
THEME III Information Infrastructure

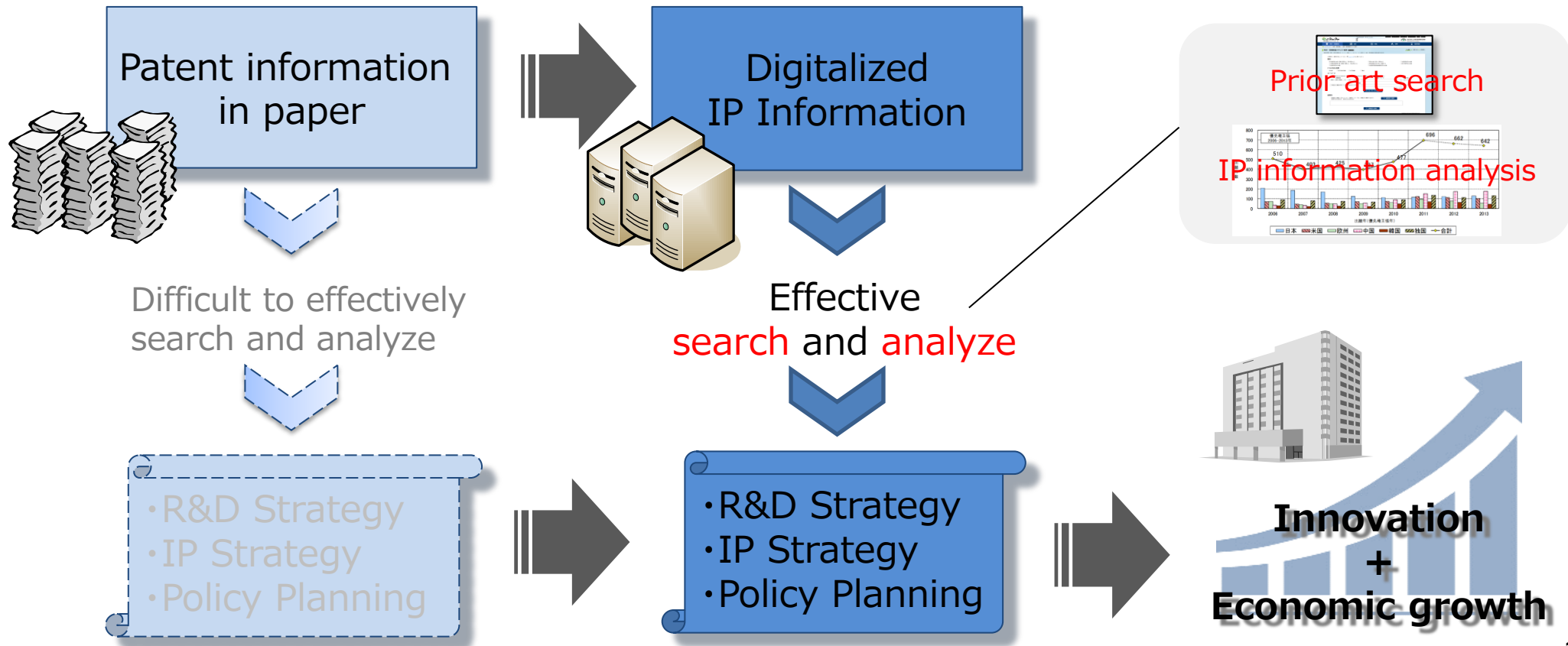
**Future Perspective of
Information Technology and IP information
in the Era of AI and Big Data**

