Utilization of AI for Examination and Management

January 31, 2024

Japan Patent Office

1 AI tools for examination

2 AI tools for management

3 JPO Updates and Initiatives

1 **AI tools for examination**

2 **AI tools for management**

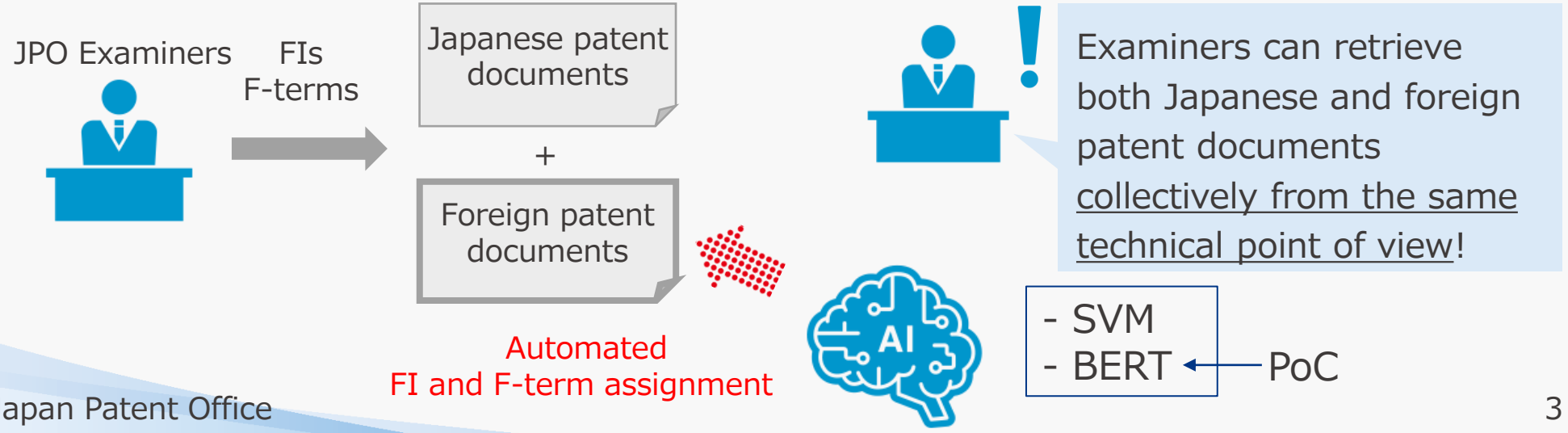
3 **JPO Updates and Initiatives**

Patent classification(for foreign patent documents)

Main Points

Issue: JPO examiners couldn't use FIs and F-terms (JPO-specific search indexes) to retrieve foreign patent documents though they are useful to retrieve documents relevant to Japanese applications.

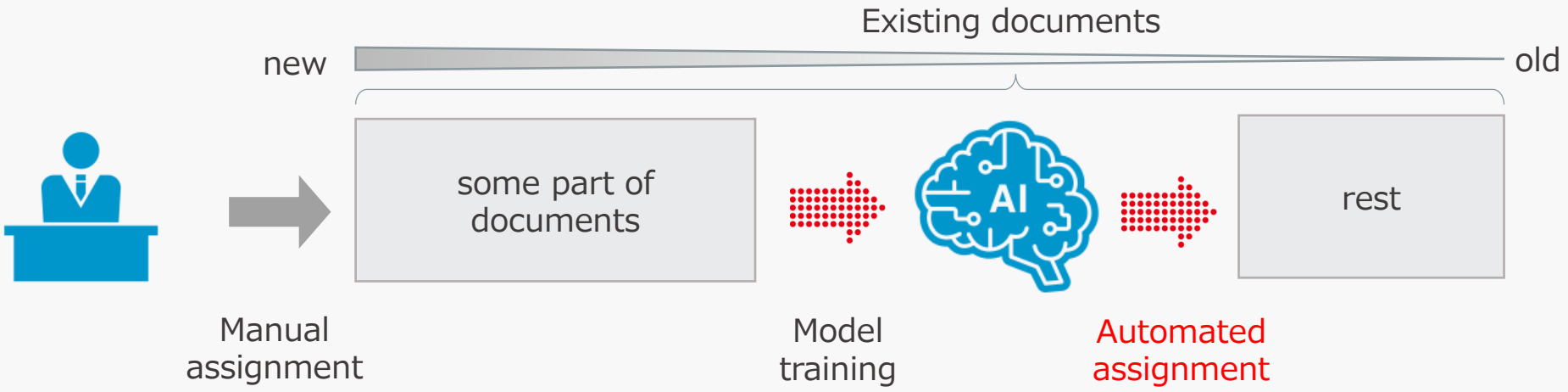
Solution: Assigning FIs and F-terms to foreign patent documents automatically, JPO examiners can conduct collective search of Japanese and foreign documents with the indexes.



