

11 Technical Standard-Setting and Patent Pooling, and Competition Policy

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When two or more inputs are essential in goods-production and they have become property rights and are separately possessed by different companies, companies producing goods have to conclude license agreements with the two or more holders of the relevant property rights. However, there is the possibility that goods-production will be suspended due to the occurrence of hefty transaction costs, a refusal to license, etc., which causes the "tragedy of the anticommons." This causes especially serious problems when technical standard-setting and intellectual property rights are combined. It is the patent pool that has been attracting attention as a solution to this tragedy in recent years. Both technical standard-setting and patent pooling in fact cause various potential competition policy issues. This research considers relations among "technical standard-setting, patent pooling, and competition policy," from various angles.

Chapter I "Standardization" attempts to conceptualize the standards and standardization. "Standard" in this report is defined as "that which is voluntarily adopted as a collective preprocessing to reduce uncertainty in repeated interactions between humans and between technologies and cut transaction costs," and "standardization" is defined as a "process of building a collective consensus to set the standard." Standardization is not always a purely technical process, and the standard created by standardization does not always need to be the technically best option. The standard has to be understood as a result of compromise among relevant stakeholders who have different interests, and therefore, what is first important in analyzing standardization is to recognize that standardization depends on the conditioned technical, commercial, legal and regulatory contexts as well as what (subject to be standardized) is standardized when (timing of standard-setting) and by whom (standard-setting body). The final report discusses various aspects of the standard and standardization on the basis of such awareness of the issues. The aspects of the standard and standardization to which special attention is attached are standard as an institution, standards as public goods, standard as an alternative to public regulations, standard as a technological infrastructure, standard as a dominant design, standard as architecture, standard as a corporate organization, community-specific standard, standard as a carrier of technical knowledge, standardization as a technical diplomacy, and standardization as a means of forming the perception of technology. For details of these aspects, see the final report. "Standard as an institution" and "standards as public goods" are described very simply here.

First of all, regarding "standard as an

institution," an institution is that which provides the structure for various exchanges in society and determines the costs of transacting. Behind the formation of an institution is the purpose-to reduce uncertainty by stabilizing economic transactions and increasing predictability and to promote economic transactions by realizing lower transaction costs. The process of its formation and maintenance is essentially collective. This resembles the purpose and formulation process of the standard. Next is "standards as public goods." It has been argued for a long time that the standard corresponds to the concept of public goods, which is defined by non-competitiveness and impossibility of exclusion. However, there are also deep-rooted criticisms against this argument. After organizing and reviewing major arguments of both sides, the final report concludes that the standards are neither complete public goods nor complete private goods and that it is appropriate to position the standards as "quasi-public goods." Specifically, the standards serve as private goods in the sense that they have excludability to a certain degree in its use, but they also serve as public goods in the sense that their consumption involves little competition.

The final report discusses standardization by classifying it into the following four methods based on "difference in the process." The first one is the method in which the standard is set by law or public regulations and compliance with the standard is compulsory. Specifically, the central government sets and declares the technical standard and makes compliance compulsory in a top-down way, as a policy means to achieve some sort of public policy objectives, such as promotion of public interest including public health and safety. The second is the method in which the voluntary, formal standard is set by consensus obtained through negotiations in a

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standards organization. This is generally called "de jure standardization," and means "standardization formed by voluntary negotiations to build a consensus among several stakeholders through an intermediary organization, called standards organization, outside of the context of legislation and regulation." The third is the method in which technology that has survived in market competition is set as the de facto standard afterwards without depending on standards organizations. This refers to neither top-down standardization by the government nor pre-coordinated standardization by formal standards organizations, but standardization by the market. This is called "de facto standardization" in the sense that products and services that have survived in market competition substantially become the standards. The de facto standardization is subsequent formation of the standard as a result of free interactions among players in the market, i.e. competition. The last method is a cross between formal standardization and de facto standardization in which the standard is set by a consortium, which several companies that share common business purposes in standardization organize by contributing their technologies in standardizing a specific technology and carrying out pre-coordination, in order to speedily set the standard, without depending on formal standards organizations. Consortium-based standardization can be understood as a compromise between the "compatibility/stability" derived from the standard and the "flexibility/diversity" derived from market competition. The final report discusses in detail consortium-based standardization since sufficient research thereof has not been conducted despite the rapid increase in the commercial and political importance of consortiums.

