IP protection in the era of the 4th industrial revolution

IP5 Heads of Office with
IP5 Industry Meetings
31 May 2017

Japan Patent Office
1. The Intellectual Property System for the 4th Industrial Revolution

2. JPO’s Initiative for Responding to the Fourth Industrial Revolution

3. Utilization of AI Technology for Operations at the JPO
The Intellectual Property System for the 4th Industrial Revolution

Outline of the Study Group’s Report

April 19, 2017

Ministry of Economy, Trade and Industry

**Up until now**
- Technologies concerning “things” are sources of competitiveness.
- Ensuring international competitiveness by establishing one’s own technology while competing with many competitors in the same industry.
- Promoting so-called “Open & Closed Strategy” which combines the utilization of standards to expand markets and the exclusive protection of inventions as “intellectual property.”

**Present day**
- Progress of technological innovations typified by IoT, AI, and big data.
- “Data”, along with its “analytical technics” and “business models” using such data, has become sources of new competitiveness.
- “Connected Industries”: the coming industrial societies that are creating newly added value based on various forms of connectivity.
- Necessity making profits and expanding businesses through open innovation.

**From now**
- Expanding and deepening targets of Open & Closed Strategy are necessary.
- Three-dimensional comprehensive strategy including “data” in addition to “intellectual property” and “standards” are required.
Three-dimensional comprehensive strategy consisted of IP, data, and standards is to be considered.

**Intellectual Property**
Protection of technologies and services by granting exclusive rights.

- **Business Model**
- **New Technology**
- **Various solutions to disputes**
- **Standard essential patents***
- **Data Structure**

**Standard**
Agreements on shapes, sizes, protocols etc.

- **Framework for promoting standardization**
- **Development of human resources for standardization**

**Data**
Formalized and coded information for easy processing. (Big Data, Personal Data)

*Standard essential patents: Patents needed to comply with technical standards
2. Utilization of data

- Legal infrastructure for making use of data has been improving.
- On the other hand, there are insufficient measures to prevent unfair use of data.
- As legal framework for authorization to use and access data is uncertain, it is necessary to solely rely on contracts.

### Protection of data under the Unfair Competition Prevention Act

- Studying the possibility of amending the Unfair Competition Prevention Act (possible amendments)
  - Prohibiting the wrongful acquisition of data
  - Enhancing protection of data-encryption technology
  - Reducing burden of civil actions involving methods for analyzing data protected as trade secrets (cabinet order)
- Improving Guidelines on Trade Secret Management, and related material.

### Contracts dealing with authorization of use

- Conducting a study to establish guidelines to deal with the authorization of data utilization

  (Issues to be considered)
  - Ways to ensure appropriate protection of data and rules of contracts based on the actual state of data utilization and contracts on data between companies.
3.(1) The Industrial Property Rights System

- Future innovation will probably create original data structures.
- In line with the popularization of the IoT, there is an increase in the number of patent applications for business related invention, which offer added values by smartly connecting services and products.
- It is difficult to determine what requirements have to be met, in order to acquire patent rights for such new data structure and business model inventions.
- New issues are arising due to advances in technological developments in AI, 3D printing, networking, etc.

### Initiatives on New Technologies

- Protecting patent rights for cross-border infringements.
- Handling inventions made by AI in the future in terms of industrial property rights.
- Handling data used for 3D printing in terms of industrial property rights.

### Data structure

- Published case examples for examination of data structure which have patent eligibility (March 2017)
- Continuing to make efforts to further enhance predictability

### Business Model

- Improving the environment in which patents can be steadily obtained and utilized (in fiscal year 2017)
  - Checking the Examination Guidelines on software-related inventions
  - Collecting the utilizing cases of patented business related inventions
  - Utilizing newly created patent classification for IoT-related inventions
  - Establishing cross-sectoral examination group

### Intellectual Property for supporting business model based on the use of IoT
Costs of managing intellectual property may increase due to the growth of inter-company collaboration in the era of IoT.

