

Initiatives on Examining AI-related inventions at the Japan Patent Office

The sixth session of the WIPO Conversation: AI inventions

September 2022

Japan Patent Office

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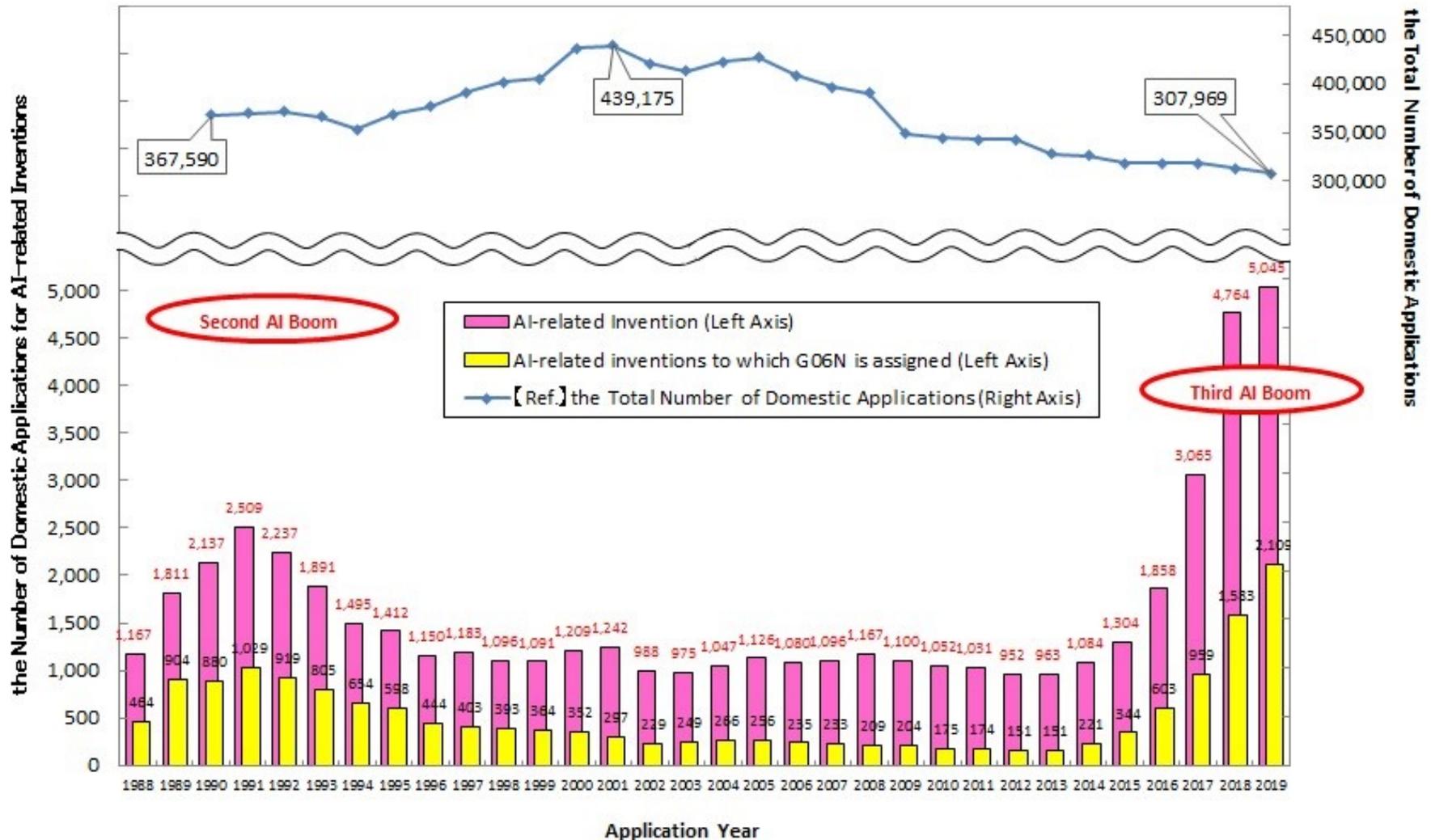


- 1 Application trends of AI-related inventions
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- 3 International cooperation on examining AI-related inventions
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1. Application trends of AI-related inventions

Overall Application Trends

Source: "Recent Trends in AI-related Inventions" (August 2021),
Exam. Dep. 4 of Patent Examination Department, JPO



Number of domestic applications for AI-related inventions

* G06N : A patent classification assigned to inventions related to computer systems based on specific calculation models, which **mainly describes AI technology**.

