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I. Summary of the relevant facts and submissions

1. European patent application EP 18 275 163 was filed with the Intellectual Property Office of the United Kingdom (Article 75(1)(b) EPC) and forwarded to the European Patent Office (EPO) on 17.10.2018. In the request for grant of a European patent (Form 1001P) the field for indicating the inventor was left empty. A separate designation of the inventor has not been filed.
2. With a communication dated 15.11.2018, the applicant was invited to remedy the deficiency by filing a separate document containing the designation of the inventor drawn up according to Article 81 and Rule 19(1) EPC within sixteen months of the date of filing. The applicant was informed that this time limit would be deemed to have been met if the information was communicated before completion of the technical preparations for the publication of the European patent application (Rule 60(1) EPC) and that this period was not extendable. He was further informed that if he failed to remedy the deficiency within the prescribed time limit, the application would be refused in accordance with Article 90(5) EPC.
3. On 24.07.2019, the applicant filed a designation of the inventor (Form 1002) indicating as inventor a machine, DABUS. In the accompanying submission, the applicant explained that DABUS is a type of connectionist artificial intelligence (AI) from which he had acquired the right to the European patent as employer.
4. In a later submission (02.08.2019), the applicant filed a corrected designation of the inventor in which he indicated that he had obtained the right to the European patent as a successor in title.
5. The applicant explained that the invention had been made by a machine and that the machine "identified the novelty of its own idea before a natural person did". He argued that the machine should be recognised as the inventor and that the applicant, as the owner of the machine, was an assignee of any intellectual property rights created by this machine. This is in line with the purpose of the patent system which is to incentivise disclosure of information, commercialisation and development of inventions. The applicant further argued that acknowledging machines as inventors would facilitate the protection of the moral rights of human inventors and allow for recognising the work of the machine's creators.
6. The Receiving Section decided to consolidate the proceedings concerning applications EP 18 275 163 and EP 18 275 174 for the purpose of conducting



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oral proceedings on the designation of the inventor, because the applicant, his representative and the underlying facts concerning designation of the inventor were identical in both cases.

7. On 13.09.2019, the Receiving Section summoned to oral proceedings.
8. In the annex to the summons the Receiving Section informed the applicant that the designation of the inventor filed was deficient, as it did not meet the requirements of Article 81 and Rule 19(1) EPC. In particular the Receiving Section explained that a designation of the inventor must contain a family name, given names and full address of the inventor who must be a natural person.
9. With the letter dated 24.09.2019 the applicant requested early publication of the application.
10. On 25.10.2019, the applicant submitted further argumentation in support of accepting a machine as the inventor, arguing Rule 19(1) EPC does not require that the inventor is a human and explaining that the purpose of Rule 19(1) EPC is to properly identify the inventor. The applicant added that the designation of the inventor filed in the present case meets this requirement and that demanding that a designation must indicate both a given name and a family name would deny mononymous persons the right to be named as inventors.
11. In his opinion, the *Travaux Préparatoires* do not allow for the conclusion that the legislators of the EPC excluded patenting of inventions made by an AI system. Patentability requirements are laid down exclusively in Articles 52 - 57 EPC, in line with the TRIPS Agreement and the Strasbourg Agreement. A procedural requirement under Rule 19(1) EPC cannot introduce a substantive exclusion from patentability for inventions made by AI systems.
12. The applicant explained that the AI system (DABUS) is the actual deviser of the invention underlying the application. It is a fundamental principle of patent law that the applicant must indicate the inventor who is the actual deviser of the invention, referring i.a. to Section 7(3) of UK Patents Act 1977. Naming as inventor a person other than the actual deviser of the invention would be contrary to this principle and might constitute an offence in some jurisdictions. While an AI system might not have moral or property rights, this alone cannot prevent recognising it as inventor, since inventorship must be determined before any rights are determined. Moreover, since national law (e.g. Section 7(2) UK Patents Act 1977) confers the rights to an invention to the inventor or their successor in title, ownership passed to Mr Thaler (the applicant) as the owner of DABUS. Finally, even though an AI system might not be able to give



consent to the rectification of the designation of an inventor, this should not preclude the application of Rule 21 EPC and accepting an AI system as inventor. The reason is that not even all natural persons can give legally effective consent on their own (e.g. minors in Germany). In any case the correctness of the designation of the inventor is a question of national law and is not assessed by the EPO. Inaccurately listing a natural person as inventor would be misleading to the public. Accepting an AI system as inventor would be in line with the function of patent law to incentivise innovation and to disclose inventions to the public.