The conventional standardization was rather in the form of sanctioning products and technologies that have been established, i.e. ex post standardization, in many cases. However, the value of "ex post standardization" declined around the mid-1980s due to network effects (that is, value increases according to the scale of network) and the shorter product lifecycle caused by increase in the speed of technical innovation mainly in high-tech industries, including the information and communication fields. Then, there has been an increasing necessity for "anticipatory standardization," in which a standards organization expects technology in advance and sets the standard before commercialization of the relevant product. The final report discusses the flow of such transfer from ex post standardization to anticipatory standardization.

Standardization has various advantages and disadvantages. Specifically, the advantages on the producer side are reduction of transaction costs, market expansion due to the increased dissemination of technology, achievement of

economies of scale and incentive to new entry and investment, promotion of intra-standard competition, improved recognition in the market, ensured incomes from licensing patents included in the standard due to dissemination of the standard and consequent rise in sales, and increased investment in research and development due to the elimination of overlapping research and development costs and the avoidance of research and development costs from becoming sunk costs, and network effects of complementary goods by standardization. Consumers benefit because they are able to obtain information about products in a predictable, consistent way and to compare services or goods by common criteria, and environmental protection and product safety are guaranteed. On the other hand, standardization also has several disadvantages. Of these, the final report discusses two disadvantages that are considered representative, i.e. restriction by lock-in effect on inter-standards competition and generation change and restriction on system diversity.

In the past 20 years, the environment surrounding standardization has been rapidly changing mainly in the information and communication field. Cited as the core of the changes are the growing importance of the international standards due to the rise in the global economy and the WTO/TBT Agreement (Agreement on Technical Barriers to Trade), the globalization of standards activities, the rise of regional standardization, the increasing importance of anticipatory standardization, the rapid expansion of the new digital economy, such as the Internet and e-commerce and the acceleration of the speed of technical progress attributable to it, power shift from formal standards organizations to informal standards organizations due to the rise of private informal standards organizations, such as consortiums and forums, the diversification of standards organizations and the formation of coordinative structures, the diversification of standardization-related stakeholders, the increasing interdependency and complexity of standards, the convergence of industries due to the progress of technical convergences and the increasing possibility of jurisdictional overlap and conflict between standards organizations thereby, and the rise of IPRs in standard-setting due to the progress of the pro-patent policy. Among these, the final report discusses in detail the "diversification of standards organizations and the formation of coordinative structures" and the "growing importance of the international standards due to the WTO/TBT Agreement in 1995." The final report also discusses the influence of these changes in the environment surrounding standardization on industrial standardization while using telecommunications standardization as an example. In particular, it analyzes how the traditional

paradigm of telecommunications standardization under the system of the PPT (Post, Telephone, and Telegraph) and the CCITT (Consultative Committee for International Telephony and Telegraphy) came to collapse as a result of three factors-(1) technical factors such as the convergence of telecommunications and information processing based on digital technologies that started in the 1960s, (2) industrial factors such as the emergence of multinational companies due to the progress of globalization and mutual entry between IT companies and telecommunications carriers, and (3) political factors such as trends toward the liberalization and deregulation of the telecommunications market in the 1980s.

Chapter II "International Comparative Analysis of Standards Policy" overviews the history and characteristics of standards policy in Europe, the United States and Japan. For details, see the final report.

