Journal of Arbitration Studies, Vol. 25 No. 3
1 September, 2015, pp. 155~184
http://dx.doi.org/10.16998/jas.2015.25.3.155

Received : 1 August, 2015
Revised : 23 August, 2015
Accepted : 27 August, 2015

Identifying Effective Dispute Resolution Mechanisms for Intellectual Property Disputes in the International Context

Ju-Yeon Lee*

This paper addresses the question of what kinds of dispute resolution choices can effectively handle complex intellectual property disputes, given the rising importance of IP, the increasing frequency and complexity of IP disputes, and the lack of research on dispute resolution strategies. For this analysis, the study adopted the analytic hierarchy process approach, which covers complex, multi-criteria decision problems, to quantify the expert's judgments on IP dispute resolution choice. Its results show that the effectiveness of resolution methods differs, depending on the type of IP dispute classified into seven issues, which are (i) requirement for validity of IP right, (ii) range and duration of IP right, (iii) transfer of IP right, (iv) licensing, (v) use of IP right, (vi) declaration of IP infringement, and (vii) estimation of damage. The disputes over IPR ownership and IP infringement remain challenging issues in due to strong requirement of the cross-border enforcement. Alternative dispute resolution (ADR), especially arbitration, is determined to be a more effective method to deal with international IP disputes, but various advanced types of ADR techniques should be further developed to deal with the increasing complexity of IP disputes.

Key Words : Intellectual Property Disputes, IP Dispute Resolution Choices, Litigation, Alternative Disputes Resolution

* Associate Research Fellow, Korea Institute of Intellectual Property, KIPS Center 9th FL., 131, Teheran-Ro, Gangnam-Gu, Seoul, Korea, Tel: +82.2.2189-2630, Fax: +82.2.2189.2699, E-mail: jylee@kiip.re.kr

〈 Contents 〉

Ⅰ. Introduction

In today's global economy, intangible assets have become critical to enhancing resource of companies and a key capital in entrepreneurial growth while traditional factors of production, such as capital and labour, were primary sources of growth in previous centuries. Consequently, business enterprises are continuing to increase their focus on intangible assets or intangible resources to maximize their profit. The value of the intangible assets of firms has risen substantially more than the value of their asset s.[1] Specifically, Ocean Tomo's Annual Study (2010) found that the percentage of the intangible asset value of S&P 500 companies as a portion of total asset value increased remarkably, from 17% in 1975 to 80% in 2010.

Among the various types of intangible resources, intellectual property rights (IPRs)–patents, trademarks, copyrights, and other types of IPRs–are valuable, rare, and often hard-to-imitate.[2] As a result, IPRs have become a key factor for creating value added goods and services and increasing the competitive advantage of a firm.[3] Recognized as a primary economic asset, IPRs are actively used by firms not only by incorporating protected inventions into new products, processes, and services, but also by licensing

1) Hanel, P., "Intellectual property rights business management practices: A survey of the literature", Technovation, Vol. 26, No. 8, 2008, pp.895-931.

2) Barney, J.B., "Firm resources and sustained competitive advantage", Journal of Management, Vol. 17, No. 1, 1991, pp.99-120. Riahi-Belkaoui, A., "Intellectual capital and firm performance of US multinational firms: a study of the resource-based and stakeholder views", Journal of Intellectual Capital, Vol. 4, No. 2, 2003, pp.215-226.

3) Terpstra, V., Sarathy, R., Russow, L., Global Environment of Business, Garfield Heights: North coast Publishers, 2005.

them to other firms, using them as bargaining tools in negotiations, and attracting external financing.[4] In this logic the management and protection of IPRs have become the cornerstones of corporate strategy and vital for business success.