13. The application was published on 06.11.2019. On the first page of the A publication in the field "Inventor" it reads: "The designation of inventor has not yet been filed" and under "Remarks": "The designation of inventor does not meet the requirements laid down in Article 81 and Rule 19 EPC".
14. With a submission dated 18.11.2019, the applicant stated that these remarks in the A publication of the application indicated that the EPO has prejudged the applicant's case before giving him the opportunity to present his arguments in the oral proceedings.
15. The oral proceedings took place on 25.11.2019.
16. As a preliminary issue, the remarks in the publication of the application were discussed. According to the applicant, the content of the A publication was misleading and the publication of the remark prejudged the applicant's case before giving him the opportunity to present his arguments in the oral proceedings. The Receiving Section explained that the remarks on the first page of the A publication in the fields "Inventor" and "Remarks" reflected the general practice and were a pre-drafted text which is automatically published in cases where no or a formally deficient designation has been filed but the applicant still has the opportunity to file a designation or to remedy the deficiencies which was the case at the time of publication of the application. This information serves to inform the public about any particular issues pertaining to the application on the day of its publication. It is for information only and merely reflects the state of the file which may be examined by the public (Article 128(4) EPC). The publication of the remark does not pre-empt any decision by the Receiving Section. Decisions of the Receiving Section are taken only after giving the applicant the opportunity to present comments.
17. As regards the merits of the case, in his oral submissions, the applicant reiterated his argumentation presented in the written submissions and stressed that accepting AI systems as inventors allows the applicant to indicate the truthful inventor. Not accepting AI systems as inventors would exclude inventions made by AI from patentability, contrary to Articles 52-57 EPC. In addition he pointed out that in the UK the patent office and the courts cannot challenge inventorship, only the wrongly designated person can. Just as the *Travaux Préparatoires*, the cases referred to by the Receiving Section



(J 8/82 and J 7/99) in its preliminary opinion dealt with questions other than recognising an AI system as the inventor and are not conclusive as to the requirement of a human inventorship. In fact, the *Travaux Préparatoires* and the case law acknowledge the right of the public to know who the actual inventor is (with reference to J 1/10 point 3.2 of the reasons). According to the applicant, if there is an invention, patent law presumes that there was an inventor. He further stated that since machines have no rights, the EPC provisions relating to ownership and moral rights do not apply but it is not a reason to deny inventorship to them. Refusing a patent application due to deficiencies of the designation of the inventor would be a sanction which was not intended when the EPC was drafted.¹

18. After giving the applicant the opportunity to present any further arguments and requests, the Receiving Section announced the decision to refuse the application. The applicant was informed of his right to file an appeal.

II. Reasons for the decision

Indication of the inventor in the designation of inventor

19. The application designates a machine as the inventor and therefore does not meet the formal requirements under the EPC (Article 81, Rule 19(1) EPC).
20. Article 81 EPC prescribes that the European patent application designate the inventor and that, if the applicant is not the inventor, it contain a statement indicating the origin of the right to the European patent. In accordance with Rule 19(1) EPC, the designation shall state the family name, given names and full address of the inventor and, in cases such as the one at hand where the applicant is not the inventor, the designation shall contain a statement indicating the origin of the right to the European patent and bear the signature of the applicant or his representative.²
21. Indicating the name of a machine (DABUS) does not meet the requirements of Rule 19(1) EPC.

¹ With reference to *Travaux Préparatoires*, document IV/4860/61-F page 64.

² see Rule 41(2)(c) EPC for the case where the applicant is the inventor and Rule 19(1) EPC for the case where the applicant is not the inventor.



