would be unable to reproduce the invention. Equally, the specification must sufficiently and concretely describe the learning model used, including the type of neural network, number of layers, activation functions, and hyper-parameters, and the training methodology, including the learning algorithm, loss function, and optimization strategy. Describing the invention only at a high level of abstraction, for example, by referring to “a machine learning model” or “a deep neural network” without further technical specificity, is generally insufficient to enable reproduction.[67]

78. Several jurisdictions have clarified that disclosure requirements for AI inventions should, depending on the nature of the invention, identify essential model structures, training steps, parameters, and the relationship between input and output data, so that a skilled person can carry out the technical solution without undue experimentation. Functional diagrams or general flow charts alone are considered insufficient. Case law in at least one jurisdiction has confirmed that a patent application relating to an artificial neural network failed to meet sufficiency requirements where it did not disclose which input data were suitable for training the network, or

[63] Ibid.
[64] Ibid.
[65] SCP/38/4, paras 189-200.
[66] Ibid.
[67] Ibid.

at least one dataset suitable for solving the technical problem. Similarly, an application providing no example of training data or the minimum quantity of training data required to enable meaningful predictions was found to fail the enablement requirement.[68]

79. Training data presents a distinct dimension of the disclosure challenge. Where technical performance depends on a specific dataset, questions arise as to how much information about that dataset must be disclosed in the application, and whether access to the dataset should be made available to third parties for the purpose of verifying that the claimed invention works as described. Requiring full disclosure of training data is practically challenging because such data is frequently proprietary and commercially confidential.[69] A further practical issue concerns privacy and data-protection law particularly where such data may be available under a limited license for training purposes to the inventor applicant, but not for the purposes of disclosure in relation to the claimed AI model trained on a specific dataset.[70] These questions remain largely unaddressed in current patent office guidance.

80. While full training data disclosure is not a current requirement, insufficiency may be found where an application fails to disclose even one suitable training dataset or the minimum amount of training data required for the invention to function as claimed. Where the technical effect of the invention depends on dataset characteristics, those characteristics must be disclosed unless a skilled person can determine them independently without undue burden; full disclosure of the dataset itself is not ordinarily required.[71]

81. The possibility of partial or full training data disclosure through dataset deposit with designated institutions or through post-grant third-party verification has been identified as a potential mechanism to validate claimed AI performance. This, in turn, raises cross-border questions regarding access to and validation of deposited data across jurisdictions. While analogous issues relating to micro-organism deposits have been resolved through international cooperation within existing treaty frameworks, the situation for training data differs in that the relevant subject matter is digital and potentially capable of remote access, subject to technical, legal and confidentiality restrictions, making physical deposit unnecessary. The core challenge is therefore one of validation of the training data in relation to the enablement of the claimed invention, rather than physical accessibility.[72]

82. Patent offices have further identified unreliable or fabricated sources, including AI-generated hallucinations within specifications, as a recurring concern in AI-assisted patent applications. Where such issues are detected, examiners should raise them through examination correspondence and request correction or removal to preserve patent quality and evidentiary integrity.[73]

83. Overall, sufficiency standards for AI inventions remain unsettled. The black-box nature of many AI systems need not, however, prevent sufficient disclosure where the application adequately explains the algorithm and training process. Further development through legislation, examination guidelines, and case law is expected to progressively refine applicable standards.

[68] Ibid.
[69] Ibid.
[70] WIPO AI and IP Policy Toolkit, p.15.
[71] SCP/38/4, paras 189-200.
[72] Ibid.
[73] Ibid

**Summary of policy options**

84. The following summary of policy options is presented below:

**a)** **Apply current standards with additional clarity (minimum, flexible, and functional disclosure standards):** *This option reflects a pragmatic approach that accommodates the inherent opacity of AI systems. Rather than requiring complete technical specification, it recognizes that establishing the plausibility of the claimed correlation supported by theoretical explanation, empirical data, or statistical results may suffice, provided such plausibility is substantiated rather than merely asserted. No jurisdiction currently requires full disclosure of training data, and the framework acknowledges the impracticality of mandating complete technical transparency for complex deep-learning systems.*

Within this option, patent offices could:

