AI-Related Inventions in Japan

AI-Related Inventions
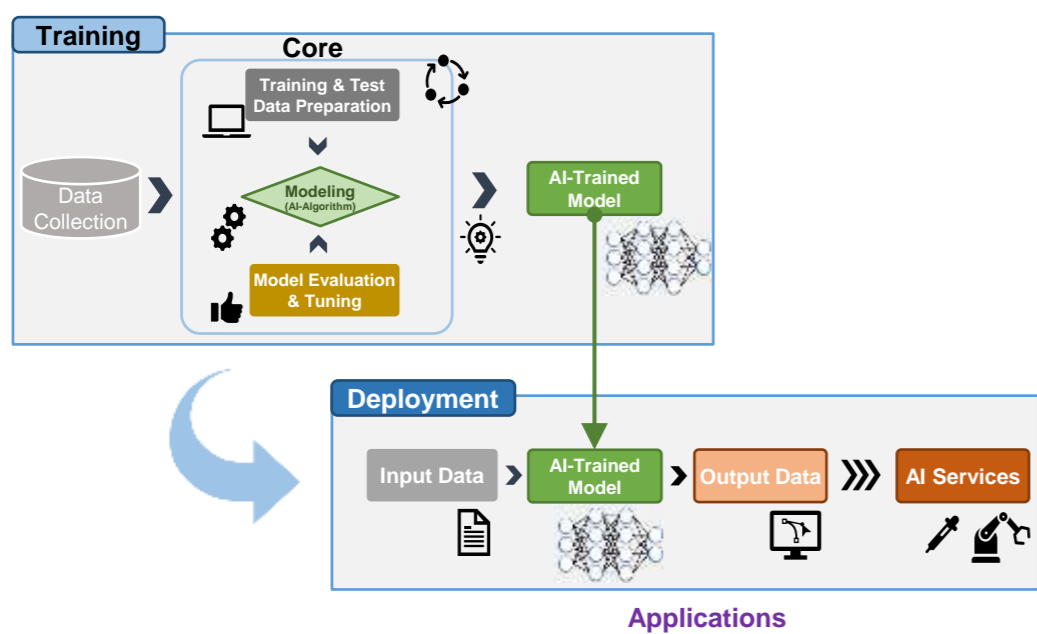
Number of AI-Related JP Applications

Total 300,133 in 2023

289,200

- AI-related Inventions (left axis)
- AI-related Inventions characterized by AI core technology (those to which G06N is assigned as FI) (left axis)

The Second AI Boom (1989~1996)