February 2018

**Japan Patent Office
Susumu Iwasaki**

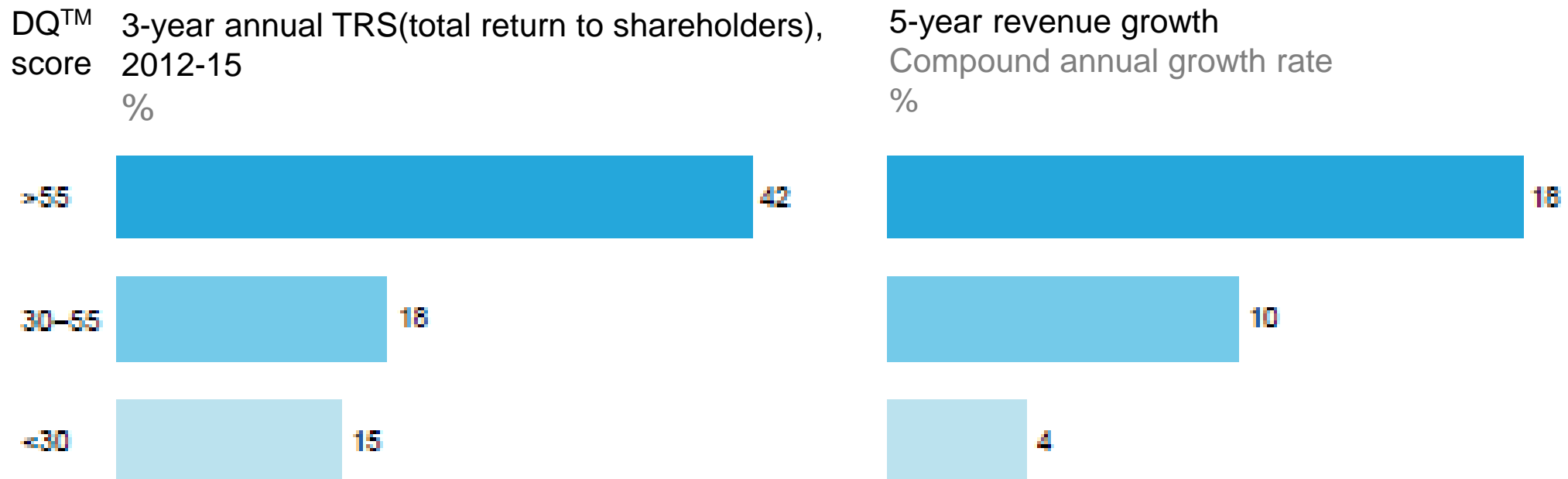
1. IP Information as Digitalized Asset

- Digitalization facilitates an usability of IP information and transforms business operation into advanced level.
- It helps users to plan effective strategy and policy, resulting in an increase in innovation, and finally economic growth will be realized.



2. Impact of Digitalization Performance

- Companies with higher Digital Quotients perform better according to key financial metrics.
- Digitalization has a strong correlation with financial performance.

