

PROVISIONAL TRANSLATION

**The Intellectual Property System
for the Fourth Industrial Revolution**

April 2017

**The Intellectual Property System Study Group
for the Fourth Industrial Revolution**

Introduction

On April 27, 2016 “An Interim Report on the New Industrial Structure Vision”, which proposed Japan’s strategy for leading the Fourth Industrial Revolution, was compiled at the New Industrial Structure Committee under the Industrial Structure Council. In light of the current situation, in which new data-related assets such as creations by artificial intelligence (AI) and big data gathered by sensors etc. are generated constantly through the development of digital network technology, the Interim Report pointed out the importance of creating an intellectual property (IP) system in which the promotion of and protection against the utilization of these new data-related assets are appropriately balanced.

Additionally, an integrated strategy involving business operations, R&D, and IP as a business strategy for improving technology management capabilities has been proposed as a necessary step. However, as a result of the recent technological innovation, design of what is called a three-dimensional comprehensive strategy, which incorporates data and standardization into IP in the integrated strategy, is now thought of as necessary.

Based on the understanding that it is extremely important to examine the appropriate states of systems and practices that correspond to the existing needs, the Japan Patent Office (JPO), Economic and Industrial Policy Bureau, and Industrial Science and Technology Policy and Environment Bureau of the Ministry of Economy, Trade and Industry (METI) cooperated in launching “The Intellectual Property System Study Group for the Fourth Industrial Revolution” consisting of experts including academic experts and experts from industry for the purpose of comprehensively assessing the current situation and issues concerning strategies of companies and system/practices that support them, as well as to study the future course of actions.

Topics covered in the meetings

The 1st Meeting - Oct.17 (Mon.), 2016

- Launch

The 2nd Meeting - Nov.10 (Thurs.), 2016

- Ways to deal with each agenda item

The 3rd Meeting - Nov.28 (Mon.), 2016

- Study on protection of data and databases

The 4th Meeting - Dec.15 (Thurs.), 2016

- Current state of automotive fields
- Current state of robotics fields

The 5th Meeting - Dec.26 (Mon.), 2016

- Current state of healthcare and nursing-care equipment fields
- Current state of biotechnology fields
- Major points and further direction

The 6th Meeting - Feb.6 (Mon.), 2017

- Framework for simple and prompt settlement of patent disputes
- Support for intellectual property in local communities and SMEs

The 7th Meeting - Feb.17 (Fri.), 2017

- Current state of information and communications equipment fields
- International standardization

The 8th Meeting - Mar.6 (Mon.), 2017

- Dealing with creations made by AI.
- Measures for responding to cross-border infringements
- Current state of measures by Ministry of Internal Affairs and Communications

The 9th Meeting - Mar.24 (Fri.), 2017

- Functional enhancement for handling disputes (Cooperation with Patent System Subcommittee)
- A review of draft report

The 10th Meeting - Apr.5 (Wed.), 2017

- Current state of Subcommittee on Protection and Utilization of Trade Secrets
- Compilation of report

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(The Japanese syllabary order; honorifics omitted)

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I. Present Conditions Surrounding the Fourth Industrial Revolution and the IP System (General Remarks)

Japanese companies have ensured international competitiveness by securing their proprietary technology while competing with many competitors in the same industry. They have created an “Open & Closed Strategy¹” which is a prerequisite for managing IP as part of their corporate management, and they have chosen to keep it secret as know-hows, obtain IP rights, or standardize it, when new data-related assets or technologies are generated.

Under the Fourth Industrial Revolution, due to the rapid increase in the volume of data produced with new technology like IoT and AI, exponential progress of data processing performance, and drastic progress of AI technology, which is epitomized by the deep learning of AI technology used in data processing, the importance of “data” itself and “data-analysis techniques” as sources of competitiveness is increasing. Furthermore, new business models that take advantage of the features of the new technology are also becoming new sources of competitiveness.

Moreover, stakeholders are becoming diversified, along with the industrial fields in which one’s own technology can be applied, as a result of things that previously could not be connected becoming “connected” digitally via the Internet, and it is becoming necessary for companies to cooperate with other companies in different business fields and with startups which they had previously not associated. In addition, there are trends of IT companies buying up manufacturing companies and vice versa.

Seeing that new added value is being created which leads to solving societal issues, and entirely new business models are being generated based on various forms of “connectivity”, Mr. Hiroshige Seko, Minister of Economy, Trade and Industry proposed a concept of “Connected Industries”, which refers to industrial communities in which new added value is created through the implementation of IoT where all devices and items are connected via the Internet².

¹ As for “Open & Closed Strategy”, it requires extra attention that the wording “Open-Closed Strategy” has several meanings, such as a strategy whether they grant patent license to others, or a strategy whether they disclose information, etc.

² “Connected Industries” has been announced as a concept for a desirable state for Japanese industries.
(Ministry of Economy, Trade and Industry published on March 20, 2017.)

Under this current environment, in order for Japanese companies to maintain advantages and expand their business, it is indispensable to actively promote open innovation that develops technology and business models across borders of companies and business fields, while securing their core business areas; and for promoting open innovation, expanding and deepening the targets of Open & Closed Strategy is required. That is to say, in addition to IP and standardization which were the long-standing pillars of the Open and Closed Strategy, it will be necessary to formulate a new strategy that adds the new data pillar, since “data” is the newest source of competitiveness.

As a regime for formulating the new strategy, some companies have already been taking actions to involve the IP Section in handling standardization and data, making efficient use of their role of managing business risk by objectively evaluating their and other companies’ intangible assets. There are also companies in new fields such as IoT that strategically manage R&D, IP and standardization in their operating department.

In creating the abovementioned new strategy, there are situations where it is necessary to handle data, IP and standardization together, not individually. For example, in line with the popularization of IoT, when utilizing data generated and collected on-site which is to be considered as one of Japan’s outstanding advantages, especially on edge computing³, the importance of data itself and of ensuring security to prevent leakage of data from work sites, on-site usability of real-time data, compatibility of data with cloud environments, and creation of data formats to optimize AI learning, is increasing rapidly. In these cases, it is necessary to formulate a strategy that addresses how to determine the scope for accessing data, whether to acquire a patent for element technology, and whether to standardize the format on a global scale.

In open innovation, the effect of the Fourth Industrial Revolution extends not only to large companies but also to SMEs and startups, as SMEs and startups with high mobility are expected to be a driving force of innovation. The necessity and importance of formulating a strategy, in which part of business or technology development they should cooperate with others, is increasing for SMEs and startups as well.

³ Edge computing: A technology of information processing which efficiently processes a large amount of data without being affected by disturbances in the communication environment; this is done by delegating high-level information-processing roles to user devices and by processing data in a decentralized way in each of the user devices.

In response to the abovementioned circumstances, it is necessary to comprehensively examine appropriate states of systems and practices from each perspective of “utilization of data,” “industrial property rights systems,” and “global standardization”.