Moreover, as international business transactions increase in number, size, and complexity because of economic globalization, corporate profit becomes much more sensitive to IPR creation, use, and protection in other countries.[5] In such circumstances, the risk of IPR disputes may increase, because many different interests, seeking to maximize profits within a firm, can become entangled, and involve many countries. Indeed, since the 1980s, the explosive growth of international business transactions has led to increased potential risk of complex multinational IP-related disputes.[6] IP disputes, such as one between two global smartphone giants, Apple Inc. and Samsung Electronics Co., occur more frequently than ever and merit attention.[7]

Furthermore, the outcomes of IP disputes have far-reaching effects on the continuation and expansion of business. Much time and money is spent enforcing IP litigation; the competitiveness of companies in IP disputes can be damaged, by having their brand images compromised or by court injunction on sales in global markets.[8] It is important to consider which method of resolution should be used to address IP disputes most efficiently and effectively.[9] However, the existing literature offers little guidance on conflict resolution strategies in international IP disputes.[10]

---

4) Kamiyama, S., Sheehan, J. and, Martinez, C., "Valuation and Exploitation of Intellectual Property", 2006, http://dx.doi.org/10.1787/307034817055.

5) Barsky, N.P., Marchant, G., "The most valuable resource - measuring and managing intellectual capital", Strategic Finance, Vol. 81, No. 8, 2000, pp.58-.62. Fainshmidt, S., White, G.O., Cangioni, C., "Legal Distance, Cognitive Distance, and Coflict Resolution in International Business Intellectual Property Disputes", Journal of International Management, Vol. 20, No. 2, 2014, pp.188-200.

6) Ansson Jr., R.J., "International intellectual property rights, the United States, and the People's Republic of China", Temple International and Comparative Law Journal, Vol. 13, 1999, pp.1-26. Tiefenbrun, S., "Piracy of intellectual property in China and the former Soviet Union and its effects upon international trade: a comparison", Buffalo Law Review, Vol. 46, 1998, pp.1-69. Wilson, M., "TRIPS agreement implications for ASEAN protection of computer technology", Annual Survey of International and Comparative Law, Vol. 4, 1997, pp.18-.55.

7) Delerue, H., Lejeune, A., "Managerial secrecy and intellectual asset protection in SMEs: the role of institutional environment", Journal of International Management, Vol. 17, No. 2, 2011, pp.130-142.

8) Lee, J. Y., "Promoting an arbitration system for international dispute resolution in international in intellectual property rights cases", Journal of Arbitration Studies, Vol. 23, No. 2, 2013, pp.165-190 [in Korean].

9) Delerue and Lejeune, Ibid/ op. cit., pp.130-142

10) Fey, C.F., Beamish, P.W., "Joint venture conflict: the case of Russian international joint ventures",

Therefore, this study examines the question of what kinds of dispute resolution choices are available to address effectively complex IP disputes. Following this introduction, Section 2 identifies types of IP disputes and the characteristics and features of resolution methods. This background assists with outlining the decision problem's components, which constitute the hierarchical structure of the Analytic Hierarchy Process (AHP), discussed in Section 3. The AHP, an analysis methodology for assisting with sound decision-making, is introduced in Section 3 to identify the appropriate resolution strategies for various types of IP disputes. Section 4 presents the evaluation of IP dispute resolution choices based on the results of AHP application. Conclusions and recommendations are presented in Section 5.

Ⅱ. Intellectual Property (IP) Disputes and their Resolution

1. Types of intellectual property (IP) disputes

Intellectual Property (IP) is the product of creative/inventive human endeavours, such as inventions and literary or artistic works, as well as the design of innovative symbols, names, expressions, indications, and designs. The term 'IP rights' (IPRs) refers to the legally protected rights given to people over their intellectual creations in the scientific, industrial, artistic, and literary fields for a certain period of time.[11] Under IP laws, IPR owners are granted certain exclusive rights over their creations, and any exploitation must be with the consent of the owner. IP disputes typically begin when the unauthorized use or misuse of the monopoly right of IP has occurred without the consent of the IPR holder.