2. Support for examination of AI-related inventions

Examination Case examples of AI-related technologies

- Looking ahead to the development of AI-related technologies in various technical fields, **JPO created and published case examples of AI-related technologies.**
- These case examples aim to help provide a clear understanding of examination decisions from the viewpoint of the **description requirement, inventive step, etc.**

* For more details, please refer to the link below.

https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/ai_jirei_e.html

Description Requirement: Case Example 50 METHOD FOR ESTIMATING ALLERGY INCIDENCE RATE OF TEST SUBSTANCE

Claim 1: violation of the support/enabment requirements

A certain correlation among each data in a training data disclosed in a generic concept is not supported by the description and is not a common general technical knowledge at the time of filing. Therefore, the description requirement is not satisfied.

Claim 2: There is no reason for refusal found.

A certain correlation among each data in a training data is supported by a performance evaluation result using an actual AI model. Therefore, the description requirement is satisfied.

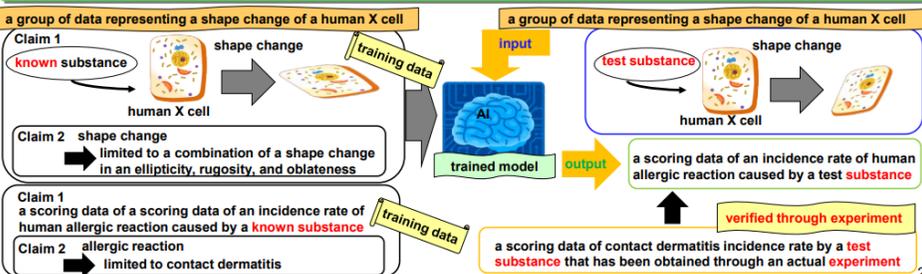
[Claim 1] A method for estimating an allergy incidence rate of a test substance in a human being comprising:
inputting a training data to an artificial intelligence model to train the model, the training data including a group of data representing a shape change of a human X cell in culture solution and a scoring data on incidence rates of human allergic reaction caused by each substance, in which each of the substances is separately added to the culture solution and the incidence rates of human allergic reaction caused by each of the substances are already known;

obtaining a group of data representing a shape change of a human X cell that has been measured in culture solution to which a test substance is added;

inputting, to the trained artificial intelligence model, the group of data representing a shape change of a human X cell that has been measured in the culture solution to which the test substance is added; and

causing the trained artificial intelligence model to calculate a scoring data of an incidence rate of human allergic reaction.

[Claim 2] The method for estimating an allergy incidence rate as in Claim 1, wherein the group of data representing a shape change of a human X cell is a combination of a shape change in an ellipticity, rugosity, and oblateness of the human X cell; and the allergic reaction is contact dermatitis.



Inventive Step: Case Example 34 ESTIMATION SYSTEM OF HYDROELECTRIC GENERATING CAPACITY

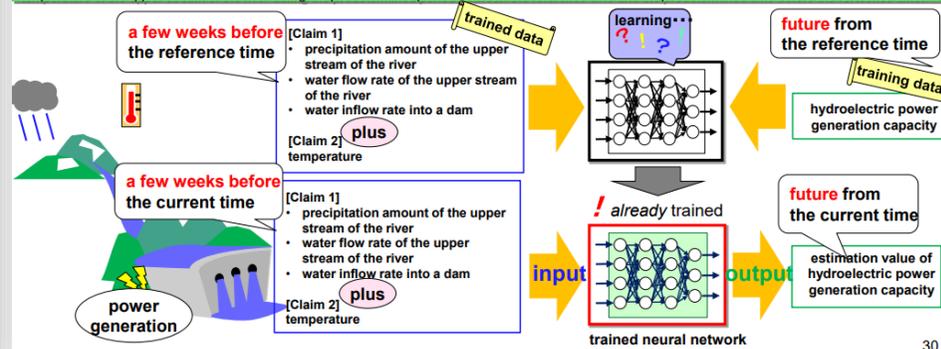
Claim 1: mere a modification of estimation method to estimate output data based on input data, and considered to be lack of inventive step

Claim 2: a significant effect is found because of addition of training data for machine learning, and considered to have inventive step

[Claim 1] An estimation system of a hydroelectric power generating capacity of a dam comprising:
a neural network that is built by means of an information processor, the neural network having an input layer and an output layer, in which an input data to the input layer containing a precipitation amount of the upper stream of a river, a water flow rate of the upper stream of the river, and a water inflow rate into a dam during a predetermined period between a reference time and a predetermined time before the reference time, and an output data from the output layer containing a hydroelectric power generating capacity in the future after the reference time;
a machine learning unit that trains the neural network using a training data corresponding to actual values of the input data and the output data;

and
an estimation unit that inputs the input data to the neural network that has been trained by the machine learning unit with setting a current time as the reference time, and then calculates an estimated value of a future hydroelectric power generating capacity based on the output data of which reference time is the current time.