Further consideration for patent classification

- The JPO is considering applying BERT and its derivatives to auto classification.
- The JPO is considering applying auto classification to the re-classification.

Auto re-classification

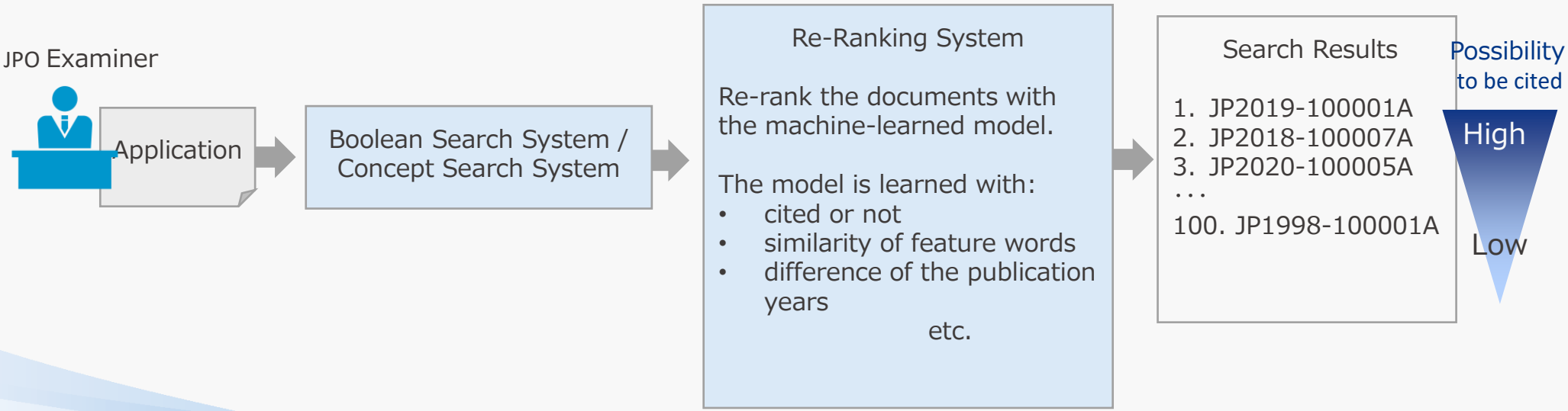


Concept Search and Re-Ranking Patent Documents

Main Points

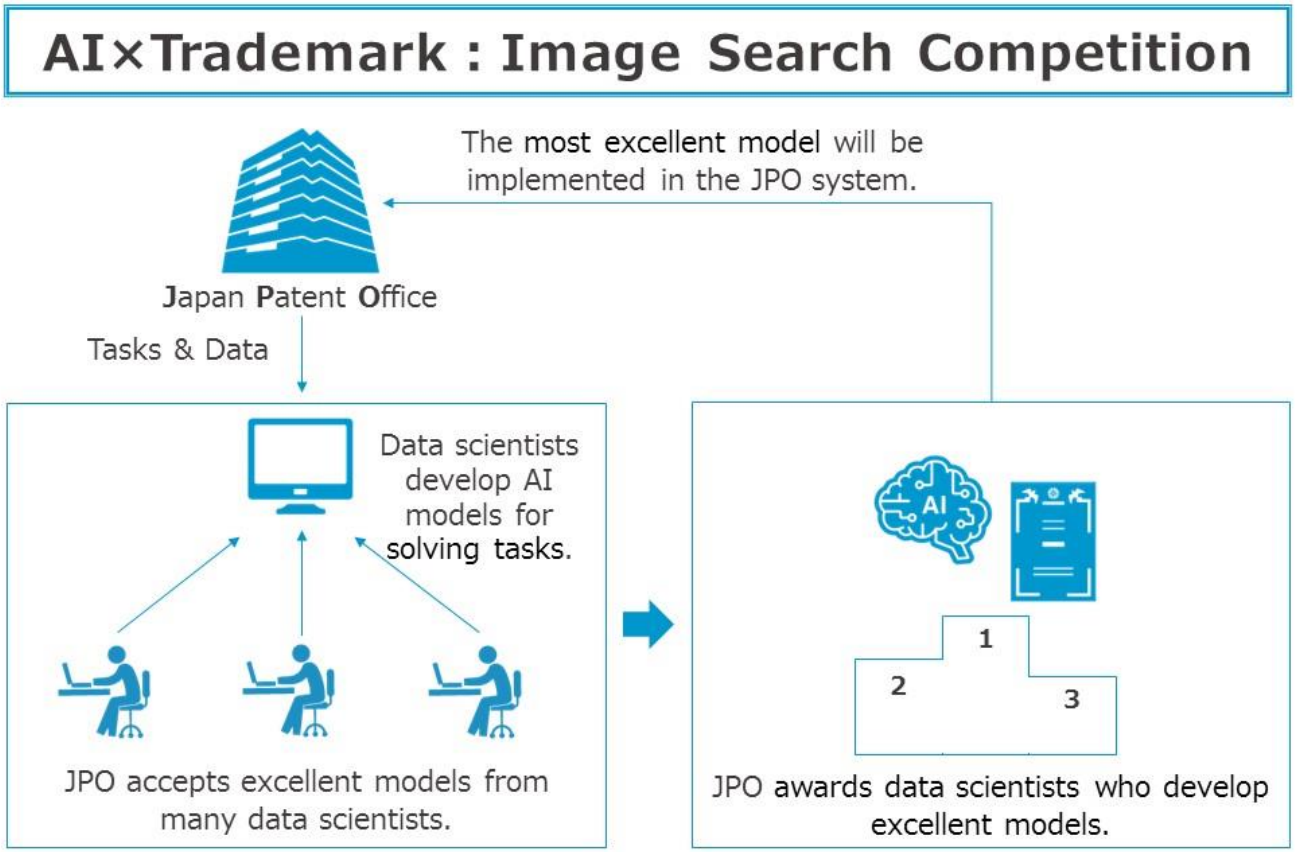
Issue: Examiners had to read hundreds of documents to retrieve a relevant document.

Solution: Examiners can read the most important document first if the candidate documents are ordered by the possibility to be cited.



Trademark Image search

- The JPO conducted its first machine learning (ML) competition, "AI x Trademark: Image Search Competition" (26 November 2021 – 31 January 2022).



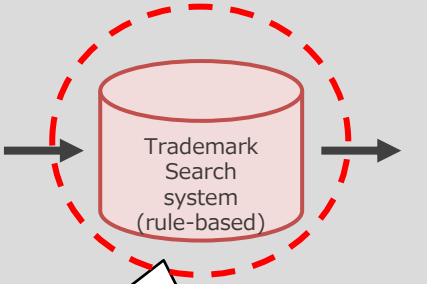
Read more

Character trademark search

Current Search Mechanisms

Trademark filed as an application

【search key】
Trademarks for search：ＪＰＯ
Pronunciation: “ジェイピイオオ”[jai pee o-o]



Search based on the similarity judgment criteria for characters and appellation

The prior trademarks that meet the similarity judgment criteria are displayed as a result of the search.