II. Present Conditions Surrounding the Fourth Industrial Revolution and the IP System (Particulars)

1. Utilization of Data

The significance of “data” for making the most of the IoT and AI, the pivotal factors in the Fourth Industrial Revolution, is increasing. Through the Basic Act on the Advancement of Utilizing Public and Private Sector Data⁴, the fundamental concept as to utilization of big data possessed by the government, local public entities, and companies was set down for solving societal issues, and legal infrastructure is enhanced to a certain level in relation to the utilization of data, including “data related to individuals” on the basis that those data are appropriately handled under the Revised Personal Information Protection Act⁵. As a result, further acceleration of data utilization can be expected.

Under these circumstances, many new businesses have emerged and are changing industries and even the structures of industries themselves. For example, in C to C⁶ transactions, a new trend called “sharing economy” is occurring, where data on unused individual assets are matched with data on those in need, resulting in utilization of unused assets. In B to C⁶ transactions, an “ecosystem” is developing where high-quality services via e-commerce and other means are provided based on big data on consumption activities gathered from a massive number of consumers, leading to further use of the services by consumers and those data automatically snowballing. Furthermore, in B to B⁶ marketing, smart manufacture are materializing, by which high-quality products are produced through enhancing the manufacturing processes based on data on producers’ factories.

For manufacturers and product sales industries, recently, there is a growing shift in business models toward providing services from selling products. By these trends, acceleration of utilization of data by companies is expected in the near future.

While legal environment for utilizing data has been put in place to a certain degree and new businesses are now emerging, however, the scope of data

⁴ Established on December 7, 2016 and promulgated on December 14, 2016.

⁵ Act on the Protection of Personal Information, established on September 3, 2015, promulgated on September 9, 2015, and to be fully enforced on May 30, 2017.

⁶ B represents “Business,” C represents “Consumer,” B to B represents “Business-to-business,” B to C represents “Business-to-consumer” and C to C represents “Consumer to Consumer.”

utilization is still limited particularly because the measures for protecting data from unauthorized use are insufficient and public awareness of data utilization has not been fully fostered. Particularly, data generated in factories may contain ideas and know-hows directly affect competitiveness, thus companies are exceedingly cautious about releasing such data to others.

In certain conditions, of course, data sets for machine learning, data themselves consisting of these data sets, and data on latest technologies such as parameters in “trained models” which have undergone machine learning can be protected if the creativity of these works are acknowledged; they can be protected as patents if patent eligibility is satisfied and can be protected as trade secrets if the three requirements- (i) kept as secrets, (ii) useful, (iii) publicly unknown- are satisfied. However, it cannot be said that the scope of protection in the current system and the necessity for the future protections are clearly defined. In addition, contracts, the principal means of prescribing rights relationships among the parties involved in the current IP System, lacks appropriate model examples.

Some studies by the Japanese government precede in relation to data utilization. In March 2017, the Verification/Evaluation/Planning Committee in the Intellectual Property Strategy Headquarters undertook a comprehensive study on the ideal state of the intellectual property system that puts copyrights, industrial property rights and other intellectual properties into perspective, and set forth a direction aimed for promoting data utilization in ⁷. As to copyrights, a subcommittee in the Council for Cultural Affairs on the legal system and fundamental issues under the Copyright Subdivision have studied the appropriate ways of restricting copyrights with flexibility enough to address changes in society, such as technological innovation, and released an interim report in February 2017⁸.

⁷ 「新たな情報財検討委員会報告書ーデータ・人工知能（AI）の利活用促進による産業競争力強化の基盤となる知財システムの構築に向けてー（知的財産戦略本部検証・評価・企画委員会新たな情報財検討委員会、平成 29 年 3 月）。(only available in Japanese)
http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2017/johozai/houkokusho.pdf

⁸ 「文化審議会著作権分科会法制・基本問題小委員会中間まとめ」（文化審議会著作権分科会法制・基本問題小委員会、平成 29 年 2 月）(only available in Japanese)
http://www.bunka.go.jp/seisaku/bunkashingikai/chosakuken/pdf/h2902_chukanmatome.pdf

2. Industrial Property Rights System

(1) Features of Recent Inventions and Patents

In recent years, there is an increasing number of inventions that use software to combine information processing technology and networking technology with existing technology as well as inventions, which can be used across technological platforms, such as AI. In addition, the amount of patented technology that has to be used in order to achieve high-level, versatile products/services is also increasing. As a result, the number of patents contained in one product or one service is increasing.

As a consequence, on one hand, the royalty for each single patent right is reduced, but on the other hand, the influence of injunctions is increasing in the sense that products or services cannot be provided due to infringements of a single patent right. Furthermore, the costs required for licensing negotiations and the risks of unwittingly infringing on other people's rights are also increasing.

There are also more cases where components and implementing entities of the patented inventions cross national boundaries, due to globalization of networking and business activities.

(2) Emergence of New Technology and Businesses

Under the existing patent system, data that is regarded as presentation of information and that does not include any technical idea will not be the subject of protection whereas data that has a specific structure may become the subject of protection.

On the other hand, in order to utilize data for practical purposes, it is insufficient to simply share the data. The format of the data must be consistent and be suitable for processing in large quantities, all of which necessitate the creation of new data structures that addresses these points.

As a result of the progress in 3D printing technology, the chance of having items protected by patent rights or design rights being distributed in the form of 3D data is increasing.

Furthermore, the existing patent system adopts a scheme of protecting inventions by human beings on the assumption that human being conduct creative intellectual activities. However, it is anticipated that human involvement in creative intellectual activities will decrease with the improvement of AI in the future.

On the other hand, there is a chance of protecting business models, which

are the sources of new competitiveness, through patents, as business-related inventions. There was a boom in filing business-related inventions around the year 2000 but as some people misunderstood that genuine business methods could be patented, there was a time when only about 10% of applications filed were actually patented. As a result, it is possible that people still have the impression that business-related inventions cannot be patented. However, any business utilizing IoT that is directly related to actual physical “things” has the chance of being patents⁹.

(3) Environment Surrounding Standard Essential Patents (SEPs)

When information and communication technology connecting other products and services are incorporated into a wide variety of products with the progress of IoT, companies engaged in various types of businesses will use standard specifications in the field of information and communications. In this way, as standard specification in the field of information and communications constitute a part of public infrastructure, the number of users of SEPs indispensable to implementing the standard specifications will increase and their usage will become complicated.

In establishing standards, standardization organizations ask the related members whether there are any patents essential to implementing the standard (for SEPs). The members who possess the SEPs are required to submit a statement verifying this fact. In recent years, the number of the statements for each standard and the total accumulated number of statements are on the increase. As a result, the burden related to licensing in implementing the technology related to standard specifications has increased.

It is said that standardization organizations do not determine whether patents that were provided for licensing under FRAND¹⁰ terms in these statements are essential for implementing the standard specifications. Therefore, it is not clear which patents are truly essential for implementing the standard specifications. There is a report that states only about half of the patents that are declared under FRAND terms licensing are truly essential for the implementation¹¹. On the other

⁹ It is considered to have patent eligibility in Japan in the case where a specific information-processing equipment or its operation method are constructed by cooperation of software and hardware resources.

¹⁰ From the initials of “Fair, Reasonable and Non-Discriminatory”.

¹¹ Cyber Creative Institute, “Evaluation of LTE essential patents declared to ETSI Version 3.0” (June 2013) p.25 <http://www.cybersoken.com/file/lte03EN.pdf>

hand, due to statements not being submitted, there is a possibility that not all patent rights essential for implementing the standard specifications are understood by standardization organizations¹².