[Claim 2] The estimation system of a hydroelectric power generating capacity as in Claim 1, wherein the input data to the input layer further contains a temperature of the upper stream of the river during the predetermined period between the reference time and the predetermined time before the reference time.



Newly Added Case Examples for AI-Related Technologies (2019)

https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/document/ai_jirei_e/jirei_tsuika_e.pdf

Overview of case examples involving Inventive Step

Mere application of AI

Case Example 33
Mere systemization using AI
In operations by human beings

Case Example 34: Claim 1
Mere modification of method for
estimating output data based on
input data

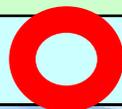
Modification of
training data

Case Example 34: Claim 2
Significant effect by adding
training data for machine
learning

Case Example 35
Modification of training data for
machine learning involves a mere
combination of known data, and a
significant effect is not identified.

Pre-preprocessing of
training data

Case Example 36
Pre-processing of training data
for machine learning



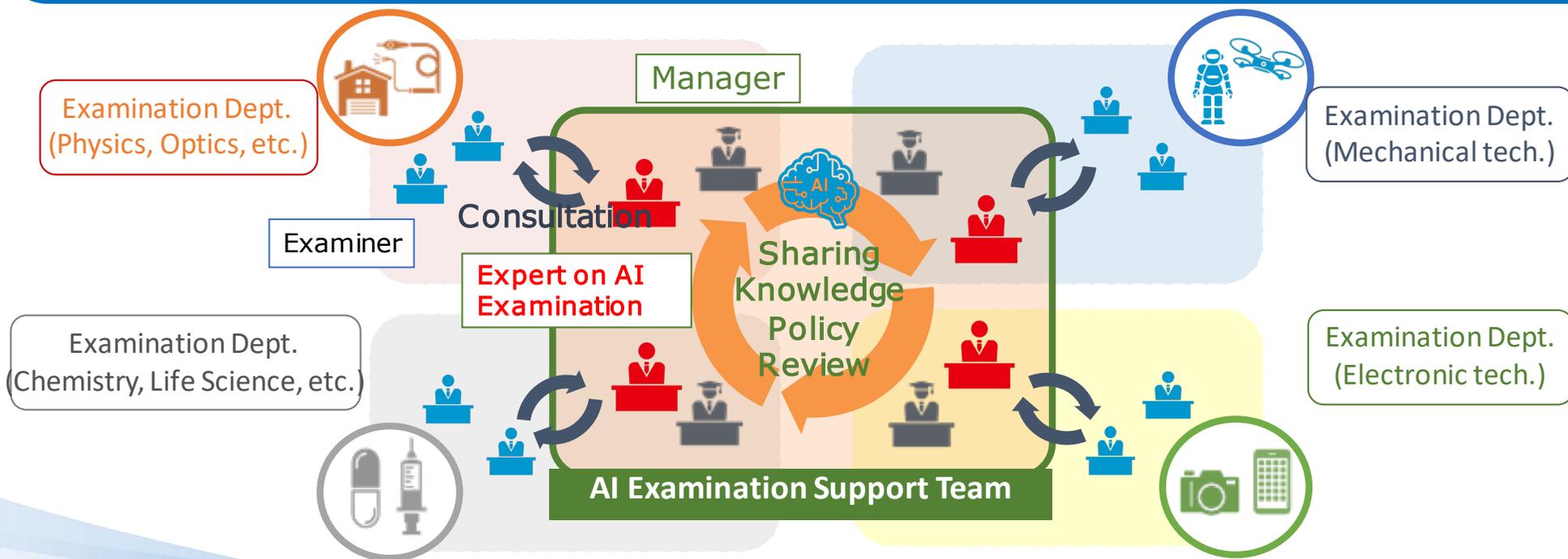
Inventive step



Inventive step

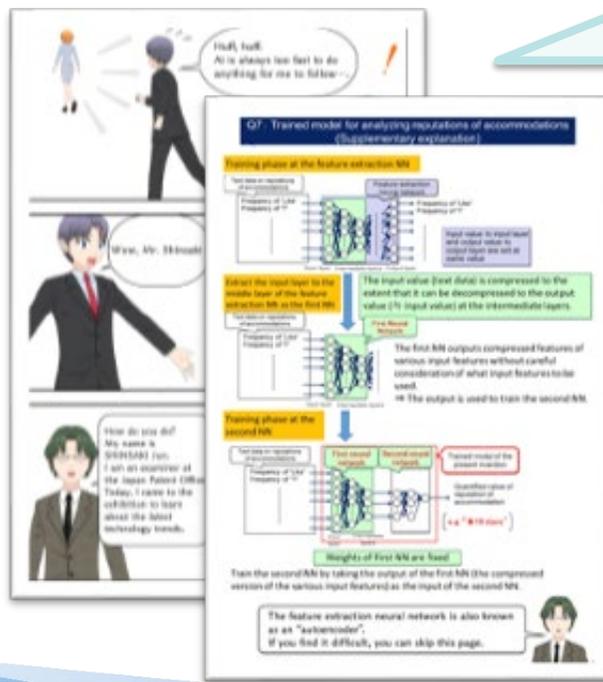
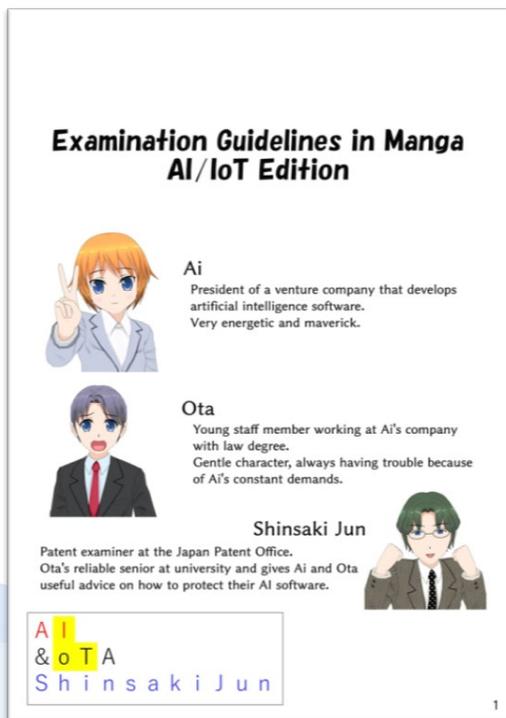