The Third AI Boom

Univ. Toronto ILSVRC
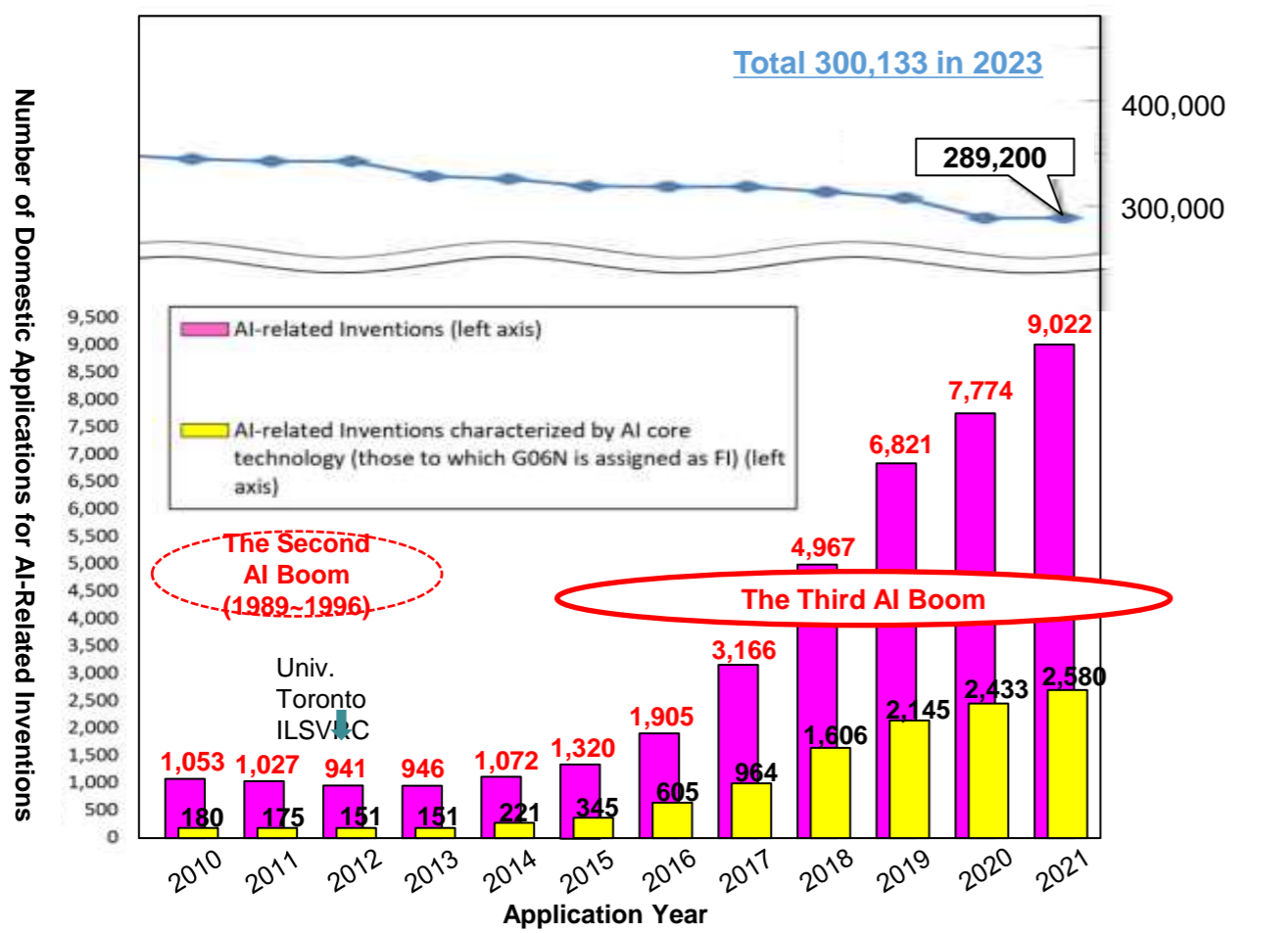
Recent Trends in AI-Related Inventions | Japan Patent Office (jpo.go.jp)

