**Questions**

**I. Current law and practice**

*Please answer the below questions with regard to your Group's current law and practice.*

Inventiveness

1) When assessing Inventive Step under your law, are the concrete/actual circumstances under which an invention was made (e.g., the amount of time and resources used by the concrete inventor) considered at all, or is the assessment of the Inventive Step rather an objective examination of the invention against the prior art? Please briefly explain.

Neither the Danish Patents Act nor the European Patent Convention (EPC) sets up any requirements as to the manner, in which an invention is made or conceived, although it must be made by a physical person.

To be patentable, an invention must meet the requirements set out in Article 52 of the EPC, respectively Section 1 and 2 of the Danish Patent Act. The fulfilment of these requirements rests on an objective examination, and so does the assessment of Inventive Step, which depends on an objective examination of the invention against the prior art. The concrete/actual circumstances, under which the invention is made (the amount of time and resources used by the concrete inventor), is thus not considered when assessing Inventive Step.

2) Further to question 1), when assessing Inventive Step, does your law differentiate between an invention made by a human being using AI technology and inventions made autonomously by AI? In particular, assuming that a specific invention could have been made using AI without Inventive Step, is the invention still patentable if the applicant claims that the invention was made without using AI? Please briefly explain.

Current law in Denmark does not differentiate between an invention made by a human being using AI technology and inventions made autonomously by AI when assessing Inventive Step. This is in alignment with the EPC.

An invention is considered as involving an Inventive Step if, having regard to the state of the art, it is not obvious to the person skilled in the art. Assessment of whether an invention entails an Inventive Step must therefore be based on the knowledge and ability of the person skilled in the art.

In order to assess Inventive Step in an objective and predictable manner, the "problem-solution approach" is applied. The steps of this approach are among other things as follows: (i) determining the closest prior art, (ii) establishing the objective technical problem to be solved, and (iii) considering whether or not the claimed invention, starting from the closest prior art and the objective technical problem, would have been obvious to the person skilled in the art.

The purpose of this approach is to establish Inventive Step as an objective requirement; there must be sufficient objective difference(s) between an invention and the state of the art for it to be patentable. It is thus *per se* irrelevant how an inventor has arrived at an invention, e.g. whether the invention could have been made using AI.

If the invention was made autonomously (without human involvement), the invention would not be patentable as the invention has not been made by a physical person.

Assuming that a specific invention could have been made using AI (as a tool) without Inventive Step (i.e. he *would* and not only *could* have done so), the invention would not be patentable even if the applicant claims that the invention was made without using AI (as a tool).

3) The following questions relate to the definition of the person skilled in the art when assessing Inventive Step of an AI Invention under your law:

a) What is the definition of the "person skilled in the art"? An AI "person"? A human person? A human person having access to AI? Does the increasing use of AI in the inventive process change the definition of the person skilled in the art? Please briefly explain.

The person skilled in the art is presumed to be a skilled practitioner (i.e. a human being) in the relevant field of technology who possesses average knowledge and ability and is aware of what was common general knowledge in the art at the relevant date.

The person skilled in the art is further presumed to have had access to everything in the "state of the art", including having been in possession of the means and capacity for routine work and experimentation which are normal for the field of technology in question.

Currently, the assessment of Inventive Step at both the Danish Patent Office and the European Patent Office (EPO) is made from the perspective of a human person skilled in the art.

However, the legal fiction of the skilled person is inherently dynamic and is under constant evolution, which in turn entails that the increasing use of AI in general is disposed to have a gradual effect on the level of the average knowledge and ability (including available standard tools, which include standard AI tools within the relevant field of technology) of said person, as well as the person's skill, see below.

b) What kind of "skills" (e.g., access to software) does this "person" have in the specific context? Please briefly explain.

The person skilled in the art is presumed to have at his disposal the means (including available standard tools) and capacity for routine work and experimentation which are normal for the field of technology in question. If standard AI tools are available within the technical field of the specific skilled person, these will form part of the skilled person's standard tools.

The practice from the Danish Patent Office and the EPO is in alignment in this regard.

c) Do the capabilities of AI impact the assessment of the skillset of the person skilled in the art? In particular, do the capabilities of AI to process a high amount of theoretical solutions of a given problem impact the assessment of the skillset? Please briefly explain.

 As AI technology progresses, what is considered normal (which is necessarily a dynamic notion) in relation to the means and capacity for routine work and experimentation within a field of technology will evolve. In certain fields, use of standard AI will likely be considered a part of routine work. This applies both under Danish law and the EPC.

d) Does your law treat common general knowledge differently for AI inventions? Please answer YES or NO, and you may add a brief explanation.