- require specifications to disclose actual empirical performance outcomes, including accuracy rates, precision and recall metrics, benchmark comparisons, or equivalent validation results, thereby reducing the scope for speculative or overly broad claims.
- Offices could treat the absence of any performance data as a presumptive indicator of insufficiency. Reproducibility standards analogous to those applied in biotechnology patents could be adopted for deep-learning inventions, requiring statistical evidence that inventions perform reliably, without mandating identical reproducibility. Such measures would calibrate claim scope proportionally with the breadth of technical disclosure.
- While some patent offices have been proactive in the use of AI tools for patent examination, the broader capacity implications for patent offices should also be acknowledged. As the volume and technical complexity of AI-related patent applications continue to grow, offices may face significant institutional challenges in equipping patent examiners with the expertise required to evaluate AI-specific claims involving training data, including the technical ability to assess performance metrics, benchmark comparisons, and training methodology disclosures. Where existing patent laws contain flexible statutory language, patent offices may have the capacity to implement minimum disclosure thresholds through examination guidelines without requiring legislative amendment to the disclosure requirement. Such an approach may offer potential advantages in terms of creating certainty for applicants and examiners.

**b)** **Strict or enhanced disclosure requirements (full disclosure of training data and related elements):** *This option adopts a rigorous approach requiring patent applicants to provide detailed, concrete technical disclosures encompassing all training data and datasets, complete model architecture including layers, activation functions and hyperparameters, training methodologies, and preprocessing steps. It reflects the view that the patent system's knowledge-dissemination function demands comprehensive technical transparency for AI inventions, particularly where claimed technical effects rely on specific datasets.*

Additional considerations include:

- While full submission or public deposit of training datasets may be required under this option, the confidentiality of proprietary datasets remains a significant practical obstacle. This approach creates inherent tension with existing trade secret protection frameworks. Alternatively, full dataset access could be mandated on a case-by-case basis where national law determines that an invention is insufficiently disclosed without

it. The practical implementation of such requirements, including mechanisms for managing confidential submissions and cross-border access, raises unresolved questions.

- As this option has not been widely tested or discussed across jurisdictions, further studies are recommended before it is considered as a basis for policy reform. The Committee may wish to explore the feasibility of this option, including its interaction with trade secret law, confidentiality obligations, and international frameworks governing deposit and validation of technical materials.

## IV. AI AND THE INVENTIVE PROCESS: AI-ASSISTED AND AI-GENERATED INVENTIONS

85. AI-assisted inventions have emerged as a distinct and increasingly significant category of AI innovation. As AI becomes pervasive in technological research, the boundaries between human-driven and (at least partially) autonomously generated inventions are progressively blurring, raising profound challenges to the theoretical and legal foundations of the patent system. The patent system is built around human-centric notions of inventive contribution and inventorship. As AI's role in the inventive process deepens, i.e. from tool to contributor, and eventually, to potential inventor, its broader implications for innovation incentives pose specific challenges. Patent offices are increasingly required to assess applications in which AI is deeply embedded in the inventive process, placing the relationship between AI and the patent system at the center of current policy debates.[74]

86. AI-generated inventions raise the fundamental question of whether an AI system that autonomously generates an invention can be named as its inventor. This question presents distinct and profound policy challenges to the patent system, which has historically required a natural person to be the inventor. While there is broad consensus across jurisdictions that AI cannot be named as inventor under existing law, significant policy challenges remain regarding the continued availability and suitability of the patent system for AI-generated inventions.[75]

### A. AI-assisted Inventions

87. As discussed in the introduction and background (see section I. C), AI-assisted inventions may be broadly defined as inventions made by humans using AI as a tool. In this context, AI currently functions analogously to a word processor or computational tool, with the human inventor retaining primary creative and directional control. When the identification of a problem and the determination of a solution remain fundamentally human-driven activities, AI-assisted inventions are patentable. However, as AI tools become increasingly sophisticated, this human centrality is being progressively challenged, generating significant issues for the patent system that demand policy attention.[76]

88. Historically, patent law has not faced dilemmas concerning the use of mechanical, computational, or scientific tools in the inventive process, as the conception of the invention was fundamentally human-centric, and disclosure of tools used is not required. In the context of AI, however, current tools may make a co-contribution (the degree of which remains a contested question) to the inventive concept itself. While AI-assisted inventions are not fully the product of AI automation, they blur the boundary between human inventive contribution and AI-generated output in ways that prior tool-use did not.[77]

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[74] WIPO AI and IP Policy Toolkit, p.13.
[75] SCP/38/5, paras. 15-20.
[76] Ibid.
[77] WIPO AI and IP Policy Toolkit, pp. 13, 15-17.