AI has been applied to a diverse range of technical fields. The most common application field is image processing, followed by business and medical diagnostics.
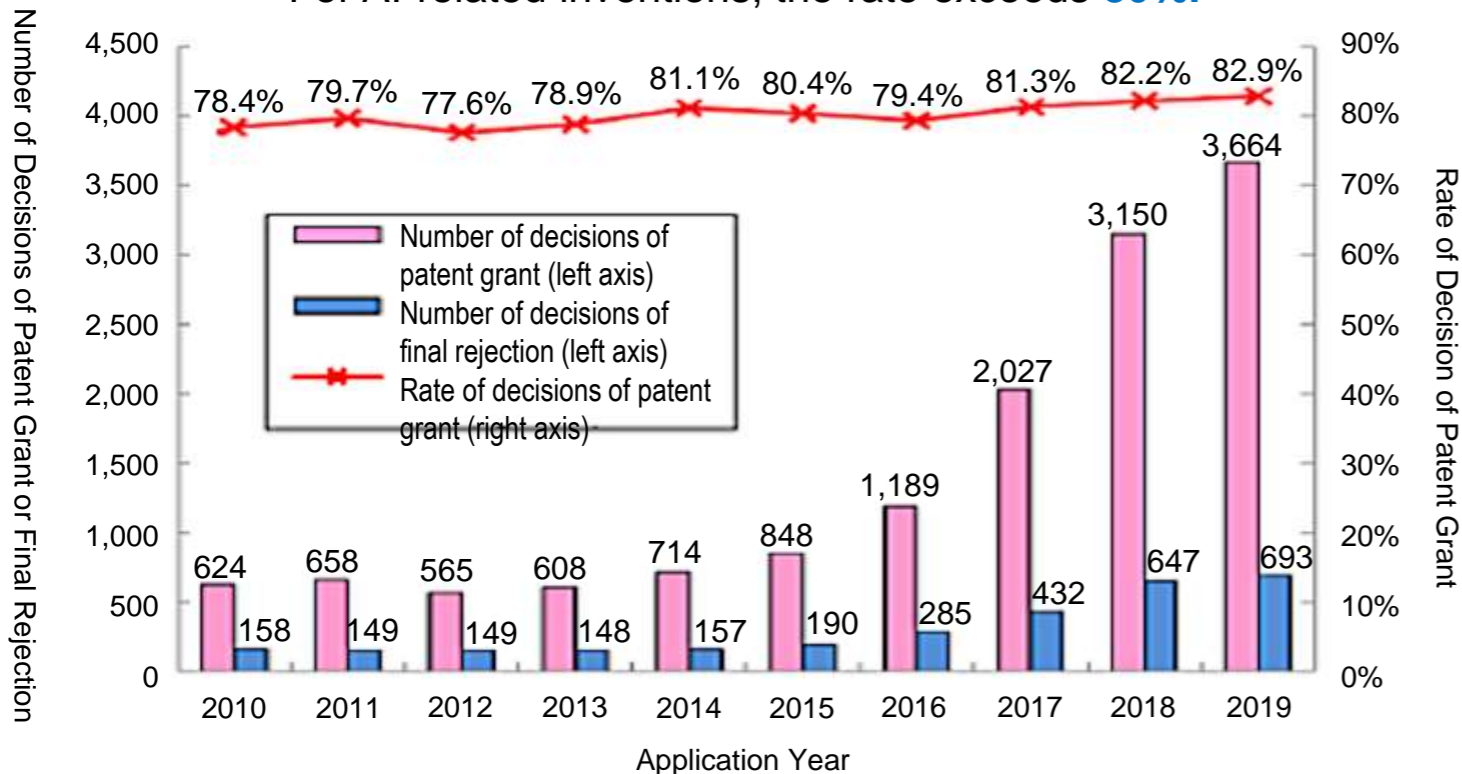
Major Applicants

		AI-Related inventions	Referring to deep learning
1	Fujitsu Ltd.	1426	626
2	NTT	1123	549
3	Hitachi, Ltd.	921	375
4	Canon Inc.	911	630
5	NEC Corp.	806	313
6	Toyota Motor Corp.	743	291
7	Mitsubishi Electric Corp.	639	316
8	Google	554	313
9	Toshiba Corp.	551	270
10	IBM	551	253
11	Baidu	550	428
12	FANUC Corp.	426	259
13	Koninklijke Philips N.V.	422	205
14	KDDI Corp.	377	205
15	OMRON Corp.	338	197
16	Yahoo Japan Corp.	317	207
17	FUJIFILM Corp.	304	233
18	FUJIFILM Business Innovation Corp.	282	125
19	Panasonic IP Management Co., Ltd.	274	170
20	Sony Group Corp.	264	145

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Patent Grant Rate

Japan's overall patent grant rate is about 75%.
For AI-related inventions, the rate exceeds **80%!**

- Number of decisions of patent grant (left axis)
- Number of decisions of final rejection (left axis)
- Rate of decisions of patent grant (right axis)

The rate of decision of patent grant for AI-related inventions

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JPO Guidelines

■ Links to websites:

➤ A variety of examples relating to AI-related inventions (JPO)
https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/ai_jirei_e.html