No. Common general knowledge is derived from a relevant field of technology and not from the specific type of invention.

4) Further to questions 2) and 3), under your law, how is the Inventive Step assessed in the following hypothetical cases (you may answer whether Inventive Step is met by answering YES or NO, but you also may add a brief explanation):

a) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data (e.g., the invention is in the pharmaceutical field, the AI system was trained using structural information and binding data of molecules binding to a target protein and inhibiting its physiological function. The suggestion for the technical solution is a new molecule selected from a library of molecules and predicted to bind to the target protein and inhibit its physiological function).

In this respect, the Danish Patents Act is aligned with the EPC, and the manner of analyzing an Inventive Step of the Danish Patent Office is aligned with that of the European Patent Office. Inventive Step is assessed from the wording of the claim and not from how the invention is arrived at. The EPO favors the use of the problem-solution approach which concerns itself only with the scope of the claim and whether a skilled person can arrive within the ambit of the claim from the prior art without inventive effort.

In the example pertaining to chemistry, the solution to the technical problem likely will not meet the criteria for an Inventive Step until theoretical or experimental support is presented, which makes the presented technical solution plausible. If presented in the initial application, and in the absence of any further pointers to the solution in the prior art, an Inventive Step of the technical problem solved is likely to be present.

In the example, accordingly, the AI system and training are applied as mere tools for obtaining a result directing the further research.

The question of public access to the AI system and training data is not relevant for the assessment of an Inventive Step of the solved technical problem, as long as the technical problem and pointers to its solution were not available to the skilled person at the date of priority.

However, in the example it is possible (potentially even likely) that pointers to the *use* of the AI system and the training data are present in the prior art, hence reducing the likelihood that upon examination, indication of an Inventive Step will be found.

b) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on not publicly available data (e.g. a library of molecules available only to the applicant).

In the example pertaining to chemistry, the solution to the technical problem likely will not meet the criteria for an Inventive Step until experimental support is presented, favorably supporting the presented technical solution. Once presented, and in the absence of any further pointers to the solution in the prior art, an Inventive Step of the technical problem solved is likely to be present.

In the example, accordingly, the AI system and training are applied as mere tools for obtaining a result directing the further research.

The question of public access to the AI system and training data is not relevant for the assessment of an Inventive Step of the solved technical problem, as long as the technical problem and pointers to its solution were not available to the skilled person at the date of priority.

Nevertheless, in the example it is unlikely that pointers to the *use* of the AI system and the training data are present in the prior art, as part of the AI tool is not comprised in the prior art, increasing the likelihood that upon examination, indication of an Inventive Step will be found.

c) A publicly available AI system is trained using not publicly available training data (e.g., unpublished experimental results obtained by the applicant). The trained AI system is used to make a suggestion for a technical solution based on publicly available data.

See answer to b).

d) A not publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data. The AI system relies on commonly used AI principles and leads to the same result as another publicly available AI system commonly used in the technical field of the invention.

Assuming that the solution suggested by the AI system is not already a known solution, an objective technical problem to be solved, could be the provision of an alternative AI system for solving a specific technical problem known to be solvable with a commonly known AI system.

Dependent on the inner workings of the alternative, novel AI system, an Inventive Step may be found for a claim to the alternative AI system and to the use thereof, but not to the solved specific technical problem of the prior art.

e) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data. The AI system is not commonly used in the technical field of the invention.

See answer to a).

f) A publicly available AI system is trained using publicly available training data. The trained AI system makes a plurality of suggestions for technical solutions based on publicly available data. A human selects one of the suggestions as the most promising based on his/her experience.

See answer to a).

It is in itself not of importance that a human makes a selection, or an AI makes the same selection, as in the absence of experimental support, the technical problem has not yet been solved, it in itself leading to a denial of an Inventive Step for the proposed technical solution. Under the assumption that the technical effect can be proven, there is an invention.

5) Assuming that an AI system becomes standard for solving technical problems in a certain technical field, does the Patent Office in your country use this AI system during examination of a patent application? Please answer YES or NO, and you may add a brief explanation.

No, we have not seen this in practice neither before the Danish Patent Office nor before the EPO.

Sufficiency of disclosure

6) Please briefly describe the standard of sufficiency of disclosure under your jurisdiction.