89. As AI tools become increasingly sophisticated, the question of who qualifies as an inventor in AI-assisted inventions raises complex challenges regarding the threshold of required human contribution and the chain of title.[78] If AI-assisted inventions are treated as joint inventions emerging from a collaboration between a human and an AI system, such inventions could be treated within the joint inventorship framework as it requires each person to make a creative contribution to the inventive concept, working on the same subject matter toward a common result. [79] However, the framework has inherent limitations since AI systems lack legal personality and cannot hold, assign, or transfer patent rights; they are incapable of forming the chain of title through which patent rights vest in an owner. Thus, recognizing AI as a joint inventor in an AI-assisted invention is fraught with conceptual difficulties.

90. AI systems are capable of absorbing and applying accumulated knowledge across technological fields at a scale and speed that far exceeds individual human capacity. AI is unconstrained by limitations of memory, language barriers, or the idiosyncrasies of individual scientific communities, and may assist in generating inventions residing within the “convex envelope” of cumulative human knowledge (i.e., inventions derivable from existing documented knowledge through novel combinations). Human input may nonetheless remain necessary for formulating queries to the AI system commonly referred to as “prompt engineering” and for evaluating AI-generated outputs. Where substantive human input is present, AI may properly be regarded as a productivity tool rather than an autonomous inventor.[80] Thus, humans can be recognized as inventors in case of an AI-assisted invention. A fundamental question that arises in the context of AI-assisted inventions relates to the threshold of the human contribution required in inventorship. As AI capabilities advance and the human contribution diminishes, it may become increasingly difficult to identify a legally sufficient human inventor and to determine patentability, ownership, and accountability under existing rules. Because patent law generally requires an invention to be traceable to a human “inventive spark,” these developments challenge the traditional concept of human-centered inventive conception.[81]

91. This legally complex challenge concerns the identification of the inventor where an AI tool has made a substantial contribution to the conception of an invention. Inventorship has consistently been tied to the creative or intelligent conception of the claimed invention. When AI tools make a substantial contribution to that conception, it becomes legally uncertain which human party, if any, may properly claim inventive status. The test to assess the nature of contribution is routinely applied in the context of identifying contributions made by humans to determine whether a person may qualify as co-inventor, and it can apply in assessing the contribution made by the human in an AI-assisted invention as well. While the nuances of such a test may slightly vary across jurisdictions, some jurisdictions (e.g. USPTO) focus on the key questions related to whether the human inventor *contributed in some significant manner* to the conception or reduction to practice of the invention as a whole. Under this test, the inventor must do more than merely explain well-known concepts and/or current state of the art.[82]

92. Applying these key principles in the context of AI-assisted inventions could result in denying the inventorship status of the human contributor. As AI tools become more sophisticated, a scenario may emerge in which only the identification of a problem is performed by a human, while the identification and selection of a solution is completed entirely by an AI tool. Since many jurisdictions do not award patents for the mere identification of a problem, such inventions could be excluded from patentability.[83] Some jurisdictions (e.g. the USPTO) have clarified that while merely recognizing a problem and presenting it to an AI system will not convey inventorship to the human inventor (or joint inventors), a significant contribution could be shown by the way the person constructs the prompt in light of the specific problem to bring

[78] SCP/38/5, paras 12, 88, 102–103.
[79] Ibid. paras. 88–91.
[80] WIPO AI and IP Policy Toolkit, pp. 13, 15-17.
[81] Ibid.
[82] SCP/38/4, paras 205-215.
[83] WIPO AI and IP Policy Toolkit, p. 13.

out a particular solution from the AI system. Furthermore, a human inventor who makes significant modifications or alterations to AI-generated outputs (i.e. by experimenting) can convey inventorship.[84]

93. Another key question concerns the recognition of contribution made by a human in designing the AI architecture or tool that assists the creation of the claimed AI-assisted invention. Several potential sources of inventive contribution may be identified in AI-assisted inventions, including the AI operator who frames the problem and selects the output, and the developer of a highly specialized AI model. This uncertainty is compounded by the multi-contributor nature of AI innovation in general, which may involve data providers, data cleaners, AI architects, model developers, training data owners, and AI operators.[85] For example, a person who merely trains a general-purpose AI system on a certain dataset which is used to derive the claimed invention may not qualify as an inventor. By contrast, a person who designs, builds, or trains an AI system to solve a specific problem may qualify if that contribution is significant to the resulting invention.[86]