Current Challenges

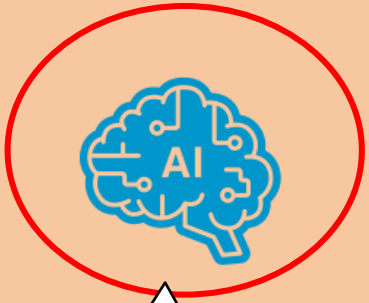
- Although comprehensive searches can be performed, a large number of search results may be displayed depending on the contents of the trademarks being searched, as well as the appellation used when searching.
- Search results cannot be sorted by similarity or narrowed by conditions.
- The increase in the number of applications for trademark registration has also increased the burden of examiners in terms of conducting searches.

Character trademark search

Image of AI Application

Trademark filed as an application

【search key】
Trademarks for search：ＪＰＯ
Pronunciation: “ジェイピイオオ”[jai pee o-o]



Calculate the degree of similarity of characters and appellations based on the examiner's past judgments

Trademarks that examiners would judge as likely to be similar, based on past examiners' judgments, will appear at the top of search results (through the application of AI).

Character trademark search

Image of AI Application

To verify that AI techniques can search for patterns that cannot be extracted by current rule-based search engines

	Issues	Image after the issues are resolved
Example 1	Insufficient retrieval of prior character trademarks that merely replace the front and rear character elements (word order).	Trademark filed : Ｕｎｉｖｅｒｓｉｔｙ　ｏｆ　Ｏｓａｋａ appellation : “ユニバーシティーオブオーサカ”(pronunciation: [ju:niva:siti ov o:saka]) “ユニバーシティー”(pronunciation: [ju:niva:siti]) → Prior trademarks to be displayed in search results : Ｏｓａｋａ　Ｕｎｉｖｅｒｓｉｔｙ appellation : “オーサカユニバーシティー ([pronunciation: [o:saka juniva:siti])
Example 2	Insufficient retrieval via the conventional trademark search system of prior character trademarks that have the same or similar meanings.	Trademark filed : 天使のスイーツ appellation : “テンシノスイーツ” (pronunciation: [tenshi-no-swi:tsu]) “テンシ” ([pronunciation: [tenshi]) → Prior trademarks to be displayed in search results : エンゼルスイーツ Ａｎｇｅｌ　Ｓｗｅｅｔｓ appellation : “エンゼルスイーツ” (pronunciation: [enzeru- swi:tsu]) “エンジェルスイーツ” (pronunciation: [end3eru-swi:tsu]) “エンゼル” (pronunciation: [enzeru]) “エンジェル” (pronunciation: [end3eru])

Prior design search

Objective

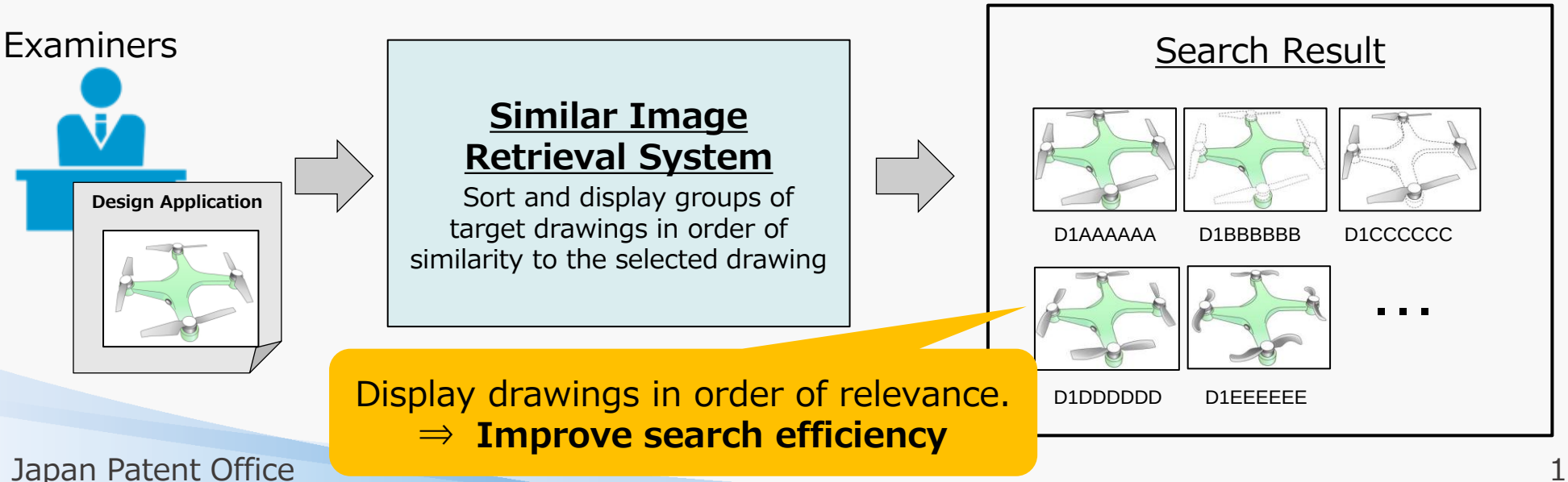
- With the increasing number of prior designs there is a subsequent ever-increasing burden of prior design searches in the examination process. The use of AI search technology is being studied to improve the efficiency and quality of searches.