The standard of sufficiency of disclosure of the Danish Patents Act is aligned with that of the EPC. Before the Danish Patent Office and the EPO, sufficiency of disclosure relates to the subject-matter of the claim, so that a skilled person within the area in question is able to carry out the invention within the full scope of the claim.

7) Further to question 6), does your law provide exceptions from the standard of sufficiency of disclosure? Please answer YES or NO, and you may add a brief explanation.

No. There are no exceptions neither in the Danish Patents Act nor in the EPC.

8) Does/did the increasing use of AI change the standard of sufficiency of disclosure? Please answer YES or NO, and you may add a brief explanation.

No, there has been no change to the standard of sufficiency of disclosure due to the increasing use of AI. Clearly, as a technical field becomes more widely known, the skilled person can be assumed to know more, so that less description is required in order to fulfil the requirement of sufficiency of disclosure.

9) Under your law, is it possible to overcome a possible lack of sufficiency of disclosure by submitting a "deposit" of AI software or data? Please answer YES or NO, and you may add a brief explanation.

No. There is no deposit tool for AI software or data before the EPO or the Danish Patent Office. All information required to fulfil the sufficiency of disclosure requirement should be added to the application text before filing. In the situation where the claim comprises the AI and the training set, including a description of the AI and training set in the specification could fulfil the requirement of sufficiency of disclosure.

10) Is the standard of sufficiency of disclosure met in the following hypothetical cases (you may answer whether sufficiency of disclosure is met by answering YES or NO, but you also may add a brief explanation)? Hereinafter, "publicly available" refers to the priority/ filing date.

a) The specific profile of a wing or the specific composition of a drug was designed using AI, and this AI system was trained using publicly available training data.

Yes, for the wing. The assessment of sufficiency of disclosure does not relate to how the invention is arrived at. When the claim specifies the actual profile of the wing, a skilled person will be able to provide a wing with that profile, so the requirement of sufficiency of disclosure will be met.

No, for the drug, as a description of a specific composition is not sufficient for enablement, as the application must also comprise a sufficient description of how to produce the drug with that composition in order for the requirement of sufficiency of disclosure to be met if that is not common general knowledge.

b) The specific profile of a wing or the specific composition of a drug was designed using AI, and this AI system was trained using not publicly available training data.

See answer to a).

c) The invention consists of a new or improved AI, and the AI platform or environment (which may involve extensive databases) in which the invention is operating is publicly available on a website.

Yes, the requirement of sufficiency of disclosure will be met if the new or improved AI is identified in the application and the training thereof explained sufficiently.

In the event that the new or improved AI is obtained by a particular training of the publicly available AI platform or environment, the requirement of sufficiency of disclosure will be met if the platform or environment is identified in the application and the training thereof explained sufficiently.

It is not decisive for the assessment of sufficiency of disclosure that the AI platform or environment, in which the invention is operating, is publicly available on a website, but the level of public availability may influence the level and the amount of information necessary to communicate to the skilled person for compliance with the requirement of sufficiency.

d) The invention consists of a new or improved AI, and the AI platform or environment (which may involve extensive databases) in which the invention is operating is not publicly available.

Yes, in the event that the new and improved AI is obtained by a particular training of the existing, not publicly available, AI platform or environment, the requirement of sufficiency of disclosure will be met if the platform or environment was described sufficiently, including any training thereof arriving at the existing "AI platform or environment", and that, in addition, the subsequent training thereof in order to arrive at the new or improved AI was described.

It is not decisive for the assessment of sufficiency of disclosure that the AI platform or environment, in which the invention is operating, is not publicly available on a website, but the level of public availability may influence the level and the amount of information necessary to communicate to the skilled person for compliance with the requirement of sufficiency.

**II. Policy considerations and proposals for improvements of your Group’s current law**

Inventiveness

11) According to the opinion of your Group, is your current law regarding inventiveness of AI inventions adequate and/or sufficient? Please answer YES or NO, and you may add a brief explanation.

Yes. We find that it is an advantage of the current law that the Inventive Step is an objective requirement and that it is the most reasonable and objective approach to answer an otherwise subjective question. The objective evaluation of inventiveness reduces the risk of arbitrary, subjective results. It does not seem necessary to alter the objective notion of inventiveness to further meet the concept of AI inventions. We favor the current construction of the notion of inventiveness.