94. Patent offices and policymakers may therefore need to map these actors and develop guiding principles for determining who has made an inventive contribution in a given case where the contribution of AI was substantial, and when multiple contributors may qualify as joint inventors.[87] Apart from the challenges in identifying the contributions of different participants to the conceptualization of the invention and their participation in the inventive process, wrongful designation of inventorship has real-world consequences, including potential invalidity of a patent in some jurisdictions (see Section IV.B below).

95. The need to enable patent offices and courts to determine inventorship in light of the above raises the issue of labeling AI tools used in an AI-assisted invention. Patent law generally does not require applicants to explain how an invention was made, and there is no existing obligation to declare whether, or how, AI was used in the inventive process. However, the growing role of AI tools has generated pressure for greater transparency, creating a significant policy tension. Arguments in favor of mandatory disclosure or “labeling” of AI use include that it would improve the prosecution record and provide transparency regarding the extent of the AI tool’s contribution. It could also help identify and assess the actual and significant contributions made by humans. Arguments against include that it would be inconsistent with existing practice, since no separate disclosure regime applies to inventions made using conventional tools, and that such a requirement could burden patent preparation, while examiners might find assessments of AI contribution subjective and prone to overstating AI’s importance relative to the actual human inventive contribution.[88]

96. An ancillary issue in the context of AI-assisted inventions relates to the identification of inventive step, since a patentable invention must not be obvious to PHOSITA. Due to the integration of AI tools in different technological fields, the inventiveness of such AI-assisted patent applications may diminish. Hence, many tasks that are inventive for humans may become routine, particularly with the expansion of common general knowledge.[89] Although patent offices are yet to fully explore and address this issue in the context of AI-assisted inventions, some of the issues discussed in the context of AI challenges to PHOSITA (see Section III.B) can have a significant impact on assessment of inventive step for AI-assisted inventions.

[84] SCP/38/4, paras 205-218.
[85] WIPO AI and IP Policy Toolkit, p. 28-29.
[86] SCP/38/4, paras 205-218.
[87] Ibid.
[88] Ibid.
[89] WIPO AI and IP Toolkit, p. 15.

97. Some patent offices have issued specific guidance on the treatment of AI-assisted inventions. The currently available guidance confirms that the same legal standard for determining inventorship applies to all inventions regardless of whether AI tools were used, and no new, separate, or modified standard applies to AI-assisted inventions. Under the prevailing practice, only natural persons may be named as inventors.[90]

**Summary of policy options**

98. The transformation of the inventive process resulting in AI-assisted inventions, in the light of the considerations above, presents at least three distinct policy issues.

***1. Assuming that the premise of incentivizing human-centric innovation by the patent system persists, how to determine if the human contribution warrants patent protection, or in other words: how to assess whether there is at least one human inventor of the invention?***

This assessment does not require a change in the basic policy framework, but it needs to furnish the authorities with the information and tools to determine whether the required threshold of human contribution is reached. On the one hand, this requires guidance from the patent offices on the standards they use for this assessment (e.g., clarification of when prompt engineering constitutes a substantial contribution). On the other hand, the introduction of a new disclosure (or, to distinguish it from sufficiency of disclosure, labeling) requirement is one option that may be considered to improve transparency around the respective contributions of humans and AI.

a) **Labeling of AI use:** *Under this policy option, applicants would be required to identify the role of AI in the invention, including which elements were generated by AI and which resulted from human contribution, enabling patent offices to apply a substantial-contribution test during examination. As a less prescriptive sub-option, policymakers may alternatively wish to recommend that innovators document and maintain internal records of AI tool usage, including the type of tools and training data used, and descriptions of how AI output and human input together contributed to the invention, as such records may prove to be critical during patent prosecution or in the event of later validity challenges.*

***2. How to handle some AI-assisted inventions having human contributors on the side of enabling the AI to assist in inventing, potentially qualifying as co-inventors?***

Even under the generally applied inventorship framework, certain human actors behind the development, training and operation of the AI model used to create the invention may qualify as co-inventors. As the profile and role of these human actors can be different from traditional members of a research team, and the invention process using AI requires some steps or activities that had not been part of such a process before, clarity is needed in the determination of inventorship in the case of indirect, but invention-specific human contributors. This does not necessarily require any modification of the policy framework (and thus, no separate policy option is presented here), but guidance from the patent office assists the users of the system to settle these relations early, before disputes arise in a later stage about co-inventorship status.[91]

[90] SCP/38/4, paras 205-218.
[91] WIPO AI and IP Policy Toolkit, p. 16.