Current Status

- *Studying the application of AI technology to a design multi-drawing browser (a function that enables high-speed screening by displaying a large number of design drawings on a browser at once)*
- *Improving search accuracy by creating machine learning models for each classification and increasing the quality and quantity of training data.*

Long-term Goal

- To reduce the burden on the examiner and time required to find the desired image by sorting and displaying the images in order of similarity to the design images in the design multi-drawing browser.



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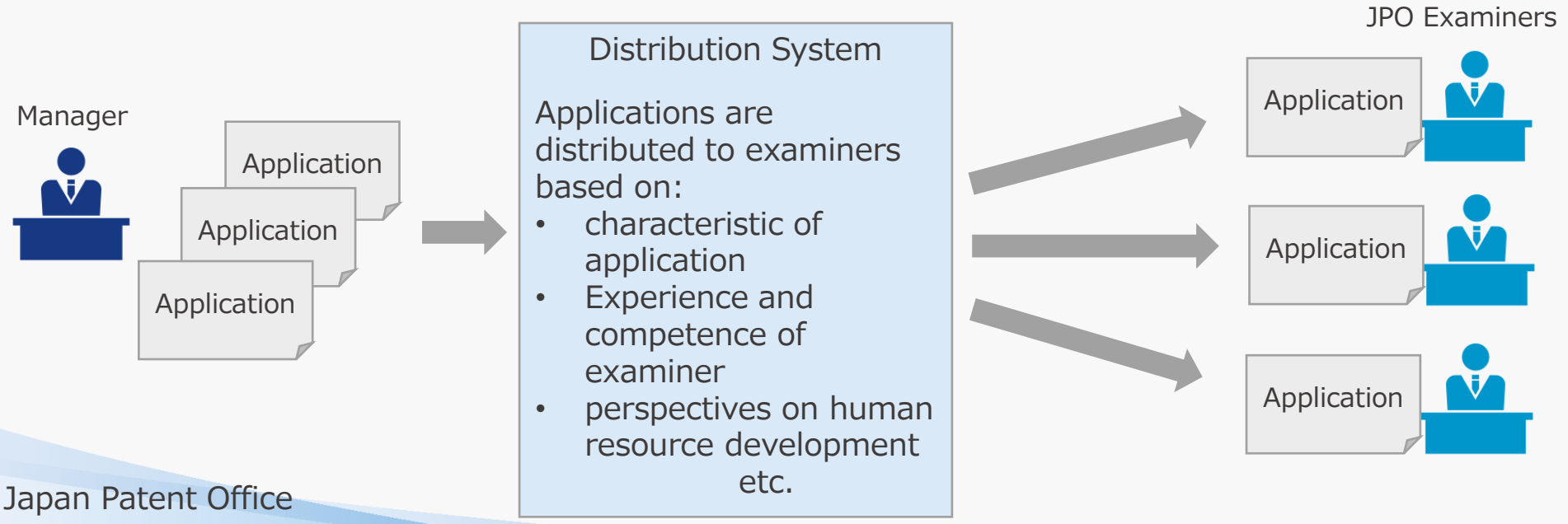
Patent Examination Management