SEPs result in a higher rate of them being maintained for longer periods of time and transferred. The probability of SEPs becoming the subject of lawsuits is also high. Therefore, it is beneficial to obtain and maintain SEPs¹³. Meanwhile, the percentage of licensing fees that are awarded in patent infringement suits is low, which may be the reason for decreasing incentives for both developing standard technologies and establishing standards.

When looking at the breakdown of patent holders related to LTE¹⁴ that declared FRAND terms, Chinese or Korean manufacturers and NPEs¹⁵ which are entities that do not implement the patents they own rank high on the list¹⁶.

As SEPs have the characteristic of being unavoidable for business, there is an argument that the rights to demand injunctions should be restricted. In this regard, the IP Dispute Resolution System Review Committee of the Verification/Evaluation/Planning Committee in the Intellectual Property Strategy Headquarters pointed out that it would be appropriate to address individual cases since there is a risk of damaging the quality of patent rights if the rights to demand injunctions are uniformly restricted. Additionally, uniform restrictions could impede the incentives for standardizing technology¹⁷.

(4) Activities by Patent Assertion Entities (PAEs)

In the United States, patent disputes (filing lawsuits and demands with the

¹² According to the Draft of Revised Patent Law of China (December, 2015), SEPs are considered to be licensed for users of standards in the case where they do not disclose their own SEPs in the process of formulating standards, and the government decides license fees when negotiations end in failure.

¹³ Intellectual Asset Management, Issue 75, January/February 2016

¹⁴ From the initials of “Long Term Evolution”. LTE is one telecommunication standard for mobile phones, positioned as an intermediary between the third generation (3G) and the fourth generation (4G) of mobile phones, so LTE is also described as the 3.9 generation of mobile phones. Recently, telecommunication carriers have begun to describe LTE as 4G.

¹⁵ From the initials of “Non-Practicing Entity”.

¹⁶ Cyber Creative Institute, op.cit.

¹⁷ 知財紛争処理システム検討委員会報告書「知財紛争処理システムの機能強化に向けた方向性について－知的財産を活用したイノベーション創出の基盤の確立に向けて－」（知的財産戦略本部検証・評価・企画委員会知財紛争処理システム検討委員会、平成 28 年 3 月）44 頁。(Only available in Japanese)

http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2016/dai5/sankou2.pdf

Patent Trial and Appeal Board of the USPTO) are increasing and most of them are caused by NPEs. In many cases, NPEs file lawsuits based on high technology¹⁸. Among NPEs, the activities by entities known as Patent Assertion Entities (PAEs¹⁹) (so-called patent trolls) that conduct the business of exercising rights for the purpose of obtaining licensing fees and court settlements have become a systemic problem in the US. Although this business practice has not surfaced in Japan to the degree that it has in the US, there are reports of such instances in Japan²⁰. There are also reports that NPEs are filing rights claims based on SEPs in Japan²¹.

Furthermore, there is more pressure on IP departments of companies from management seeking to monetize their IP portfolio. In a survey concerning NPEs, a majority of responses stated that more companies were selling their patents²².

This provides reasons to expect that rights will become easier for NPEs to exercise due to technology becoming more advanced and software-based and an environment will develop in which it is easy for NPEs to buy patents from companies that need to increase profits.

It should be noted that of the NPEs, since the PAEs may exercise the right to demand injunctions in a way that deviates substantially from the original purpose of Japan's Patent Act, which stipulated the purpose of "contributing to the development of industry," there is an argument that the rights to demand injunctions should be restricted for such PAEs. On the other hand, the IP Dispute Resolution System Review Committee pointed out that it would be appropriate to address individual cases by carefully considering the balance between the patent holders and users²³.

3. International Standardization

At a time when the importance of "Connected Industries," which refers to

¹⁸ Unified Patents "2016 Patent Dispute Report"

¹⁹ From the initials of "Patent Assertion Entities".

²⁰ 「IoT等による産業構造の変化に伴い企業等が直面する知財制度上の新たな課題とNPEの動向に関する調査研究」(平成28年12月)、80～89頁 (Only available in Japanese)
https://www.jpo.go.jp/shiryou/toushin/chousa/pdf/zaisanken/2016_02.pdf

²¹ 「主要国における標準必須特許の権利行使の在り方に関する調査研究」(平成29年3月)、446頁 (Only available in Japanese)
https://www.jpo.go.jp/shiryou/toushin/chousa/pdf/zaisanken_kouhyou_h28/h28_report_07.pdf

²² "Intellectual Asset Management", Issue 78, July/August 2016

²³ Unified Patents, op.cit. pp.44-45.

industrial communities in which new added value is created through the implementation of IoT where all devices and items are connected via the Internet in the Fourth Industrial Revolution, the speed with which we can internationally standardize not only hardware fields such as devices or technology, but also the software fields that encourage the servitization of products, which creates new markets, will be a significant factor.

In order for Japanese industries to continue to maintain international competitiveness in the world, it will be extremely important to secure competitiveness using IP rights and know-hows, as well as contribute to discussions by sending standardization experts to international standardization meetings on de jure ²⁴ standards and forum/consortium ²⁵ standards, in cooperation across sectors with other countries from the examination stage of the business model, for connecting different products beyond business types and national borders.

Meanwhile, in Japan, international standardization activities regarding individual products/technologies have been led mainly by industry associations set up for each industry type. For new technical fields such as the IoT in the era of the Fourth Industrial Revolution, recently, in addition to proposals being made on various standards at international standardization meetings on de jure standards and forum/consortium standards, open-source platforms are discussed simultaneously. Therefore, it has become difficult to address these matters based on the Open & Closed Strategy utilized in the past, and it is becoming difficult for industry associations that were established according to conventional products/ technology to address these matters.

In order to continue to maintain superiority in international markets, companies need to regard international standardization as part of management/ business strategy and devote resources to the matter. However, at present, in many cases the management and business managers do not necessarily fully understand this importance and there are fundamental issues of standardization systems not being fully developed including due to qualitative and quantitative shortfalls in human resources that support international standardization due to aging of professionals and a lack of trained successors in companies.

²⁴ “De jure standards” indicates standards officially drawn up by public organizations with disclosed procedure.

²⁵ “Consortium/Forum Standards” indicates standards agreed and drawn up by private enterprises which are interested in specific fields.

III. Studies from the Cross-Industry Perspective

1. Utilization of Data

(1) Appropriate States of Data Protection under the Unfair Competition Prevention Act

<Current Situation and Issues/Items Raised>

In the Fourth Industrial Revolution where AI and IoT are implemented, collecting/utilizing data and developing related technology are the source of competitiveness for companies and are becoming increasingly important. On the other hand, it is pointed out whether if there are any clear advantages at present of providing data which are collected by companies and other entities to others.

In addition, if company's collected data and data analysis techniques are vulnerable to theft or abuse, incentives for providing data to others or investing in R&D for related technologies can easily decrease.

