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Via: email aizip@wipo.int

World Intellectual Property Organization

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Switzerland.

Dear Sir,

**WIPO's Public Consultation on Artificial Intelligence (AI) and
Intellectual Property (IP) Policy**

Thank you for your invitation to participate in the captioned Public Consultation. I have read the draft issues paper on IP Policy and AI dated December 13, 2019 prepared by the WIPO Secretariat.

I have two preliminary comments on the draft issues paper.

1. Personification of an AI system

AI-generated (as distinct from to AI-assisted) inventions (Issue 1), creative works (Issue 6) and designs (Issue 11) appear to form the core issues raised for IP policy consideration in this public consultation. However, as far as I know, we have yet reached the stage when AI can actually do anything a human can do in the sense of artificial general intelligence. Much of the AI developments by machine learning, deep learning, robotics technologies etc. that deal with single or multiple tasks are related to the concept of artificial narrow intelligence.

It should be noted that on 27 January 2020, EPO refused two applications¹ for patent registration by an AI system known as “DABUS”. In this decision, it was pointed out that “no national law has been determined which would recognize a thing, in particular an AI system or a machine, as an inventor”.²

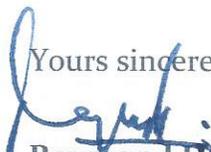
It is my preliminary view that in absence of any compelling evidence on the exact scope of the present stage of technological advancement of AI-assisted inventions, I see no justification for the personification of an AI system in the existing IP policy.

2. Improvements on IP administration in relation to AI-related patent filings.

In relation to capacity building (Issue 12) and accountability for decisions in IP administration (Issue 13), it should be noted that patent offices in the US, EU, Japan, Korea and Singapore have either revised or introduced new patent examination guidelines to facilitate the surge of AI-related patent filings. Some of these revisions/new patent examination guidelines are summarized at ANNEX 1 to this letter.

Given that the bulk of AI-related patent applications came from large multinational corporations, patent examination guidelines should be modified or streamlined in such a way as to facilitate new technology startups and SMEs generally to invoke the IP system to protect their investments on new technologies and innovations. In this connection, clarifications on the issue of patentability on to AI-assisted inventions are essentially necessary.

Yours sincerely,



Raymond HO

Encl. ANNEX 1

¹ EP 18275163 and EP18275174

² At the end of paragraph 29 of the Grounds of Decision (consolidated EP 18275163 and EP18275174) dated 27.1.2020 of EPO

ANNEX 1

Some of the recent changes in the patent landscape – Revised/New Guidelines on AI-related patent examination

1. To meet the surge in computer-implemented inventions and AI-related patent filings in recent years, patent offices in Asia, the US and the EU have revised their patent examination guidelines and introduced new initiatives to cater for these filings.

2. In January 2019, the United States Patent Office (“USPTO”) issued the revised guidelines on computer-implemented inventions, specifically identifying “mathematical concepts” as one of three groups of subject matter along with “certain methods of organizing human activity” and “mental processes” as falling under the US judicial exception of abstract ideas.

3. The Japan Patent Office (“JPO”) published the “Examination Guidelines pertinent to IoT Related Technologies” in March 2017¹; and later the “Newly Added Case Examples for AI-Related Technologies” in January 2019². JPO recognizes that AI is playing a key role of processing big data retrieved from networked IOT devices.

4. The Korean Intellectual Property Office (“KIPO”) in the foreword of its revised December 2017 “Patent Examination Guidelines”³ says:

¹ https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/document/iot_shinsa/01.pdf

² <https://www.ipwatchdog.com/2019/02/28/jpo-examples-on-artificial-intelligence-offer-guidance-for-other-offices/id=106835/>

³ https://www.kipo.go.kr/upload/en/download/patent_examination_guidelines_2018_01.pdf

“We stand on the brink of a major transformation brought by the 4th Industrial Revolution. It is essential to create and obtain strong intellectual property rights (IPRs) that bring about innovation enhancing the global competitiveness of Korean industry, as considering that the 4th Industrial Revolution should be seen as an opportunity rather than a crisis.” An accelerated examination program was launched in Korea for industry 4.0 patent applications. KIPO considers AI as one of seven core technologies of the 4th Industrial Revolution that would be eligible for prioritized examination.

5. The European Patent Office (“EPO”), when issuing its revised patent examination guidelines in November 2019⁴ noted, however, that AI concepts such as classification and neural networks are per se of an abstract mathematical nature and that claims directed to such subject matter would thus potentially be deemed non-technical and hence non-patentable.
6. It is widely accepted in the EPO, USPTO and other jurisdictions that mathematical methods are not patentable and should not be monopolized. The revised patent examination guidelines from the EPO and the USPTO provide greater clarity on where the boundary lies between what would or would not be allowed in these jurisdictions in the face of increasing number of AI patent filings in recent years⁵.
7. In April 2019, the Intellectual Property Office of Singapore (“IPOS”) revised its patent examination guidelines⁶. The revised guidelines at paras 8.17–8.27 clarify that

- (a) a scientific theory or a mathematical method per se is not an invention, but if an application of the principle results in a new