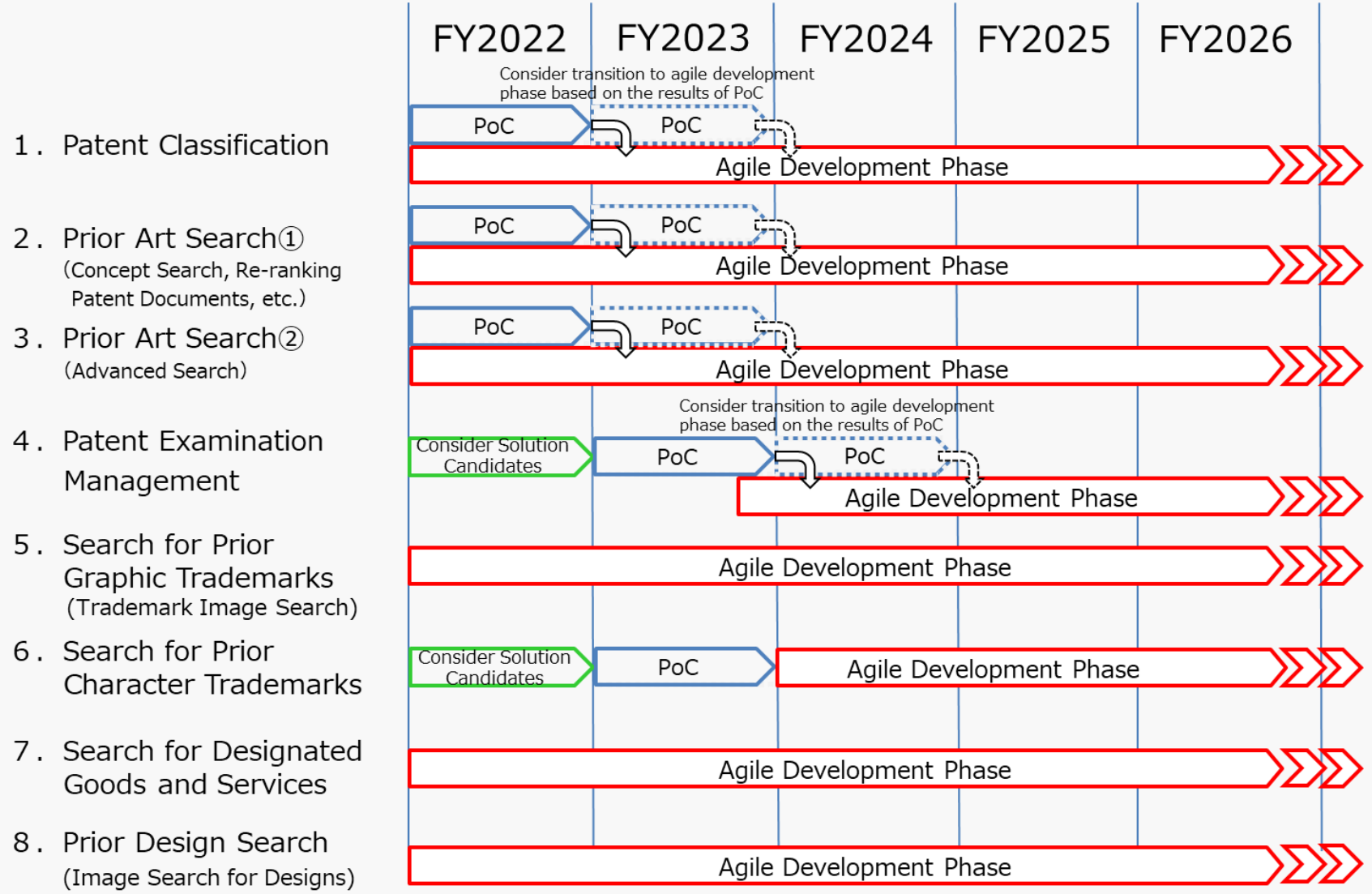
Main Points

Issue: It is preferable to conduct management tasks around the patent substantial examination process more effectively and efficiently.

