ISSUES

New Intellectual Property Supporting Digital Transformation

Vital Knowledge and Strategies for Data Utilization

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A fourth industrial revolution is about to begin, due to the development of technologies such as the IoT and AI, which enable high-level productivity improvements, acquisition of new knowledge, and value creation through data utilization. In data-driven businesses based on these technologies, effective data utilization among stakeholders is the key to success, and consequently unprecedented issues related to data utilization and protection are arising. In this article, Professor Toshiya Watanabe of The University of Tokyo and Yuji Toda, General Manager of Hitachi, Ltd.'s Intellectual Property Division share their opinions and insights regarding new intellectual property strategies in response to the challenges associated with digital transformation.

The Growing Importance of IP in a Broad Sense that Includes Data

Toda: Hitachi is promoting its Social Innovation Business, which provides new value through information technology (IT) × social infrastructure and solves challenges faced by customers and society. These efforts are consistent with Japanese government policies aiming to realize a "super smart society" through its "Society 5.0" initiative. Society 5.0 can be considered a fourth industrial revolution that aims to realize digital transformation through the use of artificial Intelligence (AI) and the Internet of Things (IoT), and similar movements are progressing in the West. The Japanese government considers expertise and knowledge related to intellectual property (IP) to be important for Japan to maintain and strengthen its industrial competitiveness.

Professor Watanabe, you have been appointed as the chair of several national committees on IP, such as the Planning Committee of the Cabinet Office's IP Strategy Headquarters. What kind of IP do you consider to be key in this new social movement called the IoT era?

Watanabe: I believe that IP in a broad sense that includes data is becoming increasingly important. In data-driven businesses that use AI and the IoT, data collection ability is a competitive advantage, so businesses aim to acquire the rights to utilize as much data as possible through contracts with companies and individuals.

Data in some forms can be protected as a compilation copyright or as a trade secret. However, generally speaking, data are not subject to IP rights that basically give exclusive rights to creators who create intangibles through intellectual activity. However, it is important that de facto IP rights arise through contracts.

Phrases like "data IP" and "data ownership" have come into use in response to such new phenomena, but their meaning is vague. Data IP is not an absolute right, making it difficult to apply to concepts like traditional ownership. For example, do sensor data belong to the person who installed the sensor or to the person who generated the data? There's probably no clear answer to that.

That's why, basically, stakeholders respond by setting up some kind of relationship of rights and obligations concerning data. When doing this, it's important to consider how to facilitate data utilization in a reasonable and appropriate way.

The Expanding Role of IP Departments

Toda: Hitachi also believes that IP will play a major role in accelerating collaborative creation with its customers and in becoming an innovation partner for the IoT era through its evolving Social Innovation Business. In the past, IP departments have promoted a "competitive IP strategy" by creating barriers to entry with IP rights such as patents. In addition to this, we are now focusing on "collaborative creation IP strategies" that promote partnerships through appropriate handling of IP in a broader sense, including knowledge gained from data and analysis, together with collaborative creation partners.

Watanabe: That's quite an innovative initiative. Many companies have not yet decided which departments will deal with issues related to rights and obligations concerning data utilization. However, such things are likely not well understood in departments such as sales, so I think that IP departments should handle it, even in cases of crossover with traditional IP frameworks. There are also horizontal connections across IP-related organizations, so in the future it will be necessary to share knowledge and case examples via those connections to consider together how to deal with new issues in data IP that go beyond corporate boundaries.

Toda: I completely agree. At Hitachi, the Intellectual Property Division began to quickly examine how IP contributes to data-driven businesses. Apparently, such moves seemed confusing from the outside, making people wonder exactly what our aim was, but recently we've attracted attention not only domestically, but also from European and American companies.

Normally, various stakeholders are involved in the process of collecting and analyzing data and creating new value and solutions based on the knowledge gained from it. Promoting this process is important for success in our Social Innovation Business, so we have launched a "Social Innovation Intellectual Property Department" within our Intellectual Property Division.

As an easy-to-understand example of such activities, we can support business contracts that utilize data with customers. In the past, there were cases where sales departments did not properly confirm data rights, even if they were specified in the contract. Now the Social Innovation Intellectual Property Department can intervene to contract with customers in order to enable the necessary degree of freedom in data utilization and the lateral development of new solutions created as a result, thereby contributing to business promotion.

IP Management Integrated with Business Strategy

Toda: In digital business based on collaborative creation with customers, along with an open data collaboration environment, we need AI and security technologies to support it. From the viewpoint of IP management, an **"open-and-closed strategy"**[(a)] targeting not only technology-related IP, but also IP in a broad sense, such as knowledge born from data utilization, will be necessary. What do you think?

Watanabe: To data IP as well, ideas similar to the open-and-closed strategy such as patents and black-boxing might be applied. For example, there are services that collect, analyze, and provide data on sports like baseball and soccer. The

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data that can be acquired from the game are open, but the analysis results and obtained findings can be black-boxed and protected. I think that this knowledge can be used in successful business models, such as customizing processing of information for teams, the media, or fans.