➤ Recent Trends in AI-Related Inventions (JPO)
https://www.jpo.go.jp/e/system/patent/gaiyo/ai/ai_shutsugan_chosa.html

➤ "Manga" Examination Guidelines in AI/IoT technologies (JPO)
https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/comic_ai_iot_e.html
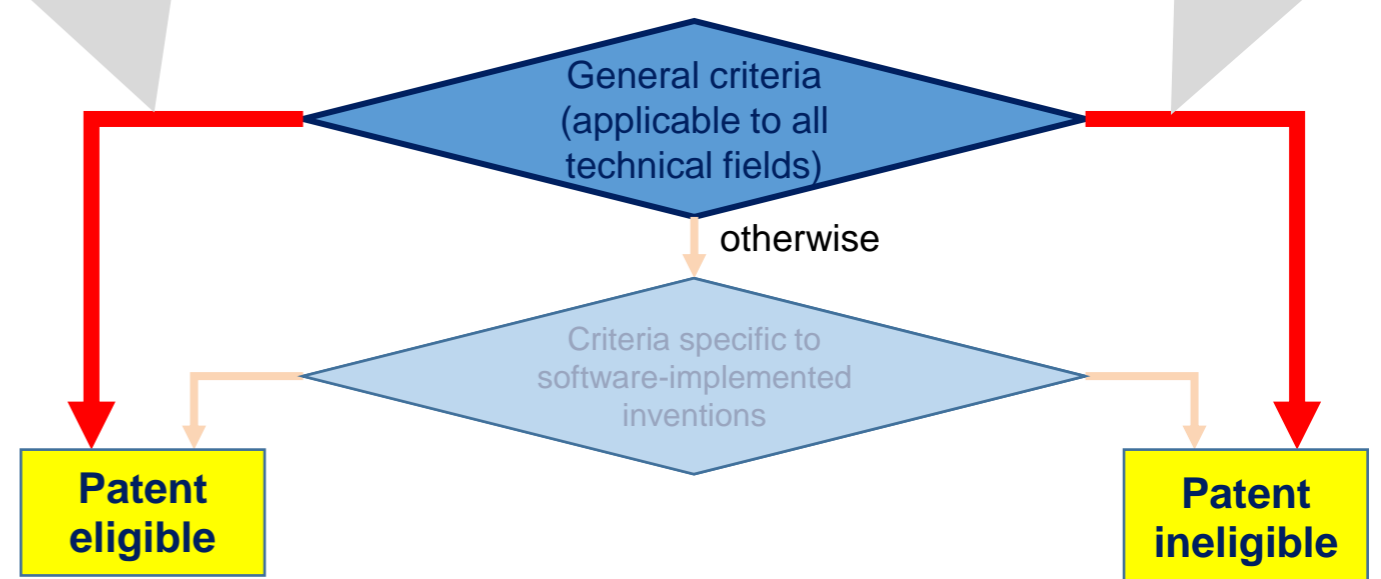
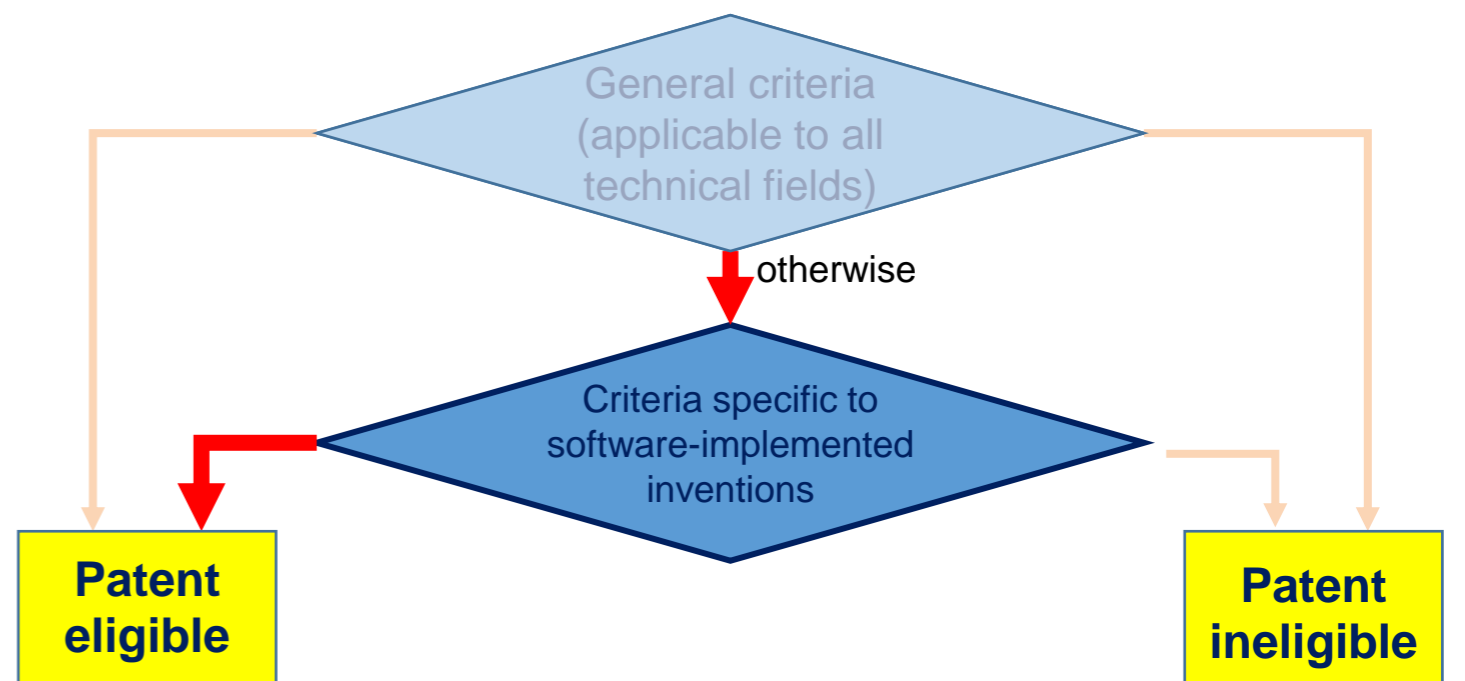## Eligibility- First Step