Inauguration of a Team for Supporting AI Examinations

- The JPO inaugurated a Team for Supporting AI Examinations in January 2021.
- **The team collaborates beyond their responsible technical fields**, collecting and sharing knowledge on the latest AI-related technologies, case examples of examination results, etc.
- **Experts on AI Examination** provide consultation services to examiners. They also share their knowledge to examiners by holding study meetings, etc.
- ⇒ Realization of efficient, highest-quality examinations



Publication of Examination Guidelines in Manga Form - AI/IoT Edition -

- The basic concept of Examination Standards has been introduced in Manga form by using AI and IoT-related technologies as the subject matter.
- The manga explains not only the characteristic determination aspects of AI and IoT-related technologies, but also the **basic concepts regarding patent examinations that are common to all technical fields.**
- The guidelines were published in April 2021, followed by an **English version** in Oct. 2021.

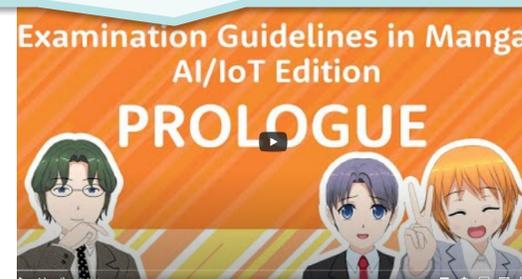


Available for download from the JPO website:

https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/comic_ai_iot_e.html

Videos are also available for some chapters!