Chapter III "Intellectual Property Rights and Competition Policy Issues in Technical Standard-Setting" covers the issue of the convergence of technical standard-setting and IPRs, which has been rapidly proceeding in recent years, and summarizes the approach made by major standards organizations to the issue, as well as analyzes case examples from the viewpoint of competition policy. In general, technical standard-setting and IPRs are considered to be in a conflicting relationship. More specifically, while technical standard-setting brings "benefits from sharing" by standard-setting through the collective consensus-building process, IPRs bring "benefits from exclusive possession," i.e. to increase the incentive for technical development and market development by granting exclusive ownership, for a certain period of time, to those who created new knowledge. However, they can be said to be complementary to each other from the point of view that they promote innovation, contribute to industrial development and enhance consumer welfare.

In conventional standardization, IPRs have been licensed royalty-free in principle, and royalty-paying licensing was exceptional. However, the "reversal of principle and exception" has been occurring in recent years. In other words, at present, even if a standard was set through the consensus-building process of a standards organization, the standard cannot always be used freely (royalty-free). If the use or implementation of a standard involves IPRs, the obtainment of licenses from the relevant right holders becomes a prerequisite. Behind this is the recently growing recognition of the value of intellectual property, and the advancing convergence of technical standard-setting and IPRs, such as the more active

exploitation of IPRs in standardization. Various problems are also arising in the flow of convergence. In particular, the urgent policy issues are demands for excessively high royalty by IPR holders who claim their IPRs after relevant standard is established, discriminatory treatment in licensing, including the exclusion of competing companies, and demands for licensees' fulfillment of excessive incidental conditions, including free grant-back. Standards organizations have taken various measures against these problems in the past. The final report organizes the IPR policies of major standards organizations, such as ITU (International Telecommunication Union), ISO (International Organization for Standardization), ANSI (American National Standards Institute), and ETSI (European Telecommunications Standards Institute). Of these, the dispute over the IPR policy of the ETSI in 1993 is discussed further in the final report since it is expected to provide major suggestions in discussions on the balance between technical standard-setting and IPRs.

Technical standard-setting is originally based on a collective consensus among market players, so it can be understood as potentially including the competition policy issues. Traditionally, competition policy authorities have taken a stance of "non-intervention" in technical standard-setting by standards organizations. This is because of the assumption that, in most cases of technical standard-setting by formal standards organizations, participation is open and licenses are granted under the RAND (Reasonable and Non-Discriminatory) clause and the adoption of standards set is also not compulsory. Another reason for the non-intervention policy is that the competition policy authorities have been accurately aware of the beneficial aspects of technical standards, such as increasing consumer benefits through promotion of intra-standard product competition, achievement of economies of scale, reduction of manufacturing costs and product prices, and improvement of the incentive to invest in intra-standard research and development. However, it has to be noted that this does not mean that the competition policy authorities have completely renounced their regulatory authority over technical standard-setting by standards organizations. Even if the competition policy authorities basically take a stance of non-intervention, since technical standard-setting by standards organizations contains the aspect of collective cooperative work among private companies in the competitive market as mentioned above, it is highly likely to cause the competition policy issues. In particular, this is likely when the above assumption has broken down. Moreover, depending on how to handle IPRs in standard-setting, the standard-setting is highly likely to become the target of investigations by the competition policy authorities. The following are

possible competition policy issues that may occur in formal standardization: the "act of refusing to grant a license for an IPR included in a non-substitutable technical standard," "pre-consensus about the quantity of production, price, and the timing of commercialization among members participating in standardization," the "act of skewing the fair standards process," and "claim of a patent and demand for an expensive license fee after establishment of the relevant standard." In particular, the final report analyzes the claim of a patent and demand for an expensive license fee after establishment of the relevant standard while using the Dell case in 1996 as an example.

Chapter IV describes the major aspects of "IPRs." The legitimacy and types of IPR protection are discussed in the chapter. In particular, the following two aspects are discussed as rationales for setting patent rights: patent right as a system to give the incentive to invent and patent right as a system to give the incentive to disclose information.