***3. Assuming that the determination under issue 1 can be made, how to address the AI-generated part of the invention where the AI contribution, if it was made by a human, would make the contributor qualify as a co-inventor?***

One option here is to wholly attribute the invention to the human or humans who individually or collectively reach the level of inventorship, considering the AI they used as a tool, irrespective of its degree of contribution. Another option is to find a way of recognizing the substantial contribution of the AI model, apportioning some rights to an appropriate entity. The dilemmas here are akin to those relating to AI-generated inventions, and consequently, will be addressed in Section IV.B.

## B. AI-generated Inventions

99. Inventorship marks the point of origin of each invention and constitutes a core concept in patent law, focused on identifying "who conceived the subject matter at issue." It carries both a moral dimension, namely the right to be recognized as the originator and a property dimension, as inventorship underlies the chain of title through which patent rights vest.[92]

100. AI-generated inventions pose a fundamental philosophical challenge to these foundations. The patent system has traditionally rewarded human creative labor, treating inventors as moral agents entitled to recognition and exclusive rights. That premise is difficult to sustain where an invention is generated by a non-sentient machine that has no interests, moral entitlement, or capacity to respond to incentives. The incentive rationale accordingly shifts from the inventor to those investing in AI development, thereby raising the question whether AI-generated inventions require a different normative basis, such as investment-based or *sui generis* protection.

101. Beyond philosophical concerns, AI-generated inventions place pressure on core patent law doctrines. The doctrine of conception, which requires a mental act attributable to an identifiable human inventor, is difficult to apply where an AI-generated output is novel and non-obvious without corresponding human conception. The person skilled in the art standard becomes unstable as AI tools become routinely available, risking that inventions previously requiring human ingenuity increasingly appear obvious.[93] The patent bargain is further strained where opaque AI systems cannot be fully explained in an enabling disclosure, potentially allowing exclusive rights without the corresponding public disclosure necessary for others to reproduce and build upon the invention.[94]

102. Academic debate reflects divergent positions: some scholars argue that recognizing AI inventorship would encourage investment in AI development, applying classic incentive theory to those who develop and commercialize AI systems rather than to AI itself. Others argue that AI-generated inventions should enter the public domain, while critics caution that this could create higher transaction costs for follow-on innovation.[95] Joint inventorship and employee-invention doctrines have been examined as possible models, but AI's lack of legal personality makes their application difficult. One commentator proposes recognizing "AI stakeholders" comprising programmers, owners, trainers, and operators as contributors to the inventive process. Some have advocated applying the doctrine of "simultaneous conception and reduction to practice," known in unpredictable innovation fields, as it addresses scenarios where conception cannot be established independently of experimental reduction to practice. Recognizing human stakeholders' understanding of an invention's relevance as a qualifying inventorship criterion would preserve innovation incentives in the context of increasingly autonomous AI-generated outputs.[96]

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[92] SCP/38/5, paras 31-32.
[93] WIPO AI and IP Policy Toolkit, p. 20.
[94] SCP/38/4, para 176.
[95] SCP/38/6 (Annex 1), para 71.
[96] SCP/38/5, paras 212-216.

103. National and regional patent laws generally provide that the right to a patent belongs to the inventor or their successor in title. Many jurisdictions define “inventor” as a natural person who conceived the subject matter of the invention, based on statutory language, moral rights provisions, chain of title requirements, or contextual interpretation. Inventorship is distinguished from ownership: inventorship is static and does not change once established, whereas ownership is dynamic and may be transferred. In several jurisdictions, statutory provisions define inventors expressly as “natural persons” or as the "actual devisor" of the invention, while others reach the same conclusion through contextual interpretation. The requirement that the inventor must be a natural person is consistently applied to reject patent applications naming AI as inventor.[97]

104. The legal consequences of inaccurate inventorship designation have acquired particular significance in the context of AI-generated inventions as patent offices and courts have routinely permitted changes to inventorship designations in cases where AI inventorship has been denied.[98] Patent laws in some jurisdictions permit correction of a wrongly designated inventor, allowing replacement or addition of inventors accompanied by reasons and a declaration identifying the true inventors. This correction mechanism has been applied in practice across AI inventorship proceedings.