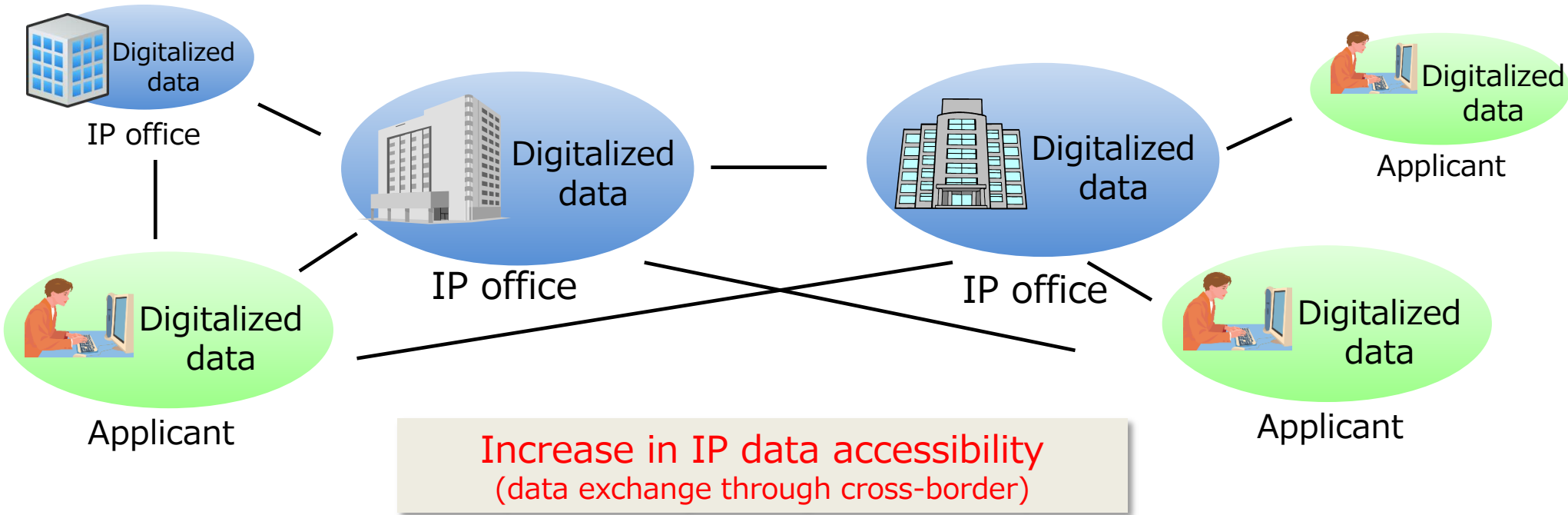


Source: McKinsey Digital Quotient analysis of 46 publicly traded companies; McKinsey Global Institute analysis
Digital Quotient® (DQ) measures an organization's performance across four key dimensions of digital maturity, calculated by McKinsey & Company.

3. IP Offices' Role on Digitalization

➤ IP offices play a main role in an acceleration of digitalized data, which will improve business operation, increase data accessibility and reduce operational cost, etc.

Ecosystem driven by digitalized data



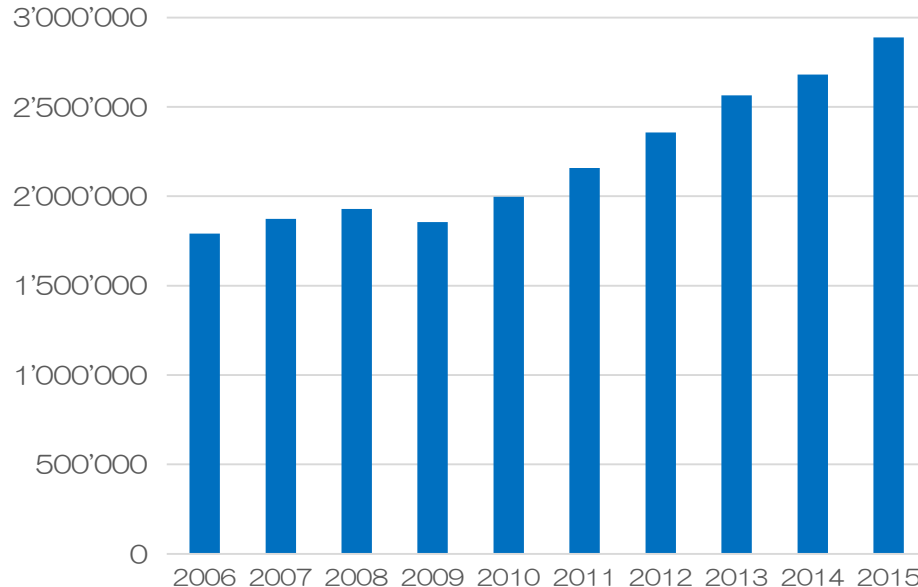
Reduction of operational cost
(processing cost and personnel expenses)

Improvement of business operations
(search functionality, document management)

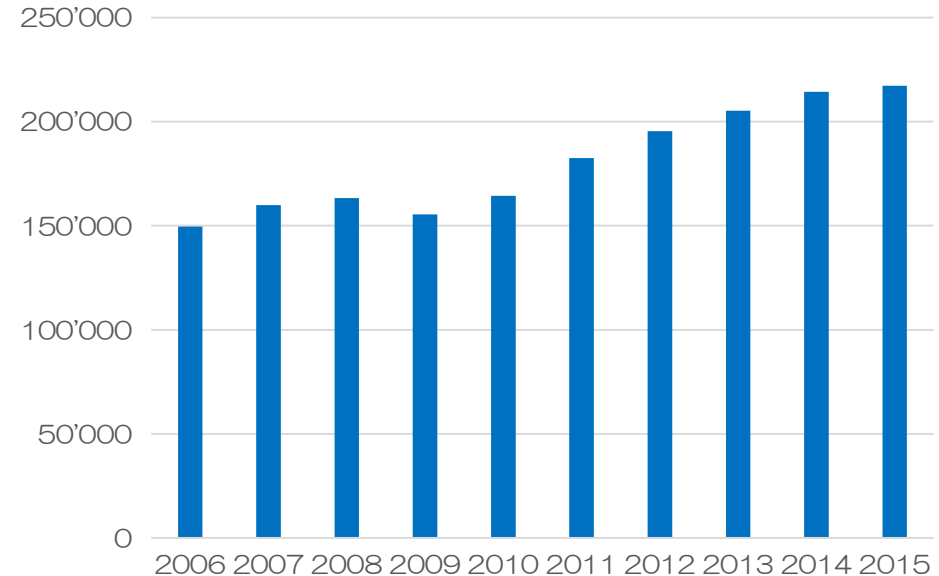
4. Numbers of Patent Applications Filed Worldwide