The characteristics of IP disputes differ somewhat, depending on the type of IPR.[12] IPRs can be broadly divided into patent, trademark, industrial design, and copyright; these four types of IPRs provide different ways of protecting particular intellectual creations. For instance, a patent protects an invention that is 'useful', 'novel', and

International Business Review, Vol. 9, No. 2, 2000, pp.139-162. Wang, C.L., Lin, X., Chan, A.K.K., Shi, Y., "Conflict handling styles in international joint ventures: a cross-cultural and cross-national comparison", Management International Review, Vol. 45, No. 1, 2005, pp.3-.21.

11) WIPO, Introduction to intellectual property: Theory and practice, London: Kluwer Law International, the World Intellectual Property Organization, 1997.

12) Bernstein, D., Ibid/ op. cit., pp.139-162.

'nonobvious', while copyright protects the specific form in which ideas are recorded and is the form of protection used to protect literary and artistic works. As a result, the nature of disputes varies among each category of IP, because of the different subject matter of the IP protection.

As seen in Table 1, IP disputes in each category can occur in various forms, such as complex commercial contractual disputes, infringement and validity of IP rights, trade mark and patent license disputes, and claims relating to intellectual property ownership. In recent years, the use and scope of IP rights have gradually been extended, and thus IP disputes have become more complex and diverse. As depicted on many websites of IP service companies and illustrated by Grantham (1996)[13]and Sohn and Park (2004),[14] IP disputes can be divided into three types, regardless of the forms of IPR: IP-related contract disputes, IP infringement disputes, and disputes over IPR ownership.[15]

Table 1. Types of IP Disputes

Forms of IPR	Dispute issues
Patent	- Patent infringement - Patent licensing - Technology development or commercialization contracts - Patent entitlement - Inventorship
Trademark	- Trademark infringement, passing off and depreciation of goodwill - Trademark oppositions - Trademark non-use proceedings - Trademark license - Franchise - Domain name disputes
Industrial Design	- Infringement of copyright and violation of moral rights - Copyright licensing - Authorship and ownership of copyright protected works, development or commercialization of software, etc.
Copyright	- Industrial design infringement - Industrial design licensing - Industrial design ownership

Source: Company Website of IP Neutrals of Canada[16]

13) Grantham, W., "The Arbitrability of International Intellectual Property Disputes", Berkeley Journal of International Law, Vol. 14, No. 1, 1996, pp.175-221

14) Sohn, K. H., Park, J. A., "Agreement on international intellectual property dispute resolution", Journal of Arbitration Studies, Vol. 14, No. 2, 2004, pp.204-205 [in Korean].

15) The author synthesized various websites of intellectual property service companies for the details of IP dispute types. For an example, the website of Harrison IP company (http://www.harrisonip.com) describes IP disputes as related to the ownership, infringement, and validity of intellectual property rights

IP-related contract disputes concern conflict over whether the use of an IP right is properly regulated or operated by contract clauses. As the owner can transfer full and exclusive rights of ownership to another person (or a company) through contracts between the parties, this type of IP dispute derives from disagreements on the contract. The characteristics of IP contract disputes differ somewhat, depending on the type of contract.[17] IP contracts can be generally categorized into three types: (1) the transfer of IP rights contracts or security-related contracts, (2) license contracts (licensing agreements), and (3) contracts in accordance with the scope of exploitation/commercialization of IP rights. Disagreements and conflicts over these three types of contracts characterize the first type of IP disputes, and each of these should be examined separately for optimal means of resolution.

The second type of dispute is conflict over the judgment of an IP infringement and the estimation of resulting damage. IP disputes regarding infringement arise when the owner's exclusive right of IP is infringed by a third party. As can be seen in the Samsung vs. Apple disputes over IPRs, it is difficult to judge whether an IP right is, in fact, infringed. The judgment of IP infringement often accompanies so complicated an analysis of technical or legal issues that disputing parties have different views on the IP infringement, which then leads to further disagreement. If it proves true that an IP right was infringed, divergences over the degree of damage from such infringement, which determine the amount of compensation for damage, trigger further conflict, since there are no accurate or complete standards for the valuation of intellectual property, or the estimation of damage from IP infringement.