105. An erroneous inventorship designation does not invariably invalidate a patent. Across jurisdictions, the legal consequences of incorrect designation vary considerably:[99]

- *Invalidation or revocation*: In some jurisdictions, inaccurate designation, particularly where it reflects a defect in entitlement, may be a ground for invalidation or revocation on the basis that the applicant or patentee did not derive title from the true inventor and is therefore not a legitimate successor in title. In other systems, a patent is not invalid merely because it was granted to a person not entitled, though revocation may remain available on broader grounds including fraud, misrepresentation, or non-disclosure.

- *Transfer-based remedies*: Where inventorship has been inaccurately stated, many legal systems provide mechanisms to transfer or vest rights in the entitled person rather than extinguish protection. Available remedies, which are applicable pre-grant and post-grant, may include assignment of the application, transfer of the granted patent, rectification of the register, or judicial declarations of entitlement. Damages for usurpation are provided under some frameworks, in addition to vesting of title.

106. Standing to challenge an inaccurate inventorship designation varies across jurisdictions and may include applicant-initiated correction, actions by the true inventor, proceedings by persons with a proprietary interest, or challenges by any interested person. Public authorities may also initiate or entertain challenges in some frameworks, including through third-party submission during examination. Standing rules may differ between pre-grant and post-grant, with broader standing typically reserved for pre-grant proceedings.

107. The timeframe within which a challenge may be brought varies: some jurisdictions confine challenges to a defined period during the application or patent lifetime, while others permit challenges at any point. Where time limits apply, exceptions are commonly made for cases involving bad faith by the applicant.

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[97] Ibid. paras 62-71.
[98] Ibid. para 125-144.
[99] Ibid.

108. Most jurisdictions have applied existing frameworks rather than amending patent legislation to allow AI as the inventor. Very few proposals have emerged to amend the definition of inventorship to provide for the ownership of inventions generated autonomously by AI systems.[100]

109. The most prominent illustration of AI inventorship issues is the DABUS case, named after the AI system "Device for the Autonomous Bootstrapping of Unified Science." DABUS was reported to have autonomously generated two inventions — a flashing light beacon for emergency situations and a fractal food container — without specific instruction. Patent applications were filed by Stephen Thaler naming DABUS as inventor, with Thaler claiming entitlement as the AI system's owner. A corresponding PCT application was filed with several designated countries.[101]

110. Across all jurisdictions that examined the DABUS applications (including Australia, Canada, China, Germany, India, Israel, Japan, the Republic of Korea, Saudi Arabia, the United Kingdom, the United States of America, and the EPO), a consistent conclusion was reached: an inventor must be a natural person possessing legal personality, legal capacity, and the capacity for mental conception. Applications naming DABUS as inventor were rejected on the basis of statutory language, moral and personality rights of inventors, requirements for legal capacity to hold or transfer patent rights, and the absence of AI's capacity to perform legal acts.[102]

111. No major jurisdiction ultimately accepted DABUS as inventor. However, the alternative pathway of allowing correction in designation of inventorship remains legally fragile, potentially requiring applicants to understate the AI system's inventive role or overstate human contribution, raising concerns regarding the accuracy, integrity, and transparency of the patent record. Some commentators have observed that DABUS-style cases described as AI-generated may, on closer examination, be better understood as AI-assisted inventions.