- The numbers of patent applications and PCT international applications have been increasing year by year.
- Expansion of IP application will raise the value of IP information as big data.

Trends in the number of patent applications



Trends in the number of PCT international applications



(Source) JPO calculation based on WIPO IP Statistic Data Center

5. IP Intelligence Generated from Big Data with AI

- Applying AI technology to expanding IP information, big data, will create new added values, e.g. IP intelligence.



Big data
(IP information)

Operation



AI Technology

Advanced operation

**Highly upgraded
Search · Analysis ·
Machine Translation**

➤ IP offices needs to improve data availability of IP information, which is consistent with an improvement of IT system and management.

IP information

Usability

XMLization, expansion of data coverage

Accuracy

Correction of the data loss and the errors

Timeliness

Promptness of providing the data

Safety

Strengthening of information security

IT system

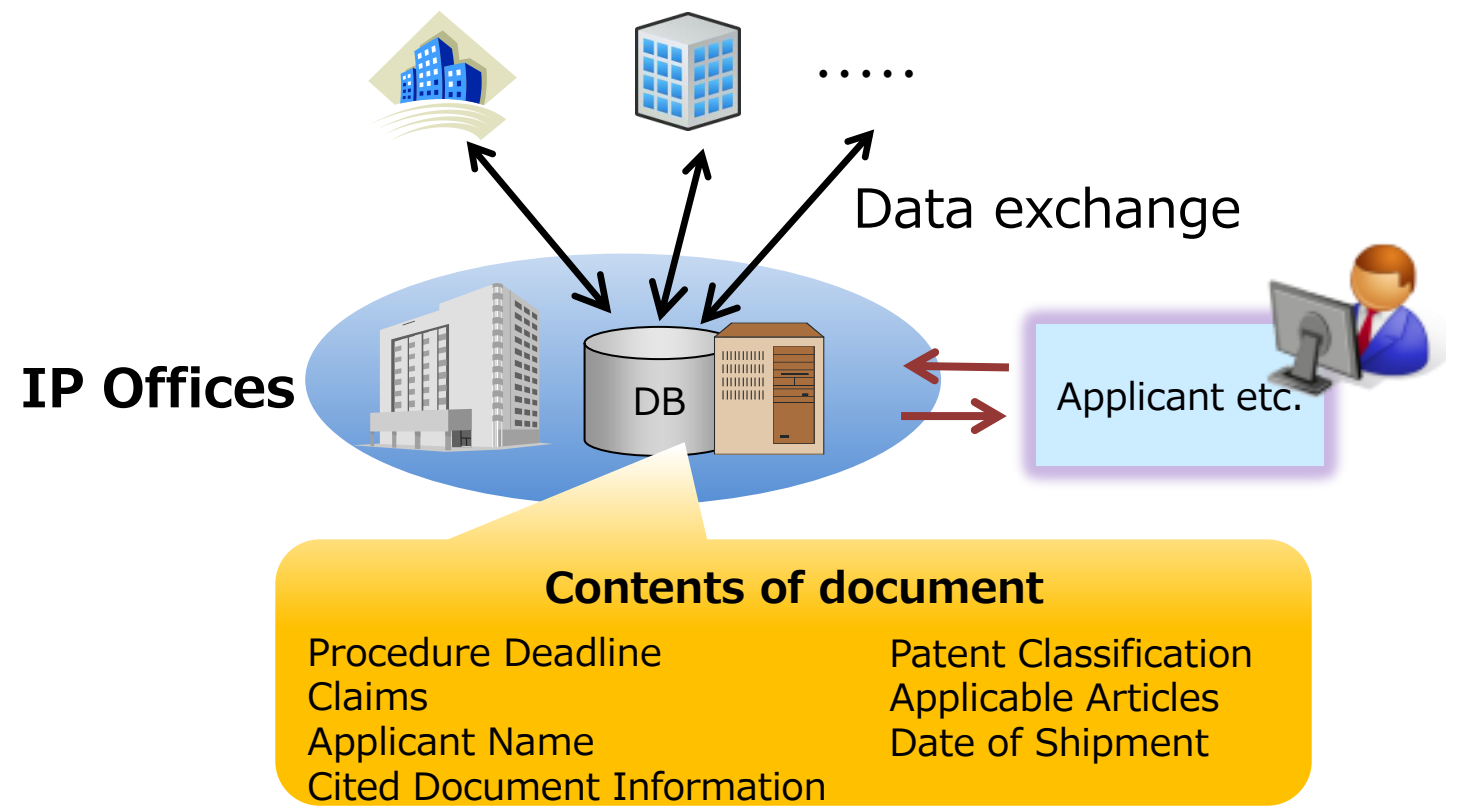
Hard/software, system architecture, network, security, DB, algorithm, markup language