12) According to the opinion of your Group, would a differentiation between an invention made by a human being using AI technology and inventions made autonomous by an AI regarding the assessment of Inventive Step conflict with the purpose of patent law to incentivize creation (you may also refer to other general patent law doctrines under your law, if applicable)? In answering this question, please specifically refer to the scenario that a specific invention could have been made using AI without Inventive Step, but the patent applicant claims that the invention was made without using AI. Please briefly explain.

Patents are limited-term monopoly rights granted in respect of new, inventive and industrially applicable inventions for the purpose of incentivizing creation. In exchange for this grant of exclusive right society gains disclosure of the working principle behind the invention in patent specifications.

A differentiation between an invention made by a human being using AI technology and inventions made autonomously by an AI (if any such AI system comes into existence) would therefore in our opinion conflict with the purpose of patent law under Danish law and the EPC.

Sufficiency of disclosure

13) According to the opinion of your Group, is your current law regarding sufficiency of disclosure of AI inventions adequate and/or sufficient? Please answer YES or NO, and you may add a brief explanation.

Yes. The current standard of sufficiency of disclosure contains room to meet the legal issues arising from the increasing use of AI technology. As such we consider the current standard adequate and sufficient as it allows for a dynamic approach.

14) According to the opinion of your Group, if applicable, would the recognition of the possibility to submit a "deposit" in order to overcome a possible lack of sufficiency of disclosure help to foster innovation? Please answer YES or NO, and you may add a brief explanation.

Yes.

**III. Proposals for harmonization**

*Please consult with relevant in-house / industry members of your Group in responding to Part III.*

Inventiveness

15) Do you consider harmonization regarding the inventiveness of AI inventions as desirable in general? Please answer YES or NO, and you may add a brief explanation

Yes, to ensure a uniform and clear approach to the question of inventiveness of AI inventions.

*If YES, please respond to the following questions without regard to your Group's current law or practice.*

*Even if NO, please address the following questions to the extent your Group considers your Group's current law or practice could be improved.*

16) When assessing Inventive Step, should the law differentiate between an invention made by a human using AI technology and inventions made autonomous by an AI? In particular, assuming that a specific invention could have been made using AI without Inventive Step, should the invention still be patentable if the applicant claims that the invention was made without using AI? Please briefly explain.

No, the same standard for assessing Inventive Step should apply. In the particular scenario: No, because no inventive step, see answer to question 2) and 12).

17) The following questions relate to the definition of the person skilled in the art when assessing Inventive Step of an AI Invention:

1. What should the definition of the "person skilled in the art" be? An AI "person"? A human person? A human person having access to AI? Should the increasing use of AI in the inventive process change the definition of the person skilled in the art? Please briefly explain.

We believe that the current definition of the "person skilled in the art" is fit for purpose and allows sufficient scope for it to continue to keep up with advances in technology for the foreseeable future, see answer to question 3) a).

1. What kind of "skills" (e.g., access to software) should this "person" have in the specific context? Please briefly explain.

We believe the current definition of what "skills" this "person" should have is fit for purpose, see answer to question 3) b).

Due to the dynamic definition of the "person skilled in the art" this question can only be accurately answered on a case by case basis which must take the time of assessment as well as the specific industry into account. This allows for the law to keep up with advances in technology.

1. Should the capabilities of AI impact the assessment of the skillset of the person skilled in the art? In particular, should the capabilities of AI to process a high amount of theoretical solutions of a given problem impact the assessment of the skillset? Please briefly explain.

Yes, this embedded flexibility is what allows the law to keep up. Once it is normal in an industry to use AI capabilities to e.g. process a high amount of theoretical solutions, the law must reflect such development.

1. Should the law treat common general knowledge differently for AI inventions? Please answer YES or NO, and you may add a brief explanation.

We believe current law takes a suitable approach. See answer to question 3) d).

18) Further to questions 16) and 17), how should the Inventive Step be assessed in the following hypothetical cases (you may answer whether Inventive Step is met by answering YES or NO, but you also may add a brief explanation):

a) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data (e.g., the invention is in the pharmaceutical field, the AI system was trained using structural information and binding data of molecules binding to a target protein and inhibiting its physiological function. The suggestion for the technical solution is a new molecule selected from a library of molecules and predicted to bind to the target protein and inhibit its physiological function).

We favour the problem-solution approach developed through many years of EPO case law, because it is the most objective approach to answer a subjective question. The Inventive Step is assessed from the wording of the claim and not from how the invention is arrived at. In this example: Are there pointers in the prior art that would motivate the skilled person to use the publicly available AI system in the relevant field of technology, train the model using the publicly available training data and pose the relevant question? If not, then the invention is most likely inventive.

b) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on not publicly available data (e.g. a library of molecules available only to the applicant).