22. Names given to things may not be equated with names of natural persons. Names given to natural persons, whether composed of a given name and a family name or mononymous, serve not only the function of identifying them but enable them to exercise their rights and form part of their personality.³ Things have no rights which a name would allow them to exercise.⁴
23. The legal framework of the EPC provides for natural persons, legal persons and bodies equivalent to legal persons (see e.g. Article 58 EPC) acting in certain capacities. The EPC does not provide for non-persons, i.e. neither natural nor legal persons, as applicant, inventor or in any other role in the patent grant proceedings. In the context of inventorship reference is made only to natural persons. This indicates a clear legislative understanding that the inventor is a natural person.
24. The legislative history shows that the legislators of the EPC were in agreement that the term "inventor" refers to a natural person only. The *Travaux Préparatoires* consistently refer to the inventor as being a natural person.⁵ Moreover, while the possibility of recognising legal persons as inventors seems to have been mentioned,⁶ a corresponding rule did not make it to the final draft. This confirms the legislators' understanding of the inventor as a natural person.

³ Cf. e.g. in Germany §12 BGB protecting the natural person's right to a name; Article 57(2),(4) French Civil Code which stipulates that the first name of a child is chosen by their mother and father and that a judge can instruct to delete the name of the child in the civil registry if it is contrary to the child's interest or another person's right to a family name and may assign another name which could satisfy the child's interest; Article 6(1) Italian Civil Code stating that a person has the right to a name composed of a given name and a family name; Article 2.20(1) Civil Code of the Republic of Lithuania "Right to a name": '*Natural person has a right to a name which includes the right to a first name, surname and pseudonym. It is forbidden to get rights and obligations under the name of someone else. See also Article 4(1) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), which states that a natural person can be identified, in particular by reference to a name, or location (address).*

⁴ See e.g. in Germany §311(3) BGB stating that only persons can have obligations, by analogy this applies to rights; Articles 52, 140, 155 Polish Civil Code stipulating that things can be objects of legal transactions, can be owned and disposed of by persons.

⁵ See numerous references in the preparatory works, e.g. document BR/169 e/72 ett/AV/prk, point 31 ("development of invention by [a] person", "inventions made jointly by several persons"); First preliminary draft of a Convention establishing a European system for the grant of patents (1970), Article 15(1) (inventor being an "employed person" and "several persons hav[ing] made an invention independently of each other"); Minutes of the Munich Diplomatic Conference for the setting up of a European system for the grant of patents, Munich 10 September to 5 October 1973, point 2039 ("person designated as inventor"); document BR/84 e/71 nan/KM/prk, point 11 (possibility for the inventor to renounce "his" right to be mentioned); document 4488/IV/62-F, Article 157(1) ("le personne designée"); document IV/3858/61-F, Article 70 ("le personne designée"); Vorentwurf eines Abkommens über ein europäisches Patentrecht ausgearbeitet von der Arbeitsgruppe "Patente" (1962), Article 157 ("die vom Anmelder [als Erfinder] benannte Person").

⁶ See the statement of the Chairman in the document IV/4860/61-F page 18.



25. The requirement that the inventor be a natural person is in line with the intention of the Munich Diplomatic Conference to give inventors a clear and strong legal position (J 8/82 point 13 of the reasons).⁷
26. In the EPC, the inventor's position is safeguarded by giving them various rights. These include the inventor's right, vis-à-vis the applicant for or proprietor of a European patent, to be mentioned as such before the EPO (Article 62 EPC); the right to be designated in the European patent application (Article 81 EPC); the right to be notified of the designation (Rule 19(3) EPC); the right to be mentioned as inventor in the published European patent application and the European patent specification (Rule 20(1) EPC); and, in the event of a dispute with the applicant or proprietor of the patent, the right to be mentioned even against the wishes of the applicant or proprietor if a national court has issued a final decision whereby the applicant or proprietor is required to designate him as inventor (Rule 20(2) EPC).⁸ The legal position of the inventor is further safeguarded by Article 60(1) EPC which vests with the inventor the initial right to the European patent and foresees that the inventor can transfer this right to a successor in title. National laws of the EPC contracting states contain similar provisions on the designation of the inventor and inventor's rights.⁹
27. AI systems or machines have at present no rights because they have no legal personality comparable to natural or legal persons.¹⁰ Legal personality is assigned to a natural person as a consequence of their being human, and to a legal person based on a legal fiction.¹¹ Where non-natural persons are concerned, legal personality is only given on the basis of legal fictions. These legal fictions are either directly created by legislation, or developed through consistent jurisprudence. In the case of AI inventors, there is no legislation or jurisprudence establishing such a legal fiction. It follows that AI systems or machines cannot have rights that come from being an inventor, such as the

⁷ This position is rooted in Article 4ter of the Paris Convention for the Protection of Industrial Property (as amended on September 28, 1979). See also Minutes of the Munich Diplomatic Conference, document M/PR/K/1 page 22, point 54 and document M/PR/1 page 40, point 247.