Abuse of rights by patent trolls* is recognized as a social problem in the U.S.

Frequent and prolonged disputes on the patents necessary for implementing standards concerning social infrastructure may have negative impact on economy and industries.

Small and Medium-sized Enterprises (SMEs) and venture companies especially, might encounter difficulties in negotiating and dealing with lawsuits.

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Introduction of license award system for SEPs.

- Considering the introduction of an ADR** system (license award system for SEPs) designed to deal with disputes on licensing of SEPs with due care of not unfairly harming the interest of patentees.
- Government decides appropriate license fees in the ADR system.

Various solutions to disputes

- Considering setting up an ADR system (mediation), which is especially user-friendly for SMEs, in order to settle disputes over license agreements and patent right infringements.
- Paying enough attention to the demarcation with existing Private ADRs such as the Japan Intellectual Property Arbitration Center, when designing the new ADR system.

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*Patent troll : A person or company who abuses patent rights to obtain license fees or high settlements.

**ADR (Alternative Dispute Resolution) : Means such as mediation to resolve conflicts without resort to litigation.
Different industries have to cooperate with each other beyond the scope of their businesses, in order to quickly standardize.

In Japan there is a lack of cooperative frameworks between industry and the public sector and a lack of skilled and experienced human resources for international standardization.

- **Enhancing cooperative framework between industry and public sector.**
  - Using “The New Market Creation Standardization System”*
  - Cooperating with National Research Institute.

- **Implementing “The Three Action Plans for the Development of human resources for standardization”.**
  - Increasing number of companies with CSOs (Chief Standardization Officers)
  - Gathering information on strategies for making rules.
  - Clarifying the role of patent attorneys as IP experts for standardization.

* Framework for standardization without requiring consensus of industry organizations within the country.
** Formulated this plan in January 2017 in the Working Group for standardization of human resources under the “Standardization Summit” in Japan.
### Manufacturing
- Constructing the intellectual property portfolio, considering various business models that fully utilize new technologies such as edge-computing.*
- Promoting international standardization regarding data format in order to realize networked factories.

### Mobility
- Rulemaking to protect against unfair use of vehicle data, etc. by third parties.
- Creating intellectual property strategies according to trends in patents by IT industry which has different business practices.

### Health care・Medical care・Nursing care
- Rulemaking to protect medical technological data utilized between business operators.
- Promoting international standardization regarding data format for obtaining, saving, and storing information such as clinical data.

### Initiatives in the individual industrial fields.

### Appropriate measures to support SMEs, etc.
- Supporting the acquisition of patent rights at home and abroad and expansion of business activities overseas based on “Action Plan for Regional Intellectual Property Revitalization” (formulated in September 2016)
- Supporting market expansions by using “Creative Standardized System of New Markets”
- Promoting cooperation between and among major companies, SMEs, and venture companies. et al.

*Edge computing: A technology of information processing in order to efficiently process a large amount of data without being affected by any disturbance in communication environment; this is done by provision of a high level of information-processing function to user devices and by processing of data in a decentralized way at each of the user devices.*
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<thead>
<tr>
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<tbody>
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<td>Chair</td>
<td>Toshiya Watanabe, Professor, Research Center for Advanced Science and Technology, The University of Tokyo</td>
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JPO’s Initiative for Responding to the 4th Industrial Revolution
Establishment of New Patent Classifications for IoT-related Technologies

- The JPO was the first office in the world to establish new patent classification ZIT, making it possible to retrieve all the various IoT-related technologies comprehensively.
  ➔ Improve the efficiency of prior art searches and promote R&D activities
- In April 2017, the JPO subdivided ZIT by the aspect of use, in order to further improve user-friendliness.

Establishment of ZIT

- In November 2016, established and started assigning new patent classification ZIT, making it possible to retrieve all the various IoT-related technologies comprehensively.