**Summary of policy options**

112. Policymakers are encouraged to consider a broader range of options beyond the binary question of whether an AI system can or should be named as inventor, as identified in the WIPO AI and IP Toolkit.[103]

a) **Preserve the status quo (recognize human inventors only):** *Under this option, the existing approach is maintained: only natural persons qualify as inventors. AI is treated as a tool; no separate or modified legal standard is created. Correction mechanisms remain available to applicants of AI-generated inventions: if they wish to pursue the application, depending on the jurisdiction, the designation of the inventor can be rectified and the patent may be allowed, subject to other patentability considerations. However, this pathway may result in understating AI's inventive role, raising patent record integrity concerns. The approach may become increasingly inadequate as AI's contribution to conception grows, leaving questions of ownership and accountability structurally unresolved.*

b) **Revise patent laws to allow an AI system to be named as inventor or co-inventor:** *This option would amend patent laws to define "inventor" expressly to include non-human inventors. Proponents argue that such reform could encourage investment in AI research and development and strengthen the patent system's disclosure function. Co-inventorship could provide a mechanism*

[100] SCP/35/8, para 3. Also see, SCP/38/5, paras 59 and 60.
[101] SCP/38/5, paras 44-59.
[102] Ibid.
[103] WIPO AI and IP Policy Toolkit, pp. 26-31.

*to allocate rights among relevant stakeholders. However, AI systems lack legal personality and cannot own patents, requiring a comprehensive legal framework to determine ownership.*[104] *This option would require substantial legislative reform and could generate new legal uncertainties. Some jurisdictions have specifically revised guidelines to remove the possibility of AI being named as a co-inventor, thereby placing so-called AI-generated inventions in the category of AI-assisted inventions, in which the inventor remains human and AI is treated as a mere tool (see Section IV.A).*

c) **Revise patent laws to require a legal person as proxy for the AI, while recording AI inventive contribution:** *A more nuanced alternative would retain the requirement that a legally accountable person be named as a "sponsor" for patents claiming AI-generated inventions, while formally recording the inventive contribution of the AI system. The sponsor could be a human who trained, developed, owned, or operated the AI system, or a corporate entity. Naming a legally accountable sponsor would resolve accountability issues, maintain the inventor-to-owner chain of title, reduce the risk of fabricated human inventor designations, and promote transparency regarding AI's role in the inventive process.*[105]

d) **Establish a *sui generis* IP regime for AI-generated inventions:** *Given the potential difficulties of either excluding AI-generated inventions from patent protection entirely or accommodating them within the existing patent framework, some commentators have raised the option of creating a new* sui generis *IP right for AI-generated inventions.*[106]

An advantage of developing a new *sui generis* law would be that it could be tailored specifically to reflect the inventive processes used by AI systems. The key features and advantages may include:

- The rules for inventorship, ownership, standards of inventive step and non-obviousness, disclosure requirements, including for trained datasets and algorithms, and examination processes could all be adapted or reimagined.
- A bespoke approach could incorporate shorter terms of protection, more nimble examination processes, and different rights and enforcement mechanisms. Questions regarding appropriate thresholds of inventive step, which could be potentially lower than under patent law, appropriate terms of protection, possibly around five years subject to empirical evidence,[107] available remedies, and the role of injunctive relief remain unresolved.
- New ethical principles addressing biases, accountability, misuse, fairness, and equity could also be built directly into such a law. Some of the concerns raised in the context of subject matter eligibility based on grounds of ethics and morality could be readily addressed. A host of disclosure-related concerns (both formal and substantive) could be accommodated.

However, this option is not without critics. The main concerns can be summarized as follows:

- Some oppose extending IP protection to AI-generated outputs altogether, while others fear that awarding such protection could allow a

[104] SCP/38/6 (Annex 1), para 72.
[105] WIPO AI and IP Policy Toolkit, pp. 26-31.
[106] Ibid.
[107] SCP/38/6 (Annex 1), para 40.

handful of powerful entities to monopolize access to AI-generated technologies.

- It remains unclear whether such a *sui generis* regime should be based on property-type protection or a compensatory liability regime. Exclusive property rights-based protection could provide reasonably balanced protection similar to patents, while a compensatory liability regime would allow a pay-and-use system. Under such a system, limiting exclusivity by prohibiting refusal of licenses and shifting determination of remuneration value from markets to regulators can facilitate enhanced downstream access to AI-generated inventions.

- Preventing overlaps or conflict between a *sui generis* AI-IP law and existing patent law, particularly regarding AI-assisted inventions, where the boundary with AI-generated inventions may be blurred, would require careful design.

- Critics prefer retaining human inventorship unless empirical evidence demonstrates a need to incentivize machine-generated inventions through a *sui generis* system. Accordingly, discussions on a possible *sui generis* system should begin only if empirical evidence demonstrates a need for additional incentives.[108]

[End of Annex 2 and of document]

[108] SCP/38/6 (Annex 1), para 28.