At the Study Group meeting, some pointed out that since data utilization is progressing due to the digitalization of information, the expansion of areas and ways of connecting to the Internet, and the enhancement of processing and analyzing capabilities, data themselves are now becoming a source of competitiveness for companies and worth protecting for these reasons. As for the ideal state of protections, there was a comment insisting on exclusive rights²⁶ for data generated in factories since those data include ideas or know-hows directly relates to competitiveness. Another comment goes as exclusive right itself could hamper data utilization if the scope overly expands, thus restricting acts of obtaining or stealing such data in bad faith or on purpose would be more effective because the scope of protections can be set with flexibility. It was also pointed out that some measures for the unexpected outflow of those data should be considered in advance. Furthermore, there were a number of calls for studies on regulating wrongful acts of obtaining data in bad faith to promote for data utilization by reinforcing legal protections for the safer data sharing. In addition, there was a reference to patent attorneys as IP experts that they are willing to support companies in promoting data utilization.

In Europe, a review on sui generis rights (special rights) for databases have

²⁶ 「新たな情報財検討委員会報告書ーデータ・人工知能（AI）の利活用促進による産業競争力強化の基盤となる知財システムの構築に向けてー（知的財産戦略本部検証・評価・企画委員会新たな情報財検討委員会、平成 29 年 3 月）19 頁。（Only available in Japanese）
[URL:http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2017/johozai/houkokusho.pdf](http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2017/johozai/houkokusho.pdf)

set in, to ensure appropriate access to data and to promote for the utilization of raw data eligible for IP rights acquired from machineries and tools. And other studies in Europe cover granting data-use rights, or official data-generation rights, for the major entities who have generated such data have. In regard to these considerations, some experts in Japan commented that granting exclusive IP rights might hamper the distribution of data and also stated that it may be better to consider behavioral-control approaches under the Unfair Competition Prevention Act when it comes to the illegal acquisition of valuable data²⁷.

<Future Initiatives Appropriate for Implementation>

For the smoother data utilization, it is important to ensure protections to encourage utilization and also to facilitate the data distribution in companies at the same time, so that the use of data is not excessively curtailed. In other words, the balance between protection and utilization is important. At the same time, consideration of the current shift in business models from selling products to providing services is also necessary. Specifically, the “Subcommittee on Protection and Utilization of Trade Secrets” under the Intellectual Property Committee of the Industrial Structure Council will continue to undertake studies and decide on the direction by the spring of 2017, in anticipation of revising the Unfair Competition Prevention Act in order to make it possible to compensate for damages or to demand injunctions against illegal acquisition or provision of data. The Committee is also studying the handling of the management information, by which data traceability is ensured.

At the same time, METI continues to raise awareness of trade secrets in Japanese companies by distributing handbooks on Protection of Confidential Information so that information and data companies keep as secret are protected without the need of non-disclosure agreements.

The Japan Patent Attorneys Association has proposed to support initiatives protecting data in companies. And patent attorneys will be further utilized as IP experts in advancing the use of data in companies.

²⁷ 「新たな情報財検討委員会報告書の概要」（知的財産戦略本部検証・評価・企画委員会、平成 29 年 3 月）10 頁。（Only available in Japanese）
http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2017/johozai/houkokusho.pdf

(2) Ideal Rules for Contracts on Data Utilization for the Industrial Sector

<Current Situation and Issues/Items Raised>

In addition to the situation described in (1), when it comes to companies handling data, neither standard business practices nor arrangements for sharing data have been firmly established to date. In addition, details on the rights to data utilization that are shared between companies through contracts have not necessarily advanced to the point where they are thorough and clear. That is to say, there are many cases in which the legality for granting authority to access and use data between companies has not been clarified, as any legality solely relies on the terms and conditions of contracts concluded between the concerned companies. In this regard, for many companies in Japan, the legality of contracts most often depends on the degree of strength of the relationship or the bargaining power of the individual contracting parties, and in many cases it doesn't have any fixed customs. There was a comment that in some cases, SMEs conduct business with other companies without concluding contracts. It was pointed out that some recent cases have emerged in foreign countries in which brokers are mediating between those who create and accumulate data and those who want to utilize the data.

<Future Initiatives Appropriate for Implementation>

It will be important to study the appropriate ways to protect data and to establish the best contract rules in accordance with the type of data, in line with the actual circumstances and methods of data usage and contracts concluded between companies. In addition, it will be necessary to formulate contract guidelines and contract templates²⁸ in order to decide on and clarify the use authority under contracts in an appropriate and fair manner.

2. Appropriate States of the Industrial Property Rights System for Data

(1) Clarification of Appropriate Handling of Data as the Subject of the

²⁸ 「新たな情報財検討委員会報告書ーデータ・人工知能（AI）の利活用促進による産業競争力強化の基盤となる知財システムの構築に向けてー（知的財産戦略本部検証・評価・企画委員会新たな情報財検討委員会、平成 29 年 3 月）17 頁（「(i) 民間の取組を支援するアプローチ(a) データ契約（規約等）上の留意点をまとめること」）(Only available in Japanese.)
http://www.kantei.go.jp/jp/singi/titeki2/tyousakai/kensho_hyoka_kikaku/2017/johozai/houkokusho.pdf

Industrial Property Rights System

<Current Situation and Issues/Items Raised>

In line with the popularization of IoT, data format as an intellectual property is growing in importance. This is because depending on the format, data will be able to ensure security, enable real-time processing, ensure traceability, ensure compatibility with the cloud, and optimize AI learning. This is especially true for the case of big data that is generated and collected for areas in which Japan is believed to have particular strengths. Regarding these areas of strength, there are some actions that should be taken to improve competitiveness, such as obtaining patents for these items, and proposals by Japan for the international standardization of these items.

Under the existing patent system, data that is regarded as presentation of information and that does not include any technical idea will not be eligible for protection under patent rights. On the other hand, data that has a structure will be eligible for patent-right protection when information processing, which is prescribed by the inherent structure of the data, is performed using hardware resources, since it falls under “programs, etc.,” under the Patent Act.

There are assumptions being made that new data structures will be created in line with future technological advances. It was pointed out that easy-to-understand guidelines should be created as to what specific data structures are necessary in order for them to be granted patent rights.

Furthermore, it was also pointed out that it will be necessary to pay attention to the effect that changes in systems and practices will have on the balance between protections for/from and utilization of technology.

<Future Initiatives Appropriate for Implementation>

Since the data structures are protected to a certain degree already under the Patent Act, based on the premise that the data structures satisfy the requirements for patentability such as novelty and an inventive step, the predictability of Japanese companies' obtaining patent rights for any new data structures, which will be created in line with future technological advances, will be improved by providing information in a timely and appropriate manner, so that the rights of the data structures will be appropriately protected from the perspective of promoting innovation.

In response to the direction of the studies²⁹ conducted by the Study Committee in December 2016, the JPO published case examples in March 2017 of data structures that fall under “programs, etc.,” which are eligible for patents under the Patent Act. We will continue to take user needs into account and provide information in a timely and appropriate manner in regard to this issue.