Chapter V "Concept of Patent Pool" considers the definitions, classifications, advantages and problems of patent pools. Based on the existing definitions of patent pool, this chapter defines patent pool as "a mutual agreement among two or more patent holders to conduct cross-licensing between members or to jointly grant a license to a third party through mutual reservation of exercise of their exclusive rights by patent rights." In addition, the final report conducts analysis while citing advantages and disadvantages of patent pools. The advantages are (1) reduction of transaction costs by regularizing transactions, (2) elimination of blocking by forming a patent pool, (3) reduction of cumulative license fees, (4) avoidance of costly infringement suit battles, (5) increase of economic benefits by reservation of exclusive rights, and (6) increasing incentive to invest in research and development due to a rise in the expected values of patents. On the other hand, the disadvantages are (1) the possibility that a patent pool is misused as an excuse for market division or price-fixing, (2) the possibility of a tie-in with patents other than essential patents, (3) the possibility that various restrictions are placed on the downstream markets with the use of licensing conditions set by a pool, (4) the possibility of pooling a weak patent to make it difficult to file a suit for invalidation of the patent, (5) the possibility of inhibiting new inter-standards innovative activities, (6) the possibility of facilitating free-riding, (7) the possibility that a patent pool acts as a barrier to entry into the market, and (8) the possibility of excluding specific companies.

Chapter VI "History of Relationship Between

Intellectual Property Rights and Competition Policy" reviews and considers the history of the relationship between IPRs and competition policy in the United States with a focus on the handling of patent pools. The relationship between IPRs and competition policy has not been historically stable but a dynamic one that changes with the times. The final report discusses the transition of the relationship between them by roughly dividing the history of the relationship into four periods. First of all, the time before 1945 is called the "era of superiority given to intellectual property rights." The basic position of the competition policy authorities and the court on IPRs in the early 20th century can be summarized by the idea that "IPRs are sacred and located outside the power of the competition policy authorities." Based on such a position, the competition policy authorities had made decisions to exempt the acts of companies holding IPRs from competition policy investigations for a long period of time by broadly interpreting exception clauses. Based on a similar idea, the authorities considered patent rights to be legal monopoly and regarded patentees as having wide-ranging discretion in licensing acts with respect to patent pools and cartels. Due to such favorable treatment, companies that formed a patent pool could put various restrictions on the conditions of licensing to licensees virtually without worrying about the competition policy authorities. Next, the period from 1945 to the 1970s is called the "era of superiority given to competition policy" and is analyzed in this chapter. This period can be understood as the period when the competition policy came to extend its authority to IPRs. Such strict competition policy investigations of IPRs reached a climax with the policy called "Nine No-Nos" that was announced by the Department of Justice in 1975. The "Nine No-Nos" describes nine categories of acts that the Department of Justice would consider to be inhibiting competition. If a licensing act were determined to be falling under any of these acts, it was deemed per se illegal. However, such strict competition policy reached a turning point with the birth of the Republican Reagan administration upholding a pro-patent stance in the early 1980s, and the rise of the Chicago School that called for the free market and asserted the restrictive role of competition policy. In the final report, this period is characterized as the "pro-patent era." The last period is the "era of the 1995 IP Guidelines," and it is characterized by the "Antitrust Guidelines for the Licensing of Intellectual Property (hereinafter referred to as the 1995 IP Guidelines)" announced by the Department of Justice on April 6, 1995. The 1995 IP Guidelines replaced the IPR-related sections of the "U.S. Department of Justice Antitrust Enforcement Guidelines for International Operations" in 1988 and 1989, and gave basic