The probability of Inventive Step is higher than in a) because inevitably less information is available to the skilled person faced with the objective technical problem.

c) A publicly available AI system is trained using not publicly available training data (e.g., unpublished experimental results obtained by the applicant). The trained AI system is used to make a suggestion for a technical solution based on publicly available data.

The probability of Inventive Step is higher than a) because inevitably less information is available to the skilled person faced with the objective technical problem.

d) A not publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data. The AI system relies on commonly used AI principles and leads to the same result as another publicly available AI system commonly used in the technical field of the invention.

The probability of Inventive Step is similar to a) because the non-public AI system is unlikely to provide an advantage and therefore likely cannot be applied in the problem solution approach.

e) A publicly available AI system is trained using publicly available training data. The trained AI system is used to make a suggestion for a technical solution based on publicly available data. The AI system is not commonly used in the technical field of the invention.

The probability of inventive step is higher than a) because the prior art teaches away from using the AI system that leads to the solution.

f) A publicly available AI system is trained using publicly available training data. The trained AI system makes a plurality of suggestions for technical solutions based on publicly available data. A human selects one of the suggestions as the most promising based on his/her experience.

The probability of Inventive Step is higher than a) because the chain of decisions leading to the solution is longer than in a).

19) Assuming that an AI system becomes standard for solving technical problems in a certain technical field, should Patent Offices use this AI system during examination of a patent application? Please answer YES or NO, and you may add a brief explanation.

No, they should not use it themselves, but they should use it as part of the knowledge possessed by the skilled person, see answer to question 5. However, as above they would first and foremost need to prove that the AI system in the configuration useable for solving the objective technical problem was available to the skilled person as a standard tool at the priority date of the patent application in question and would have been applicable to the objective technical problem without bias and the use of hindsight, in particular the hindsight knowledge of knowing that the objective technical problem *has* a solution.

20) Would it be desirable that assessment of Inventive Step be automated in Patent Offices, using standard AI systems and publicly available information in order to evaluate Inventive Step? Please answer YES or NO, and you may add a brief explanation.

Yes, provided that the AI improves the quality of the examination at the Patent Offices. However, input and output bias in automated AI decision systems are well known, and any AI tool employed by Patent Offices must first be shown to be bias free.

21) Please comment on any additional issues concerning any aspect of inventiveness of AI inventions you consider relevant to this Study Question.

None.

Sufficiency of disclosure

22) Do you consider harmonization regarding the sufficiency of disclosure of AI inventions as desirable in general? Please answer YES or NO, and you may add a brief explanation.

Yes, to ensure a uniform and clear approach to the question of sufficiency of disclosure of AI inventions.

*If YES, please respond to the following questions without regard to your Group's current law or practice.*

*Even if NO, please address the following questions to the extent your Group considers your Group's current law or practice could be improved.*

23) Should the increasing use of AI change the standard of sufficiency of disclosure? Please answer YES or NO, and you may add a brief explanation.

No.

24) Should the law provide exceptions from the standard of sufficiency of disclosure regarding AI Inventions? Please answer YES or NO, and you may add a brief explanation.

No.

25) Should it be possible to overcome a possible lack of sufficiency of disclosure by submitting a "deposit" of AI software or data? Please answer YES or NO, and you may add a brief explanation.

No.

26) Should the standard of sufficiency of disclosure be met in the following hypothetical cases (you may answer whether sufficiency of disclosure is met by answering YES or NO, but you also may add a brief explanation)?

Nothing further to add, see question 10.

a) The specific profile of a wing or the specific composition of a drug was designed using AI, and this AI system was trained using publicly available training data.

b) The specific profile of a wing or the specific composition of a drug was designed using AI, and this AI system was trained using not publicly available training data.

c) The invention consists of a new or improved AI, and the AI platform or environment (which may involve extensive databases) in which the invention is operating is publicly available on a website.

d) The invention consists of a new or improved AI, and the AI platform or environment (which may involve extensive databases) in which the invention is operating is not publicly available.

27) Please comment on any additional issues concerning any aspect of sufficiency of disclosure of AI inventions you consider relevant to this Study Question.

A problem with deposit would be the time that the deposited AI would be functional in light of the rapidly evolving computer systems. This problem should be addressed.

General

28) Please indicate which industry sector views provided by in-house counsels are included in your Group’s answers to Part III.

None.