(2) Appropriate States of an IP System for Supporting Business Models Utilizing IoT

<Current Situation and Issues/Items Raised>

In line with the popularization of IoT, there has been an increase in patent filings for business-related inventions that connect “services” and “things”. However, it was pointed out that the public does not fully understand the actual examination practices being conducted on these inventions, and is not sure what types of inventions will or can be patented. In addition, the public doesn’t fully understand the significance of obtaining patents for these inventions. Meanwhile, companies that have obtained, and which are actually using patent rights for business models and software, state that the predictability of obtaining rights is high, and it is relatively easy to obtain comprehensive rights in Japan due to Japan’s patent system. Also, some users have requested that Japan extend its practices globally.

At a time when there is an increasing number of inventions that combine information processing technology and networking technology using existing technology, and inventions, which can be used across a cross-section of technological fields such as AI, users are requesting that examination practices and legal procedures dealing with these inventions be made more thorough and complete.

It was also pointed out that there is a need to develop a searchable database of IoT technology covering a cross-section of technical fields.

From the standpoint of SMEs, business is now focused on not products themselves but services that use the products. It was noted that there are cases of startups in particular, which need to obtain a number of patents in order for them to obtain funding from venture capital investors. As a result, obtaining rights for business-related inventions is advantageous in terms of making it easier for SMEs to raise funds.

²⁹ This Study Group (The 5th Meeting) , “Major issues and further direction of the Study Group” (Meeting Material 5)

It was also pointed out that it is necessary to pay attention to the effect that any changes to systems and practices involving these inventions will have on the balance between protections for/from and utilization of technology.

Furthermore, it was noted that Japanese companies need to pay attention to trends in different industries and different decision-making methods, and unforeseen business models and software which is patented abroad.

<Future Initiatives Appropriate for Implementation>

In order to enable Japanese companies to steadily obtain and utilize patents required for advancing innovation in business fields that utilize IoT, by the end of FY 2017 we will conduct a review to clarify examination guidelines and relevant documents on software-related inventions closely relevant to IoT and collect the use cases of patented business-related inventions that utilize IoT, enhancing the information provided on obtaining and utilizing rights, including by communicating the results both in Japan and abroad.

We will improve the quality of examinations by building patent examination systems within FY 2017, ensuring appropriate examinations using the knowledge of examiners well versed in IoT-related inventions that consist of a combination of a number of technologies that bridge technical fields.

Furthermore, the government should launch studies for the purpose of introducing systems regarding evidence collection procedures³⁰ in which courts can determine which documents are necessary for final submission by having the parties who possess the documents temporarily present such documents in the confines of in-camera procedures³¹, and in which neutral third-party technical experts can participate, in order to strengthen the dispute resolution system for various types of patents such as business-related inventions.

In addition, in order to be able to search IoT technology across a cross-section of technical fields, a new patent classification has been assigned to patent documents since November, 2016. In addition, that patent classification is going to be subdivided into further categories in the future.

(3) Clarification of Patent Rights Protections for Cross-border

³⁰ In this Report, “Evidence collection procedures” refers to evidence collection procedures prior to filing actions, and procedures for examining evidence.

³¹ Procedure in which only the court inspects submitted documents in order to prevent leaks of trade secrets.

Infringements

<Current Situation and Issues/Items Raised>

Due to advances in digital networks, Internet-based IP infringements have become more sophisticated and complex. As a result, cross-border infringements of all types of IP rights including digital content have increased, becoming more serious in nature. The Intellectual Property Strategic Program 2016 has demanded that more stringent initiatives be implemented to combat these infringements.

When focusing on the patent system, from among the various IP systems in Japan, there are problems, for example, with network inventions. This is because there are some services that are provided to domestic users by servers located overseas. In this case, at present, no court precedent has been set in Japan that explicitly acknowledges cross-border infringements involving network inventions³². Even if the patent rights had been granted in Japan for the technology for such services, it might be determined that infringements do not come under either direct infringements or indirect infringement due to the strict principle of territoriality³³.

In determining whether certain acts infringe patent rights under the Patent Act of Japan, the issue is whether the interpretation is flexible enough that it is possible to interpret that the “venue of implementation” of the patented invention is inside Japan, even if some component elements of the patented invention are implemented outside of Japan.

For this issue, one approach is to comprehensively take into account the “main place of the act” such as the place where a substantial part of the patented invention is implemented, or the “market venue” where profits are generated by utilizing the patented invention etc. The experts approved this approach.

On the other hand, it was pointed out that if the “venue of implementation” is flexibly interpreted in Japan, this may result in similar interpretations in other countries, and as a result of this flexible interpretation, there is a risk that Japanese companies and other entities might be accused of infringing patents in other countries. It was also noted that if only the “main place of the act” becomes

³² There is a prior case in Japan - “Internet Number Case” (IP High Court Case 2008 (Ne) 10085, Judgment on March 24, 2010) which authorized patent infringement concerning network-related inventions.

³³ There is a Japanese prior case in Japan - “Electro-deposited Image Case” (Tokyo District Court 2000 (Wa) 20503, Judgment on September 20, 2001) which strictly interpreted the principle of territoriality.

the criterion, infringements can be easily avoided. Therefore, the “venue of implementation” should be interpreted with the “market venue” to be the main factor of consideration.

As stated above, the experts approved the approach of taking the “main place of the act”, the “market venue” etc., into consideration comprehensively, flexibly interpreting the “venue of implementation” of the patented invention as inside Japan.

<Future Initiatives Appropriate for Implementation>

In the study, it was reconfirmed that the protection of patent rights against cross-border infringements be required by industry. The commission members affirmed that the above approach was reasonable. However, as stated above, there were few precedents found in Japan and available reference materials on this issue are limited at present. Therefore, the JPO will continue studies regarding cross-border infringements by researching the application of laws in other countries and future domestic court cases, following up on the development of network technologies and discussions under the Patent Act and other IP laws, in order to get a clearer picture of this issue. The JPO will also share information on the results of its research with the courts.

(4) Clarification of Handling of Inventions Created by AI in the Future in terms of Industrial Property Rights

<Current Situation and Issues/Items Raised>

AI technology is making significant advances, being utilized to process and manipulate a variety of information. The technical fields in which AI is being applied are also increasing. Additionally, in the human processes for creating inventions, the situations in which AI is applied will further increase. At present, the percentage of human involvement in the processes above is comparatively large, but it is anticipated that human involvement will decrease in line with advances in AI technology. It is important to determine potential issues which may arise in handling these inventions and in identifying which inventors are entitled to rights.

At present, from what we have heard from industry and academic experts, human involvement is still required for creation, and AI at this stage is not

expected to have achieved autonomous creation³⁴. Therefore, inventions created with the utilization of AI still are not capable of going beyond human creations. Therefore, we believe it is possible to appropriately protect creations under the existing industrial property system, without establishing special measures. It is also necessary to acknowledge that there were many comments stating that it is still too early to determine the best methods of protection in this field, since the future level of development of AI technology is still unknown.

On the other hand, in the discussions by this Study Committee, the point was raised that even if AI has not currently achieved autonomous creation, close attention must still be paid to future trends in AI technology. We need to anticipate that numerous applications which are enabled by the use of AI might be filed. We must not wait until it is too late to discuss methods of handling such numerous filings, i.e. until after they have already been filed. In addition, it was indicated that autonomous creations by AI may be achieved sooner in the fields of designs and trademarks than in the field of patents.