Subdividing ZIT by use

- In April 2017, subdivided ZIT by the aspect of use to enable retrieval of IoT technologies in respective uses.
The JPO added examples to its Examination Handbook on how JPO’s examiners determine the patentability of inventions on IoT-related technologies and was the first office in the world to publish this type of information on a website.

- Sep. 2016: 12 examples on utilization of data
- Mar. 2017: 11 examples on acquisition (1), management (2), and analysis and learning (3) of data

→ Improve applicants’ predictability in terms of acquiring rights and promote innovations.

- Also in future, the JPO will provide useful, appropriate information on a timely basis.

**IoT-related technologies**

- Neural network
- Deep learning
- Trained model
- Data management
- Data structure
- Sensing data

**Examples:**

- Published 12 examples, such as Method of Allocating Unmanned Autonomous Vehicle, in September 2016

- Trained Model for Analyzing Reputations of Accommodations (published in March 2017)
- Quality Management Program of Manufacturing Lines (published in March 2017)
- Tree-Structured Area Management Data (published in March 2017)
- Data Structure of Encrypted Package Files (published in March 2017)
- Sugar Content Data of Apples (published in March 2017)
The JPO set up an IoT Examination Team, which is a new team consisting of examiners knowledgeable about inventions on IoT. By establishing a framework in which examiners from various departments can consult with IoT specialists, the JPO intends to realize higher-quality examinations based on making effective use of the IoT specialists’ knowledge and expertise.

→ Support applicants in acquiring patents that are essential for promoting innovations

Accumulate and share knowledge and expertise on IoT technologies, as well as study case examples of how JPO’s examiners determine the patentability of inventions on IoT technologies.
Utilization of AI Technology for Operations at the JPO
Utilization of AI Technology for Operations at the JPO:
(1) Study on Feasibility Levels

- The Japan Patent Office (JPO) reviewed 892 business operations, from application to examination.
- With experts’ support, the JPO identified 20 business operations for which AI technology could be utilized.

Utilizing AI technology should be considered.

- 20 out of 892 operations require learning not only the past examples but also the concepts and so on.
- 20 out of 892 operations could be handled by learning successful patterns.
- 182 out of 892 operations small necessity to utilize AI technology based on the work frequency.
- 670 out of 892 operations do not require AI technology as they are already systematic.
<table>
<thead>
<tr>
<th>LV. 3～4</th>
<th>Common Business Operations</th>
<th>Patents</th>
<th>Designs</th>
<th>Trademarks</th>
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<td>LV. 3</td>
<td>2. Check seals being stamped on application documents</td>
<td>1. Inquiries. (Identity verification)</td>
<td>4. Check registered trademarks in applications</td>
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<td>LV. 3～4</td>
<td>13. Trademark image searches</td>
<td>10. Assign design classifications</td>
<td>14. Classifications of goods and services</td>
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**Utilization of AI Technology for Operations at the JPO : (2) Results of the Feasibility Study**

- **LV. 3～4**
  - 3. Digitize filing procedures
  - 6. Assign patent classifications
  - 10. Assign design classifications
  - 14. Classifications of goods and services

- **LV. 4**
  - 8. Understand the details of and identify inventions
  - 7. Prior art searches
  - 11. Prior art searches

- **LV.**
  - 2. Check seals being stamped on application documents
  - 1. Inquiries. (Identity verification)
  - 4. Check registered trademarks in applications

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- **Completed basic research; and used in other industries**
- **At the stage of R&D**
- **No case of R&D**
This fiscal year, the JPO will start system demonstration for the following 6 areas.
The JPO set up a “Task Force” consisting of AI technology experts for further consideration.

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<td>Trial introduction</td>
<td>Standard operating procedure</td>
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<td>2. Digitize filing procedures (LV.3)</td>
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<td>3. Patent classifications (LV.3-4) (Based on texts)</td>
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<td>5. Image search (LV.3)</td>
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<td>6. Classifications of goods and services (LV.3-4)</td>
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* Each initiative in the Action Plan is a plan that still remains under consideration. Therefore, the plan would be revised through further consideration.
Thank you!