Management

System maintenance, service management, data management, data exchange

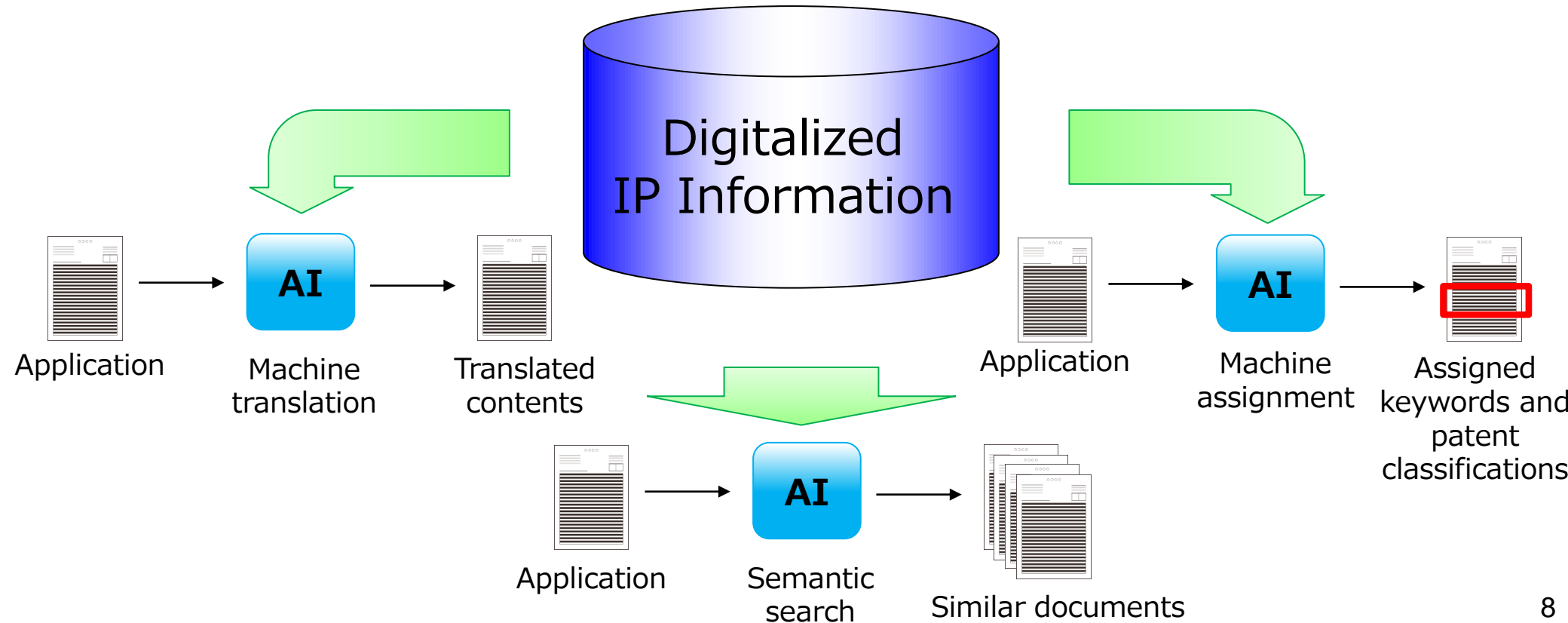
7. Support for Digitalization of IP Information