⁴ <https://www.epo.org/law-practice/legal-texts/guidelines.html>

⁵ WIPO’s First “Technology Trends” Study Probes Artificial Intelligence: IBM and Microsoft are Leaders Amid Recent Global Upsurge in AI Inventive Activity
Geneva, January 31, 2019 at https://www.wipo.int/pressroom/en/articles/2019/article_0001.html

⁶ https://www.ipos.gov.sg/docs/default-source/resources-library/patents/guidelines-and-useful-information/examination-guidelines-for-patent-applications-at-ipos_2019-apr.pdf

material or process, then the resulting product may be considered an invention;

- (b) the implementation of a theory or principle does not require an inventive step if the theory or principle is inventive;
- (c) if the claimed matter merely constitutes a statement of the principle underlying a known process then it will not be an invention;
- (d) AI and machine learning methods typically utilize computational models and algorithms for classification, clustering, regression and dimensionality reduction in the performance of various tasks. Neural networks, support vector machines, discriminant analysis, decision trees, k-means and other such computational models and algorithms applied in machine learning are, by themselves, mathematical methods, and are hence not considered to be inventions;
- (e) where the claimed subject matter relates to the application of AI or a machine learning method to solve a specific (as opposed to a generic) problem, the actual contribution of said claimed subject matter is likely considered to go beyond the underlying mathematical method and thus, could be regarded as an invention; and
- (f) AI may be applied across a broad spectrum of industries, and thus care should be taken that the actual contribution of the claims also does not fall within other subject matter not considered to be inventions, such as business methods.

8. Following the Fintech Fast Track Programme launched in April 2018 for accelerating fintech inventions⁷, IPOS launched the Accelerated Initiative for AI in April 2019⁸.
9. A closer examination of the cases dealt with by IPOS under these new initiatives might enable us to find out how the revised patent examination guidelines work in practice in relation to AI-related patent applications.
10. It should be noted that unlike the patent legislation enacted in other jurisdictions, the Singapore Patent Act on the patentability of an invention in its section 13 does not contain the excluded categories as, for instance, provided in section 1(2) the UK Patent Act 1999, namely: “anything which consists of-(a) a discovery, scientific theory or mathematical method; (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever; (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer; (d) the presentation of information; but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.”
11. Exclusions from the patentability of an invention is judicially recognized as a matter of policy of a country⁹ It is so expressly stated legislation such as

⁷ IPOS, “Launch of Fintech Fast Track Initiative” Circular No 3/2018 (2018) [https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/\(2018\)-circular-no-3--launch-of-fintech-fast-track-initiative.pdf](https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/(2018)-circular-no-3--launch-of-fintech-fast-track-initiative.pdf)

⁸ IPOS, “Accelerated Initiative for Artificial Intelligence” Circular No 2/2019 (26 April 2019) [https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/\(2019\)-circular-no-2---ai2-initiative_final.pdf](https://www.ipos.gov.sg/docs/default-source/resources-library/patents/circulars/(2019)-circular-no-2---ai2-initiative_final.pdf)

⁹ [2006] EWHC 3186 (Pat) at para. 27, “It seems to me that the relevant provisions of the Act and the EPC and the cases to which I have referred above produce the following principles:

1. The types of subject-matter referred to in s. 1(2) are excluded from patentability as a matter of policy. This is so whether the matter is technical or not.
2. The exclusion from patentability is a matter of form not substance. Therefore the exclusion under s. 1(2) extends to any form of passive carrier or recording of excluded subject matter. Thus, merely because a piece of paper is in principle patentable (save to the extent that it lacks novelty), it is not permissible, for example, to record a literary work (s. 1(2)(b)) or a computer program (s. 1(2)(c)) on a piece of paper and then seek patent monopoly for the paper bearing the recorded work. Similarly it is not permissible, without more, to seek protection for a computer program when it is stored on a magnetic medium or when merely loaded into a computer.

in section 1(5) of the UK Patent Act which provides that “the Secretary of State may by order vary the provisions of subsection (2) above for the purpose of maintaining them in conformity with developments in science and technology; and no such order shall be made unless a draft of the order has been laid before, and approved by resolution of, each House of Parliament.”

12. It would appear that in addressing the challenges of the recent surge of AI patent filings it is relevant to examine the underlying patent policy on “computer software as such” that is generally regarded as not patentable but instead might be protected under copyright law.

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3. Prima facie a computer running under the control of one program is a different piece of apparatus from the same computer when running under the control of another program. It follows that a claim to a computer when controlled by a program or to a method of controlling a computer by a program or to a method of carrying out a process by use of a computer so controlled can be the subject of patent protection. However, because the court is concerned with substance not form, it is not enough for the designer of a new program to seek protection for his creation merely by framing it in one of these terms. The court or patent office must direct its attention not to the fact that the program is controlling the computer but to what the computer, so controlled, is doing.

4. Therefore a data processing system operating to produce a novel result would not be deprived of protection on the ground that it was a program as such. On the other hand, even if the effect of the program is to make the computer perform in a novel way, it is still necessary to look at precisely what the computer is doing, i.e. at the nature of the process being carried out. If all that is being done, as a matter of substance, is the performance of one of the activities defined under s. 1(2) as unprotectable, then it is still unprotectable.”