It was also noted that we need to pay attention to discussions on the relationship between AI and the real world both in Japan and overseas³⁵, concerning not only technical issues but also ethical considerations and responsibilities which should direct the activities of AI researchers and AI itself.

<Future Initiatives Appropriate for Implementation>

Currently, human involvement is required in creations utilizing AI. As a result, it is believed that existing laws will be sufficient to protect deliverables. The Committee will carefully pay attention not only to future trends in AI technology but also discussions conducted on the relationship between AI and our society in general in both Japan and overseas. When a new paradigm arises, i.e., the rise of AI capable of achieving autonomous creations, we will again review what form the proper system to deal with that situation should take.

(5) Clarification of Handling of Data Used for 3D printing in terms of

³⁴ Investigation from the report: 「AI を活用した創作や 3D プリンティング用データの産業財産権法上の保護の在り方に関する調査研究」(平成 29 年 2 月) (Only available in Japanese)

https://www.jpo.go.jp/shiryoku/toushin/chousa/pdf/zaisanken/2016_10.pdf

³⁵ For example, The Japanese Society for Artificial Intelligence has published “Ethical Guidelines of the Japanese Society for Artificial Intelligence” in February 2017.

Industrial Property Rights

<Current Situation and Issues/Items Raised>

It is assumed that in the future, 3D data is going to be produced by copying or scanning objects that independently have patent rights or design rights, and only the 3D data would be distributed to the market. 3D printers may allow individuals to personally make copies using such 3D data. Under this circumstance, it is uncertain whether industrial property rights holders for products have the legal rights to file lawsuits for indirect infringements against 3D data creators or 3D data distributors.

Since the 3D data that is used for manufacturing objects with 3D printers contains the data for operating the printer, and most likely that 3D data provides “directions” to 3D printers, such 3D data will fall under “programs, etc.” as defined in the Patent Act. That is, 3D data is regarded as a “Product.” “Products” used for producing objects already protected under the Patent Act fall under indirect infringement and therefore as long as 3D data is considered to be “programs, etc.,” it is possible for the rights holders to charge the creators or distributors with indirect infringements.

Taking into account the fact that analog blueprints were not given protection under industrial property rights laws, this Study Committee pointed out that the issue of whether 3D data falls under “programs, etc.” needs to be carefully studied. It was also noted that even if rights are considered to be “allegedly infringed”, we also need to study whether any of these “alleged infringements” are able to be evidentially affirmed.

<Future Initiatives Appropriate for Implementation>

If it is determined that 3D data gives “directions” to 3D printers to manufacture objects and thus falls under the category of “programs, etc.”, then it is possible to give it protection as a “Product”. In addition, it will be regarded as capable of becoming an object of indirect infringement. However, data that merely indicates three-dimensional shapes of objects in coordinates is also sometimes called 3D data and such data does not give “directions” to 3D printers. Therefore, it does not fall under “programs, etc.” The JPO added case examples in its Examination Handbook, revised in March 2017, in order to clarify when 3D data falls under “programs, etc.” and when it can be protected as inventions of a “Product”. Nevertheless, going forward, the Committee will study what actions are to be taken when the need to respond to this issue becomes more significant.

(6) Quick and Reasonable Settlement of Disputes over Various Patents Including SEPs

<Current Situation and Issues/Items Raised>

The number of patents constituting standard patents is increasing, while the possibility of third parties recognizing all the patent rights related to the standards when the standards are set is increasing. Due to this situation, in addition to a diminishing number of patent pools being created, the costs required for negotiating patent licenses and settling disputes is increasing. It was noted that it has become difficult for companies, especially SMEs, to launch businesses in industrial fields where large numbers of patents are involved. With the future popularization of the IoT, various kinds of industries and businesses such as the automotive industry, which until now seldom used standard specifications in the field of information and communications, will start to use the standard specifications in this field. This may result in increasing costs for using patents for society as a whole.

There is a concern that, in line with the popularization of IoT, if a large number of disputes arise over patent rights which are necessary for implementing standards that form the basis of public infrastructure, such disputes will have a harmful impact on the economy and industries. It was pointed out that companies, especially those such as SMEs that might encounter difficulties in negotiating and dealing with lawsuits.

<Future Initiatives Appropriate for Implementation>

It will be necessary to take initiatives to deal with SEPs, which will become part of public infrastructure in line with the popularization of IoT. We will need to find ways to reduce the costs of licensing negotiations and settling disputes that may hinder the smooth use of the SEPs.

First, the government will consider introducing an ADR system (licensing award system for SEPs) designed to deal with disputes on licensing of SEPs, which have a significant influence on society. Under this system, government will work on disputes between patent holders and possible licensees based on request by the latter, when the parties cannot reach agreements on licensing, deciding appropriate licensing fees of SEPs with due care of not unfairly harm the interests of the patent holders. In designing the system, the government will need to conduct studies with due consideration for problems related to PAEs, on which standards other than de jure standards and which SEPs other than declared

SEPs with FRAND terms should be in the scope of the system, and on what requirements to be appropriate for establishing the licenses.

Second, in order to speedily and reasonably settle disputes over various patents when agreements cannot be reached on licensing between patent holders and users or when disputes over infringements of rights occur, it will be necessary to consider setting up an ADR system (mediation) that is related to the current system, which is especially user-friendly for SMEs, in order to settle disputes over license agreements and patent right infringements. When designing the ADR system, it should be paid enough attention to the demarcation with existing private ADR organizations.

The Patent System Subcommittee under the Intellectual Property Committee of the Industrial Structure Council will conduct specific studies on revising existing laws for the above-mentioned system in order to come to a conclusion by the end of FY 2017. Furthermore, taking into account the global changes in industrial structures, including the popularization of IoT and the abuse of rights by PAEs, the government should consider significant promotion of this system overseas through various opportunities such as international meetings with foreign IP offices.

3. Appropriate states of IP System and HR Development for Advancing International Standardization

(1) Advancing Cross-sectional Projects Using Standardization Systems for Creating New Markets and Using National Research and Development Agencies

<Current Situation and Issues/Items Raised>

Studies on international standardization are already being conducted in ISO/IEC and other such forums and consortiums as a result of the growing importance of “Connected Industries” in line with the Fourth Industrial Revolution. These studies are not only focused on the hardware field involving individual products and technology but also on the software field that involves creating new markets through various strategies including servitization.

Under these circumstances, there is a growing importance for the public and private sectors in the software and service fields such IoT to respond to and strengthen the standardization system, as well as to develop human resources capable of supporting such standardization.

The Study Committee pointed out that if activities to achieve standardization

are not conducted in tandem with studies on business models, Japan cannot compete with other countries in terms of the speed of making rules. Furthermore, the focus of activities for achieving standardization has changed, from one in which de jure standards were established, to one in which forum/consortium standards can quickly be established. In addition, for Japanese companies to acquire international standards, it is important not only for them to participate in international conferences on standards but also to work and collaborate with persons involved in standardization in foreign countries from the very start when standards are first being established.

It was also pointed out that in order for Japanese companies to compete with companies in other countries, their management-level executives and business managers need to recognize the importance of international standardization activities and include such activities in their management and IP strategies by allocating sufficient resources for this purpose.