➤ Through the WIPO Japan Fund, JPO supports digitalization of paper documents, in order to improve the data availability of IP information of ASEAN and other emerging countries.



8. Utilizing AI Technology at the JPO

- JPO is trying to utilize AI technologies, such as machine translation, assignment of classifications and keywords, and semantic search.
- Digitalized IP information is used as data for machine learning.



9. Study on Efficient Analysis of Patent Documents

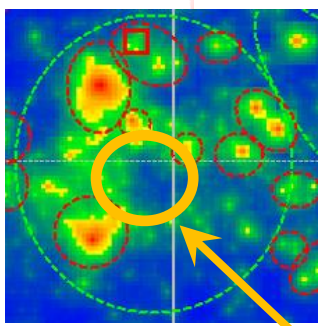
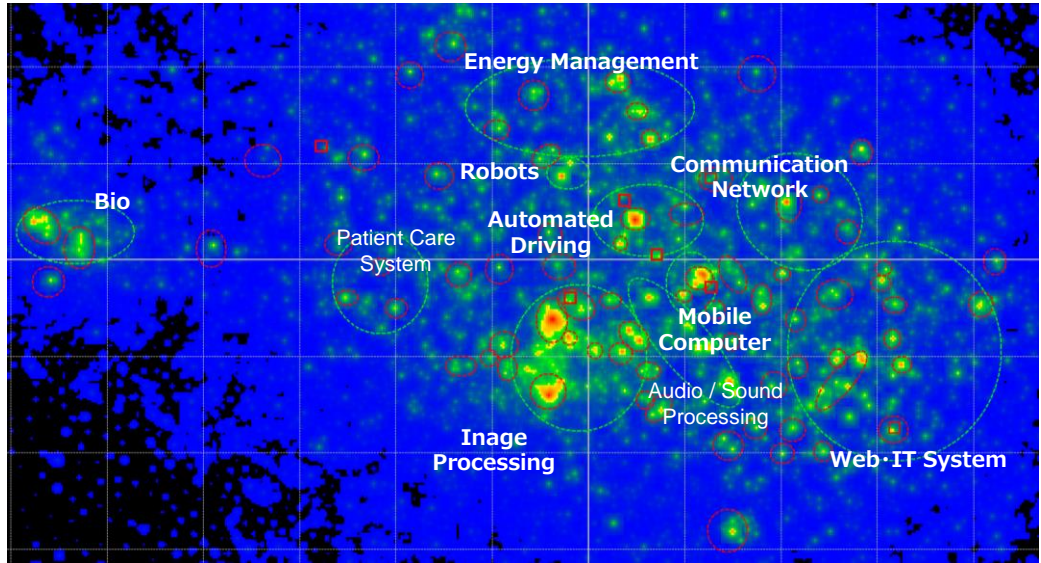
JPO is considering introducing technologies such as text mining and AI as a new technique for analyzing enormous patent documents.



Efficient analysis of enormous patent documents

Patent Documents, etc.

Analysis of the direction of R&D etc. from the result of analysis



New frontier for R&D

The result of the analysis on the technology trends using text mining etc.

➤ IP for Innovation

- ✓ Digitalized IP information, which helps to develop innovation, contributes to economic growth.
- ✓ IP offices play a main role in building ecosystem of IP information, which becomes a platform for innovation.

➤ IP Intelligence

- ✓ Applying AI technology to expanding IP information, big data, will create new added values, e.g. IP intelligence.
- ✓ IP intelligence, which is derived from an analysis of big data, will be a navigator for companies to build strategy.
- ✓ Through the WIPO Japan Fund, JPO supports digitalization of paper documents, in order to improve the data availability as big data.

Thank you for your attention