Solution: AI application to patent examination management will be considered in 2023FY, including whether AI technology may be effective.



Action Plan for Utilization of AI technology (FY2022-2026 edition)



*The initiatives of each project are rough assumptions and may change in the future depending on the progress, budget conditions, and other various circumstances.

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New standard for IP data exchange

***For efficient IP data exchange worldwide**, we propose a new conceptual standard comprehensively specifies various aspects of IP data exchange.*

By providing IP data under the framework...

- Companies around the world will be able to identify regional issues and to conduct infringement searches accurately.

Then, companies around the world will...

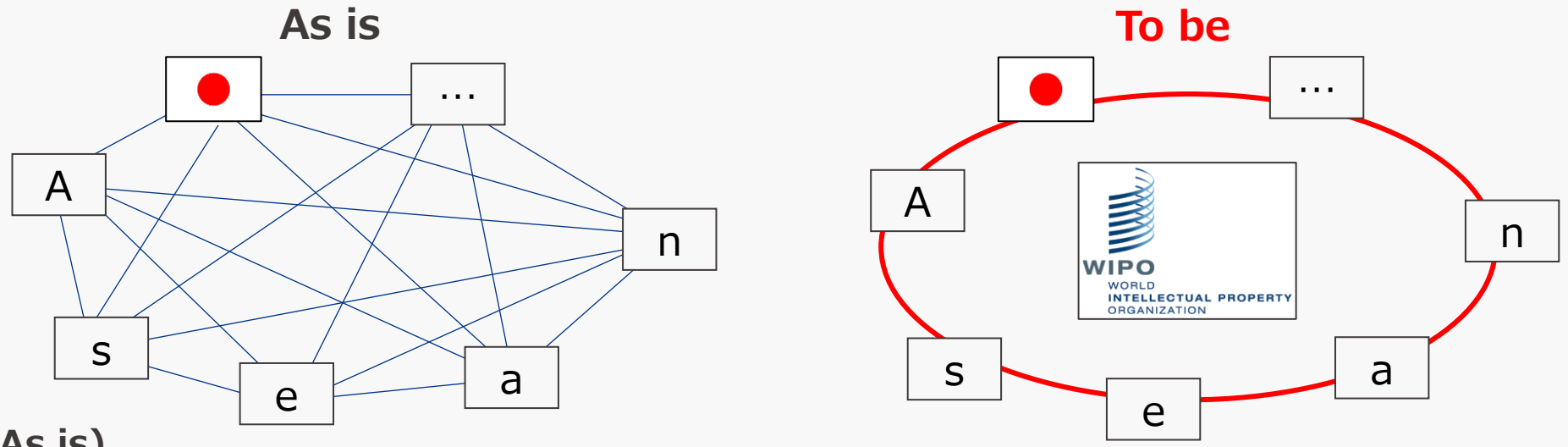
- **Invest** in the region, **transfer technology** and **develop business** there.

✓More investment

✓Solution for regional issues

✓Regional industrial development

Solution



(As is)
Each IP office must negotiate with other IPO individually.

(To be)
The efficiency of IP data exchange will be improved by reducing duplication of effort.

Goal

- Contributing to the creation of global innovation through the smooth provision of substantial IP information by member states
- Promoting technology transfer among member states including developing countries, and contributing to solutions for global issues

Draft scope of the proposal

may include:

Policy

- **Procedure**
- **Renewal**
- **Agreement**
- **Usage authorization**

Contents

- **IP gazette**
  (Biblio. data, claims, specifications, etc.)
- **Quality of data**
  (Data cleaning)
- **Format**
  (cite/refer to existing STs)
- Office actions

Technical solution

- **Global data platform**
  (under the supervision of WIPO)
- Security
  (Block Chain, etc.)
- Exchanging method
  (API, bulk data, etc.)

Data management authorities

- **WIPO**
- **each IPO**
- **IP 5**
- **ASEAN IP Register etc.**

Thank you!

Japan Patent Office