In the past, the majority of activities conducted to establish standards were conducted in either the hardware sector for things such as products and spare parts or in the fundamental sectors. Now, however, we see that activities to establish standards are on the increase in cross-sectional fields such as public systems that include servitization in the software field. The focus of standardization activities in fields that are experiencing rapid technological advances has changed from de jure standards to forum/consortium standards.

As a result, various forums and consortiums are proposing standards for transdisciplinary fields that cover multiple industrial associations that include both software and systems such as the smart manufacturing field. This gives rise to issues with standardization that will be difficult to respond to, because industrial associations in Japan have traditionally been set up on a product-by-product basis.

<Future Initiatives Appropriate for Implementation>

In order to advance standardization, it will be important for both the public and private sectors to strengthen the standardization system by keeping a close watch on and gaining an understanding of trends not only in de jure standards but also in consortium standards.

Specifically, it will be necessary to make use of the “Standardization System for Creating New Markets” that establishes standards suitable for leading companies and to make use of National Research and Development Agencies

such as the National Institute of Advanced Industrial Science and Technology that have superior, state-of-the-art technology. This is necessary in order to propose initiatives that can be implemented as cross-sectoral projects. For example, in the smart manufacturing field, this means advancing international standardization with a full understanding of what is being discussed in related forums/consortiums, building reference models, conducting studies on the appropriate format for data, and cooperating with foreign countries such as Germany.

(2) Strengthening Initiatives regarding Developing Human Resources for Standardization Based on Academic-Private-sector-Governmental Collaboration

<Current Situation and Issues/Items Raised>

In addition to what has been stated in (1) above, not only Western companies but also Chinese and Korean companies recently are utilizing international standardization as a means of expanding their business markets. While the global business environment has become even more competitive, it is increasingly important for companies to have a working understand of IP and standardization and develop human resources that will work on standardization as a business strategy. On the other hand, there are still many companies in Japan that have not positioned international standardization as an element of their business strategies. In addition to that, there are other issues such as the rising ages and overall shortage of professionals engaged in standardization.

As a result, the Study Committee pointed out the importance to companies faced with this situation of first deepening their understanding of international standardization. Furthermore, such companies need to systematically development human resources based on private-sector/governmental/academic collaboration by assigning dedicated executives specialized in standardization, making use of former employees' expertise, developing human resources from junior employees, and gaining more thorough support from support agencies. On the other hand, it was also pointed out that developing human resources does not achieve immediate results, so it is important for companies to ensure that they have flexible approaches overseas in terms of developing human resources in standardization.

<Future Initiatives Appropriate for Implementation>

In light of the importance of developing human resources for standardization,

in June 2016, a Standardization HR Development WG was set up under the “Standardization Strategy Meeting by Academy, Industry, and Government.” In January 2017, “Three Action Plans for the Development of Human Resources for Standardization” were formulated by the WG. In the future, we will strengthen the initiatives for developing human resources in standardization based on these Action Plans.

Specifically, we will divide human resources for standardization into (1) management personnel in charge of creating strategies for rules, (2) standardization experts; and (3) personnel that will support standardization. The tasks that private companies should initiate immediately in developing standardization experts to take the leading role in standardization activities in Japan are (1) to deepen the understanding of standardization by management and business managers, (2) to clarify the organization and personnel evaluation system, and (3) to create and implement an HR development plan. This refers to Japanese entities taking leading roles in standardization activities. In particular, this means managerial-level standardization managers and business managers, and governmental agencies and associations that support corporate standardization activities such as the Japanese Standards Association, industry associations, universities, and National Research and Development Agency. For example, in discussions with private companies, we will encourage them to set up a Chief Standardization Officer (CSO), collaborate with the government in deepening the understanding of standardization by management and business managers, create HR development plans led by the CSOs, and implement the plans utilizing the initiatives of governmental agencies and associations.

The initiatives include the government gathering information such as information on de jure standards, forum standards, and regulations in foreign countries. This is necessary to establish strategies for making rules and strengthening the system, i.e., strengthening the rule intelligence function. The Japanese Standards Association will set up a new qualification system for formulating and utilizing specifications designed for different levels of human resources in standardization. In addition, new training courses on strategies for rule-making in every industry will be set up through collaboration with a number of universities based on academia-industry collaboration. Also, the National Research and Development Agency will participate in further standardization activities.

We have started to see a trend in the Fourth Industrial Revolution, where

companies are making use of their IP department to set up standards and handle data. In this regard, patent attorneys also, who are specialists in IP, are expected to play a greater role in standardization. The Japan Patent Attorneys Association has indicated that it will have patent attorneys conduct more standardization work in the future. Based on this we will consider establishing legal procedures to more specifically clarify the work and roles of patent attorneys.

IV. Studies from the Perspectives of Individual Industrial Fields

The Study Group chose the three fields of Manufacturing (robotics field), Mobility (automobile field) and Health, Medical, and Nursing Care (medical care/nursing/biotechnology field) from the fields that were considered as leading fields in the “Interim Report for the New Industrial Structure Vision” and conducted studies from the three perspectives of data, IP, and standardization in addressing the changes in the industrial structure developing under the Fourth Industrial Revolution.

1. Manufacturing etc.

<Current Situation and Issues/Items Raised>

For the moment, Japan’s manufacturing industry has secured the world’s top level market share for end products such as robots and machine tools, as well as key parts such as sensors and actuators. However, in various foreign countries, strategic projects aimed at servitization and providing solutions through digitalization of manufacturing, such as Industries 4.0 in Germany and Industrial Internet Consortium in the US are in progress. Japan cannot be optimistic about its competitive advantages for the future. Therefore, Japan needs to maintain its historical manufacturing competitiveness and address the networking and digitalization of the entire manufacturing process in order to advance under the Fourth Industrial Revolution.

The Study Group first shared the understanding that the importance of data exchanged between machine tools in factories and between factories beyond the frameworks of companies is increasing. They indicated the importance of creating rules for data handling that take into account the balance between smooth utilization of data and its protection, international standardization of data formats for data storage, and IP protection for promoting the creation of business models.

<Future Initiatives Appropriate for Implementation>

Based on the abovementioned perspectives, in addressing the networking and digitalization of factories beyond the framework of companies that is progressing under the Fourth Industrial Revolution, we should aim at building an IP portfolio that takes into account business models.

In the manufacturing fields including the robot industry, data utilization may

become a source of competitive advantages for companies at a time when networking and digitalization beyond the framework of companies is progressing. Therefore, studies on the ideal form of data protection and rules such as contracts should be made by fully reflecting the actual conditions of the industry.

Furthermore, promotion of international standardization on data formats for networked factories should be made by improving the standardization system across business types through using the National Research and Development Agency.

2. Mobility

<Current Situation and Issues/Items Raised>

In the automobile field, with the market environment in which the importance of connected technology and autonomous driving technology is increasing, development of communication technology that connects cars with various items and devices and safe traveling technology that analyzes the surrounding environment using AI are necessary for Japanese companies to lead the world in the autonomous driving field. Creation of businesses in fields other than automobiles by utilizing data obtained from cars based on connected technology is also anticipated.