Things may be different in the case of industry-related data, but various models can be considered, such as changing the range and scope of data utilization depending on the partner, and black-boxing or licensing data-processing methods. In any case, there is a need for precise IP management that integrates with the business strategy. To succeed, I think the only choice is to accumulate experience and learn while doing.

Toda: I agree. In Hitachi's business, too, we process data that we receive from customers, and return value created through data processing. If we do a good job we'll enter into a positive feedback loop in which we receive more data, allowing us to further improve the skills and tools that we use for processing. As we continue to establish these sorts of models in the future, we expect to be able to gather and explore further examples of open-and-closed cases.

Watanabe: A key point will be management that incentivizes data providers to provide more data by showing them the advantages of doing so.

New IP Resulting from Actively Disseminating Information as Another Form of Collaborative Creation

Toda: IP management in the IoT era requires not only strategies, but also innovative changes in human resource requirements and organizational systems because it is required to share IP strategies and manage IP risk among all departments, including sales, consulting, and engineering, that are involved in the collaborative creation process.

Watanabe: Yes, there will be a need for people with expertise beyond management strategy and advanced technology—people who understand IP law, legal issues such as copyright and **the Unfair Competition Prevention Act**[(b)]. They also need the ability to apply various resources to business models to solve challenges—the resources include not just patents, but also data IP and related assets brought about through collaborative creation. I think it is important to nurture diverse human resources so that these competencies can be assembled in a team, because it's unlikely that there will be many individuals so talented as to have all of these competencies.

Toda: In our Social Innovation Intellectual Property Department, about 50 people are working in various teams, but in a sense, this is considered a kind of social experiment, where we're searching for new ways to cultivate human resources. Knowledge can be obtained from the academic literature, but the ability to find solutions to challenges can only be learned from actual cases. For that reason, Hitachi is conducting detailed case studies within the company, and conducting group discussions that will allow us to accumulate expertise and knowledge that improves our ability to provide optimal solutions.

Watanabe: I think that is an excellent approach. In addition to upgrading skills in those departments, it is important to communicate within the company that the role of IP departments is changing, that new human resources are necessary, and that personnel in other departments also need to have an IP sense.

However, there are limits to human resource development in any one company. At the University of Tokyo Policy Alternatives Research Institute, we started the Strategic Task Force Leader Training Program in 2015. We invite students to the program not only from company IP departments, but also from business planning and operations, to build business strategy models for the IoT era, and we're providing programs for acquiring knowledge and skills such as IP management that support it. Expanding human resource development in a manner that transcends corporate and industrial boundaries in ways like this is an issue that industry and academia should consider together.

Toda: The government and universities are actively studying IP measures and IP management for the IoT era. As part of this industry, Hitachi believes that accumulating use cases of advanced IP management and producing policy studies and research are part of our contribution toward the IP side of realizing digital transformation, and we are also actively disseminating information outside of the company.

Watanabe: We've shifted from an era where competition was based on only the number of patents to one that requires IP strategies including contracts, and as the role of IP departments expands, there will be increasing attention on the advanced approaches of Hitachi's IP departments. I think that learning by other companies to enable negotiations with the same attitude and at the same level of knowledge is important for improving the competitiveness of Japan as a whole.

Yuji Toda
Joined Hitachi, Ltd. in 1982, registered as a Japanese patent attorney in 1989, and became President of Hitachi Techno-Information Services, Ltd. in 2004. He was appointed as Deputy General Manager of Hitachi's Intellectual Property Division in April 2015 and has held his current position since April 2017. Other appointments include serving as a member of the Patent System Subcommittee, Intellectual Property Committee, Industrial Structure Council, and as a member of the Intellectual Property Strategy Headquarters' Verification, Evaluation, and Planning Committee (New Information Goods Review Subcommittee).

I hope that Hitachi will continue to propose services utilizing the IoT and AI in a socially acceptable manner. This will require management resources that function within various business ecosystems, and IP in a broad sense occupies an important part of those management resources. I hope you will engage in collaborative creation with partners not just in business, but also in terms of new forms of IP.

Toda: I hope that Hitachi can play a part in that. Your comments have reaffirmed the importance of IP in the IoT era. Thank you very much.

(a) Open-and-closed strategy
A strategy that aims to increase profits by separating IP such as patent rights and expertise possessed by companies into those that will be provided to other parties (open) and those that will remain protected (closed). Open strategies include disclosure, licensing, and standardization, while closed strategies include confidential or monopolistic practices.

(b) Unfair Competition Prevention Act
A law that protects fair market competition among business operators. It regulates acts leading to product confusion such as similar forms or trade names, theft of trade secrets or expertise, and removal of copy protection. While the Patent Act, the Utility Model Act, the Copyright Act, and other laws establish individual rights and exclusively protect them, the Unfair Competition Prevention Act prevents acts of IP infringement by providing protection for a wide range of IP rights that those laws do not cover.