⁸ J 8/82 point 12 of the reasons.

⁹ See e.g. Section 1(1) Danish Consolidate Patents Act; Section 1 Finnish Patents Act 550/1967; §§6, 37, 63 German Patent Act; Articles 8, 11, 20, 22, 32 Polish Industrial Property Law; Article 1 Swedish Patent Act; Section 13 UK Patents Act.

¹⁰ See Policy Department for "Citizens' Rights and Constitutional Affairs" of the European Parliament, Study on European Civil Law Rules in Robotics p 14, available at [https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU\(2016\)571379_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf) accessed 8 January 2020. See also High-Level Expert Group on Artificial Intelligence set up by the European Commission, Ethics Guidelines for Trustworthy AI pp 6, 15, available at <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai> accessed 8 January 2020.

¹¹ The principle that only persons can have rights and obligations is expressed in various forms, see e. g. in Germany §311(3) BGB stating that only persons can have obligations, by analogy this applies to rights; Articles 52, 140, 155 Polish Civil Code stipulating that things can be objects of legal transactions, can be owned and disposed of by persons.



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right to be mentioned as the inventor or to be designated as an inventor in the patent application.

28. The EPO boards of appeal have recognised that the inventor is a natural person.¹² The boards have so far not been called upon to decide on the question whether an entity other than a natural person can be recognised as an inventor. However, this absence of case law does not allow for the conclusion to be drawn that entities other than natural persons can be accepted as inventors under the EPC.
29. It is additionally remarked that the understanding that the inventor is a natural person appears to be an internationally applicable standard. National courts of various countries have issued decisions to that effect.¹³ This standard has been reported by the majority of the EPC contracting states in a consultation conducted by the EPO in 2018/2019.¹⁴ The patent offices of China, Japan, Korea and the USA also follow this approach.¹⁵ The laws of some of the EPC contracting states explicitly define the inventor as being the natural person who creates an invention.¹⁶ No national law has been determined which would recognise a thing, in particular an AI system or a machine, as an inventor.

Indication of the origin of the right to the patent in the designation of the inventor

30. The statements indicating that the applicant acquired the right to the European patent from DABUS as employer and the correction of this statement to indicate succession in title do not meet the requirement of Article 81 and Article 60(1) EPC. AI systems or machines can be neither employed nor can they transfer any rights to a successor in title.

¹² See e.g. J 7/99 point 2 of the reasons: "inventor as the natural person who has performed the creative act of invention"; J 8/82 points 9 and 13 of the reasons.

¹³ See e.g. UK: *University of Southampton's Applications* [2004] EWHC 2107 (Pat) [39] per Laddie J; *Yeda Research v Rhône-Poulenc* [2007] UKHL 43 [20] per Hoffmann LJ; US: *University of Utah v Max Planck*, 734 F.3d 1315, 1323 (Fed. Cir. 2013).

¹⁴ For a report on the results of the consultation see: [http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/\\$FILE/AI_inventorship_summary_of_answers_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/3918F57B010A3540C125841900280653/$FILE/AI_inventorship_summary_of_answers_en.pdf) accessed 8 January 2020. See also AIPPI Group report Q244 – Inventor of multinational inventions, in particular reports from Estonia, Germany, Finland and France, available at <https://aippi.org/committee-publications/?committee-id=27501> accessed 8 January 2020.

¹⁵ Report from the IP5 expert round table on artificial intelligence, Munich, 31 October 2018, section B available at https://www.fiveipoffices.org/wcm/connect/fiveipoffices/5e2c753c-54ff-4c38-861c-9c7b896b2d44/IP5+roundtable+on+AI_report_22052019.pdf?MOD=AJPERES&CVID= accessed 8 January 2020.

¹⁶ See e.g. Article 2(8) of the Patent Law of the Republic of Lithuania; §13 of the Estonian Patent Act.