■ First, **general criteria** are assessed.

(i) control on a device/apparatus, or process involving the control; or
(ii) information processing based on technical properties of an object

(i) mere presentation of information;
(ii) arbitrary arrangement;
(iii) mathematical formula; … etc.

General criteria (applicable to all technical fields)

otherwise

Criteria specific to software-implemented inventions

Patent eligible

Patent ineligible

Eligibility- Second Step

When information processing by the software is concretely described in claims, claimed inventions are determined as "inventions."

General criteria (applicable to all technical fields)

otherwise

Criteria specific to software-implemented inventions

Patent eligible

Patent ineligible

Inventive Step

When a claim includes a technical and non-technical feature(s), no distinction is made regarding contribution to inventive step between technical features and non-technical features.

Inventive step can be confirmed from a variety of viewpoints, such as
(i) difference in **training method** of AI model
(ii) difference in training data that can **improve AI model outputs**
(iii) preprocessing of **training/input data** for improved calculation efficiency
(iv) new features in **output from AI model** (new prediction)
etc. …

Enablement / Support Requirements

It should be possible to infer that a **correlation exists between the input data and the output results**:

- presumable in view of common general technical knowledge
- supported by an explanation or statistic information in the description, or
- supported by a performance evaluation of the AI model.

AI Can Be an Inventor?

On May 16, 2024, the Tokyo District Court issued a decision stating that an inventor listed in a patent application must be a natural person.
The Court also expressed its hope that the legal issues concerning AI inventors would be settled through future legislation.