standards for the competition policy authorities to investigate issues arising in IPR licensing activities. These IP Guidelines are considered to be of great significance for the following reasons: The guidelines redefined the relationship between IPR policy and competition policy from a conflicting relationship to a complementary one; The guidelines contributed to the significant reduction of institutional uncertainty in various subsequent licensing activities of private companies; The guidelines enabled the competition policy side to take more consistent policy measures; The guidelines showed more amicable policy toward collective license management mechanisms, such as patent pools and cross-licenses. The main points of the argument in the 1995 IP Guidelines can be simply summarized by the following four points. The first point is the identification of intangible goods and tangible goods, i.e., IPRs are regarded as being essentially compatible to any other property rights under the competition policy. The second is the point that the grant of IPRs is not equated with the grant of market power. The third is the point that the guidelines stipulate that the combination of complementary IPRs is pro-competitive. The fourth is the point that the guidelines stipulate that the act of transacting IPR-related licenses, such as collective license management mechanisms, including patent pools, would be treated not by the per se illegal rule but by the rule of reason. The rule of reason analysis of patent pools is basically the same as that of other IPRs. Specifically, in response to the formation of a patent pool, the competition policy authorities first investigate whether the patent pool has created anticompetitive effects. If the patent pool is found to have anticompetitive effects, the competition policy authorities will next compare the anticompetitive effects with the pro-competitive effects or efficiency-enhancing effects, such as (1) integrating complementary technologies, (2) reducing transaction costs thereby, (3) clearing blocking relationships between patents, (4) avoiding costly infringement suit battles, and (5) promoting the dissemination of technology. Only if the anticompetitive effects are judged as larger than the pro-competitive effects, the competition policy authorities will take antitrust measures.

Chapter VII "Case Study of Patent Pools" covers five case examples (i.e. (1) Aircraft pool, (2) MPEG-2 pool, (3) DVD pools, (4) SUMMIT/VISX pool and (5) 3G Platform), and analyzes the handling of each case in terms of competition policy. Smooth transactions of IPRs as inputs are inevitable for production in such fields as biotechnology and information and communications where joint production requiring two or more inputs to produce one product is the main form of production. Especially, if non-substitutable property

rights, i.e. essential patented technologies, are overlapping, the incentive to produce products declines due to rise in transaction costs and the possibility of a holdup, ending up in the under-use of resources due to overlapping property rights, which is called the "tragedy of anti-commons." Patent pools have recently been attracting attention for the reason that they prevent the arising of the tragedy of anti-commons by centralizing licensing in advance through a collective management mechanism, thereby reducing transaction costs. Based on such awareness of the issue, the final report conducts analysis from the competition policy viewpoint with respect to the aircraft pool that was formed at the request of the government, MPEG-2 pool and DVD pools that were investigated and approved in Business Review Letters issued by the Department of Justice, SUMMIT/VISX pool that was investigated and dissolved by the competition policy authorities, and the patent platform system for Third Generation Mobile Communication (3G), which is a transformed version of patent pool that enabled more flexible licensing negotiations.

Chapter VIII "Points in Competition Policy Investigations of Patent Pools" considers 10 points of the argument that are considered to be important in analyzing competition policy toward patent pools. Specifically, the chapter discusses (1) Is a patent pool a "gathering of essential patents"?; (2) Does the selection process maintain "independence and neutrality"?; (3) Is a relationship between patents "mutually complementary"?; (4) Is licensing by a pool "open and non-exclusive"?; (5) Is licensing by a pool "non-discriminatory"?; (6) Is "individual licensing" by pool members ensured?; (7) Are the "appropriate assessment of the value of patents" and the "fair distribution of license income" ensured?; (8) Is a measure to "prohibit the sharing of competitively sensitive information" taken to reduce the possibility of conspiracy among pool members?; (9) Is the "effect on innovation" taken into consideration?; and (10) Is the "grant-back provision" balanced?

As above, the final report mainly discusses technical standard-setting, patent pooling, and competition policy. Both technical standard-setting and patent pools have the effect of reducing uncertainty inherent in economic transactions, lowering transaction costs, and promoting transactions and innovation through voluntary/collective coordination. On the other hand, it is also true that technical standard-setting and patent pools potentially raise competition policy issues since they are established through a cooperative act among private companies in a free market. The "harmonious coexistence" of three parties-technical standard-setting, patent pooling,

and competition policy-significantly increases economic efficiency. On the other hand, a conflict among them can result in the serious deterioration of economic efficiency. A question of how to realize "harmonious coexistence" is a very important issue for the policy authorities. However, sufficient academic/policy research has not been accumulated in terms of this issue. Further discussion is expected to continue in the future.