In the Study Group, at a time when work in the automobile field is becoming increasingly software-based, the cooperation between different businesses including IT companies was first reported in the automobile industry. Then, from the perspective of advancing cooperation between companies, they raised strategic involvement in international standards related to autonomous driving and the need to secure personnel for that purpose. And due to the increasing importance of data obtained from cars, they reported on a trend of formulating platforms to utilize the data. The necessity for making rules that take the balance between protection and promoting utilization into account, aimed at smooth data utilization, was mentioned.

<Future Initiatives Appropriate for Implementation>

Based on the abovementioned perspectives, there is demand in Japan's automobile industry for reflecting the domestic and international trends of business models and software-related patents in the IT industry with different commercial practices and for formulating IP strategies that contribute to promoting each company's business models.

In addition, there is a demand for rules that reflect the balance between promoting utilization and protecting data that takes efforts for accumulating data by preventing wrongful use of data obtained from cars by third parties other than the contract parties into consideration.

Furthermore, in considering formulating international standards in the automobile field including for autonomous driving, development must advance on business infrastructure, including securing experts who will engage in standardization activities.

3. Health, Medical Care and Nursing

<Current Situation and Issues/Items Raised>

In response to the progress of aging and expansion of markets in emerging countries, the demand for quantitative and qualitative improvement of medical care and nursing equipment is on the and streamlining of medical care is also highly anticipated. For development of new drugs, with the diversification/dispersion of platforms and necessary areas of research, the success rate of development is decreasing annually, so that streamlining and acceleration of development of new drugs are in high demand.

The Study Group reported on case examples of cooperation with different businesses centered on IT companies and with academia as well as R&D case examples of medical care/nursing equipment and movement toward streamlining and acceleration of development of new drugs. And taking consideration of the possibility that advanced medical equipment will incorporate advanced digital medical technology, the importance of protecting the data in that medical technology and the technology itself were pointed out. Furthermore, from the perspective of effectively using clinical data, the necessity of a mechanism to promote cooperation between companies and academia, the necessity of international standardization of data formats and IP protection were also referred to.

<Future Initiatives Appropriate for Implementation>

Based on the abovementioned perspectives, it is essential to prepare for the increase in applications for inventions of medical equipment that utilizes AI and IoT-related technology and to clarify the criteria for their patentability and work on predictability. In this regard, in September 2016 and March 2017 we published case examples related to criteria on patentability for inventions of AI and IoT-

related technology including case examples that applied to medical equipment. We will continue to provide information in a timely manner by providing these cases to the IT industry and academia which are expected to further cooperate with the medical equipment industry (in addition to the medical equipment industry itself).

Furthermore, taking importance of protection of data in medical care technology into account, we will study the ideal form of data protection between businesses and rules included in contracts by objectively analyzing the actual conditions of the medical equipment industry.

Japan should actively advance international standardization in clinical data acquisition and data formats in cooperation with foreign countries, taking the situation of the industry into account.

V. Studies from the Perspectives of Small and Medium-sized Enterprises (SMEs) and Startups

The Study Group undertook a study on the support required by SMEs and startups for conducting business involving the Fourth Industrial Revolution.

<Current Situation and Issues/Items Raised>

With the advance of the Fourth Industrial Revolution and IoT, transactions with businesses surrounding SMEs and startups are also changing. On the one hand, SMEs and startups are able to expand their business globally through use of data and standardization, but on the other hand, the risk of suddenly being faced with IP problems is increasing.

With the changing circumstances in business environments surrounding SMEs and startups, it was pointed out that SMEs and startups may not be able to obtain patents necessary for business that correspond to IoT both in Japan and internationally, and that at a time when open innovation is developing under the Fourth Industrial Revolution, SMEs and startups are not aware enough of the importance of IP as means of protecting the closed areas of their companies in the Open & Closed Strategy. In addition, there was demand for improving the user friendliness of various support systems such as grants for foreign applications, including simplifying procedures.

Furthermore, the Group raised the fact that the majority of key technologies that impact society were invented by SMEs and startups in the past. From the perspective of Japanese companies acquiring technical competitiveness and expanding their markets, the importance of promoting standardization of technology possessed by SMEs and startups and utilizing technology possessed by one company between large companies and SMEs was raised. The experts expressed awareness that promoting cooperation between large companies and SMEs and startups was essential.

In addition, on the one hand, some SMEs and startups are not ready to address digitalization, while on the other hand, some SMEs and startups are addressing digitalization, and the groups are classified into those that provide services by utilizing digitalization and those that make use of the provided services. In this way, the situation surrounding SMEs and startups are different depending on the company and therefore the need to take the actual state of each company's situation into account in providing support in addressing the

Fourth Industrial Revolution was pointed out.

<Future Initiatives Appropriate for Implementation>

In order to address the changes in business environments caused by the Fourth Industrial Revolution and IoT, SMEs and startups need to promote IP strategies and further acquire IP rights and utilize the rights.

Meanwhile, the JPO formulated the “Action Plan for Regional Intellectual Property Revitalization” in September 2016. Based on the Plan, the JPO is implementing dissemination and awareness-raising activities for the IP system and related support measures as well as providing information and various consultation and support programs. Of these initiatives, comprehensive support on obtaining patents in both Japan and overseas, and support for expanding business overseas, from consultations and filing of applications to infringement measures support the activities of SMEs in a new environment. The JPO will continue to promote the utilization of support initiatives while taking each company’s situation into account.

We will support market expansion by realizing prompt standardization using the “The New Market Creation Standardization System” for superior technology possessed by SMEs and startups.

In addition to these initiatives, as part of the initiative for promoting cooperation between SMEs, startups and large companies, we will utilize the “Project Sending Business Producers to promote Regional Revitalization” to advance matching IP between large companies and SMEs as well as to promote IP business matching that uses information on regional companies possessed by financial institutions.

It is essential to have the awareness of the concept of trade secrets in companies and to raise the awareness of compliance for both SMEs, startups and large companies for cooperation between them. Therefore the JPO will continue to conduct consultations on notable points for SMEs and startups in cooperating with large companies and concerns that they face during such cooperation at Comprehensive IP Support Counters to support these SMEs and startups. Furthermore, to prevent the leakage of trade secrets from SMEs and startups to other companies, we will disseminate the practice of protection and management of trade secrets by providing information on the systems included in the Unfair Competition Prevention Act and the Protection Handbook to SMEs and startups. The appropriate state of data protection and rules including

contracts will be studied while taking the actual conditions of SMEs startups into account.

When large companies have remarkable achievements such as accomplishing international commercialization of SME and startup technology through their cooperation, these facts will receive positive attention and will be reflected in their selection for “IP Distinguished Services Award.”

Through these initiatives, progress in creating a positive environment where the cooperation between SMEs and startups and large companies is common, is expected to occur.

VI. Next Steps

The results of the studies by this Study Group is expected to be included in the “Intellectual Property Strategic Program 2017” and the “Japan Revitalization Strategy 2017.” For initiatives that can be implemented quickly, it would be appropriate to continue the studies in the Patent System Subcommittee including the decision for law revisions, so that conclusions can be reached during FY 2017.

In addition, in view of the fact that the changes in the industrial structure accompanying the Fourth Industrial Revolution is a global phenomenon, it is expected that the results of this Study Group and following studies will be spread overseas.