31. AI systems or machines have no legal personality (see point 27 above) and cannot be party to an employment agreement, which is limited to natural persons.¹⁷ Rather than being employed, they are owned.
32. In addition, AI systems or machines cannot have any legal title over their output which could be transferred by operation of law or agreement. Since an AI system or a machine cannot have rights, it cannot be considered to own its output or own any alleged invention and it cannot transfer any rights thereto. Thus, the owner of an AI system or a machine cannot be considered to be a successor in title within the meaning of Article 60(1) EPC. The owner of an AI system may, in accordance with national law, own the output of that system, just as an owner of any machine may own the output of that machine. However, the question of ownership of an output must be distinguished from the question of inventorship and from the rights connected therewith.
33. The legal capacity to exercise one's rights, for example in the case of minors, has no relevance in the present case. AI systems and machines have neither rights nor legal personality which would allow them to exercise those rights. Minors or incapacitated persons have legal personality and rights which they can transfer. They may not be able to exercise all of their rights personally, but the exercise of those rights, including transfer, is legally safeguarded under national laws.¹⁸

Designation of inventor and patentability

34. Designation of the inventor is a formal requirement which a patent application must fulfil.¹⁹ Assessment of the formal requirements, which relate to the application, is independent from and has no bearing on the substantive patentability requirements, which relate to the invention.
35. The applicant argued that not accepting AI systems or machines as inventors would exclude inventions made by AI from patentability, contrary to Articles 52-57 EPC, Article 27 TRIPS and the Strasbourg Agreement. Moreover, according to the applicant, if there is a patentable invention, then patent law presumes that there was an inventor.
36. Assessment of the formal requirement of the designation of the inventor takes place prior to and independently from the substantive examination and makes no statement as to whether the subject-matter of that application meets the requirements of Articles 52-57 EPC. Conversely, from the fact that a certain

¹⁷ See e.g. Section 1 of the Terms of Employment (Information) Act of Ireland; Article 21 (2) of the Labour Code of the Republic of Lithuania; Article 2 of the Polish Labour Code; Section 230(1) of the UK Employment Rights Act. See also CJEU, 344/87, 31.05.1989, *Bettray v Staatssecretaris van Justitie*, point 12 of the reasons.

¹⁸ For example through legal custodians such as parents acting for minors, see e.g. in Germany §§ 104, 107, 110, 111 BGB.

¹⁹ J 18/84 point 6.4 of the reasons.



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subject-matter may meet the requirements of Articles 52-57 EPC no information can be inferred as to whether the application meets the formal requirements laid down in the EPC.

The right of the public to know who the actual inventor is

37. The legal framework of the EPC satisfies the aim of providing to the public information about inventors (see Article 62, Rule 20(2) EPC). In particular, the formal requirement of designating the inventor enables the public to challenge a designation before a national court (see Article 61 EPC).
38. The applicant pointed out that the designation of the inventor safeguards the right of the public to know who the actual inventor is. In the applicant's opinion, requiring that the designation of the inventor indicate a natural person may be used to conceal the true identity of the inventor in cases where the subject-matter of the application was developed without human intervention, to the detriment of the public.
39. The Receiving Section does not agree. The EPO does not verify the origin of the subject-matter claimed in a patent application (cf. Rule 19(2) EPC)²⁰. The legislator decided that it is for the public, including an inventor omitted from the designation, to challenge an incorrect designation. With the publication of the application, the public and any inventor who was omitted from the designation are informed of the contents of the filed documents and on that basis may question the correctness of the designation. Such challenges are resolved by national courts and may result in rectification of the designation of the inventor and publication of a corrected designation by the EPO (Rule 20(2) EPC, Rule 21 EPC).

Time limit for remedying the deficiencies in the designation of inventor (Rule 60(1) EPC)

40. As the applicant did not express the intention of filing designations of inventor which would rectify the deficiencies of the present cases, even after being given a further opportunity before interrupting the proceedings for deliberation, the Receiving Section decided to issue a decision in the oral proceedings even though the time limit under Rule 60(1) EPC has not expired yet.²¹
41. The applicant has clearly stated that he wishes the AI system to be designated as inventor and therefore the debate on that topic was closed in the Receiving Section, notwithstanding the impact of the applicable legal remedies.

²⁰ See also *Travaux Préparatoires*, document IV/4860/61-F pages 18, 64, cited by the applicant in his submission dated 25.10.2019 and Minutes of the Munich Diplomatic conference document M/PR/1 page 38 point 236.

²¹ The time limit will expire on 17.02.2020.