https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/comic_ai_iot_e.html



3. International cooperation on Examining AI-related inventions

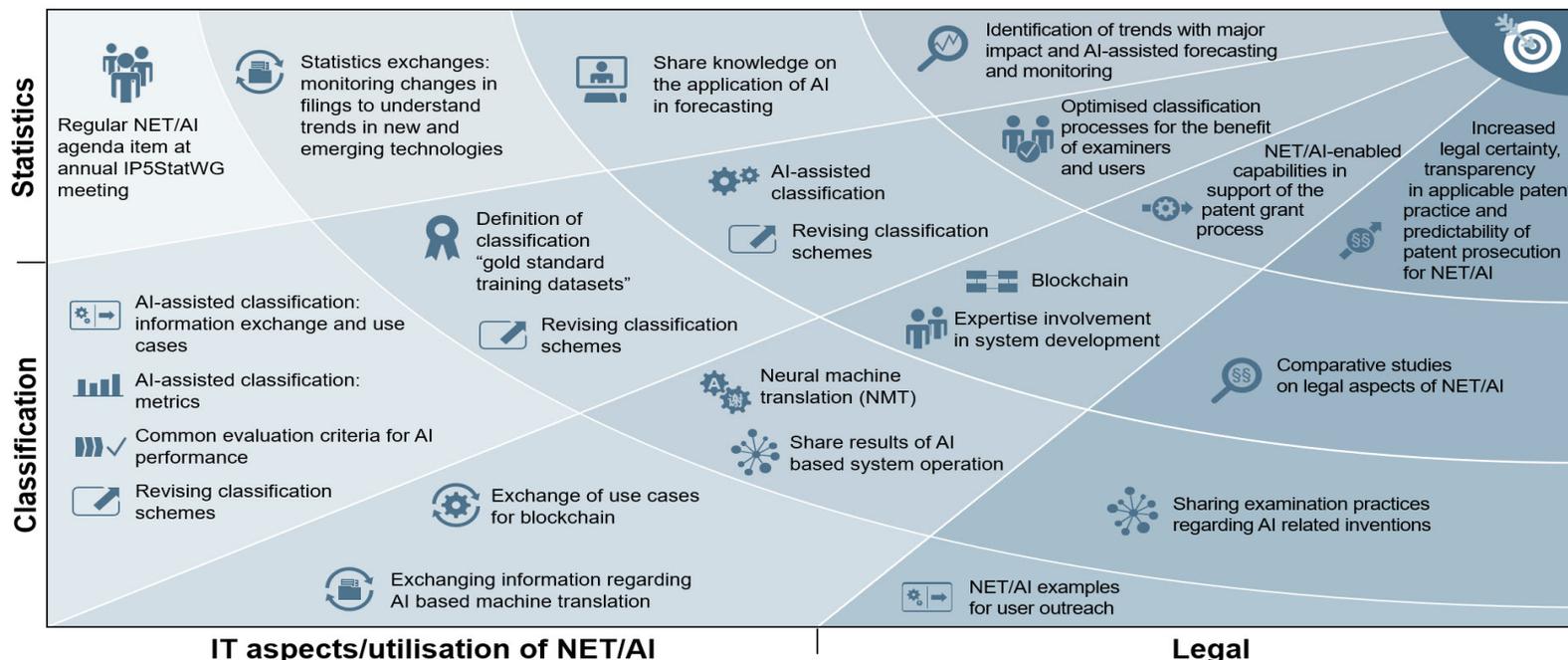
Launch of a new project on AI-related inventions(IP5)

- At the 14th IP5 Heads Meeting in June 2021, the heads agreed on a roadmap for cooperating in the fields of New Emerging Technologies (NET) and Artificial Intelligence (AI).
- At the 15th IP5 Heads Meeting in June 2022, the IP5 Offices agreed to initiate a project proposed by the JPO to collect materials on the examination practices of the IP5 Offices on AI-related inventions.

IP5 NET/AI OPPORTUNITIES

fiveIPoffices

European Patent Office // Japan Patent Office //
Korean Intellectual Property Office //
National Intellectual Property Administration, PRC //
United States Patent and Trademark Office



4. Inventions with AI as the inventor

Patent inventor

➤ From the JPO website, "About Indication for Inventor, etc." (in Japanese)

<https://www.jpo.go.jp/system/process/shutugan/hatsume.html>

➤ Art. 36(1) (Art.184-5(1)) of the Patent Act provides that the "shimei (name)" of the *inventor* must be stated in the application, etc., while the "shimei or meisho (name)" of the *applicant* must also be indicated.

→ "Shimei" in each item of Article 36(1) is interpreted to mean the name of a natural person.

"Meisho" in each item of Article 36(1) is interpreted to mean the name of a juridical person.

Further,

it has been interpreted that a natural person who made an invention shall be described in the column for "inventor" mentioned in item 2 of the same paragraph.

➤ The interpretation of the inventor as a natural person provided in Art. 36(1)(ii) of the Patent Act is also consistent with the contents of the introductory clause of Art. 29(1), Art. 33(1) and Art. 34(1) of the same Act.

→ In sum, an inventor is an entity that has a right to obtain a patent upon the completion of an invention. And these provisions that an inventor who has the right to obtain a patent may transfer said right prior to filing holds that the inventor is a natural person who has right capacity, and can be an applicant.



➤ The indication for "Inventor" is interpreted to be limited to a natural person, and it shall not be permitted to indicate in the column for inventor of the application, etc. an entry that is not a natural person (e.g., machines including artificial intelligence (AI), etc.

Thank you!!