Finally, disputes over ownership of IPRs arise from disagreements and conflicts over whether their (1) validity or (2) scope and duration (i.e., ownership) meet requirements. Since granting IP rights requires examination of government administrative authorities--e.g., the Korean Intellectual Property Office (KIPO)--to ensure that the rights are granted pursuant to the standards set up by law, these types of dispute cannot be settled without the final decision of the relevant administrative authority. The exception concerns the validity of copyright, which can be determined by any resolution mechanism, since these rights can be obtained without administrative approval.

16) IP Neutrals of Canada, TYPES OF DISPUTES AND ISSUES THAT MAY BE SUITABLE FOR MEDIATION, Retrieved 4 October 2013 from 〈http://www.ipneutralscanada.com/typesOfDisputes.asp〉.

17) Sohn and Park 2004, Ibid/ op. cit., pp.204-205

Otherwise, the law is generally keen to uphold the validity of arbitration clauses in contracts in cases involving the approval of government authorities, requiring the parties to resolve their disputes through an arbitration process (i.e., a private process).

2. Resolution methods for intellectual property (IP) disputes

Disputes in general arise from a divergence of interests or belief and/or breach of fiduciary duty that cannot be reconciled.[18] The occasional occurrence of such disputes is inevitable among parties that differ in interests, perceptions, and preferences, but they can be managed and resolved, when they occur, through various mechanisms. Dispute resolution mechanisms somewhat differ in countries because they are specified by national laws that reflect a country's history, political system, economic and social circumstances, and cultural factors.[19] Generally, the methods for resolving disputes can be divided into two procedures: court litigation and alternative dispute resolution (ADR) methods.[20]

Judicial litigation in court is the traditional way of resolving disputes; however, beginning in the late 1980s and early 1990s, many enterprises became increasingly concerned that civil lawsuits were too expensive, too slow, and too cumbersome.[21] This concern led to the growing use of mechanisms for alternative dispute resolution (ADR), such as mediation and arbitration. 'Alternative' dispute resolution is usually considered to be an effective substitute to litigation because it has many advantages, such as being generally less time-consuming and costly. As a result, ADR techniques (including negotiation, conciliation, and arbitration), once seldom used to resolve disputes, are employed with increasing frequency, in both IP disputes and in many other fields. Table 2 provides a comparison of these four methods for resolving disputes (litigation, negotiation, conciliation, and arbitration), and the following text provides detailed descriptions of each.

---

18) Folsom, R.H., Gordon, M.W., Spanogle Jr., J.A., International Business Transactions: A Problem Oriented Coursebook, West Group Publishing, 2002. Lewicki, R.J., Saunders, D.M., Barry, B., Minton, J.W., Essentials of Negotiation, McGraw-Hill Publishing, 2004.

19) Sohn and Park 2004, Ibid/ op. cit., pp.204-205

20) McConnaughay, P., ADR of Intellectual Property Disputes, "SOFTIC SYMPOSIUM 1 (Nov. 15, 2002)". http://www.softic.or.jp/symposium/open_materials/11th/en/ PMcCon.pdf.)

21) Available at 〈http://legalictionary.thefreedictionary.com/alternative+dispute+resolution〉, keyword 'Alternative Dispute Resolution', West's Encyclopedia of American Law, ed. 2.

Table 2. Comparison of Dispute Resolution Methods

Features	(1) Public Mechanism: Litigation	(2) Private Mechanism: ADR		
Features	(1) Litigation	Negotiation	Conciliation (Mediation)	Arbitration
Voluntarily	Non-voluntarily	Voluntarily	Voluntarily	Voluntarily
The Effects of Judgment	Compulsory (Appeal available)	Enforceable as agreed by consent	Enforceable as agreed by consent	Compulsory The same effect as the court's final judgment (Appeal is available limitedly)
The Range of Effects	Domestic (The effects extend to the local residents in the territory.)	International (The effects extend to foreign countries as well as the local residents)	International	International
A Third Party (solver)	Judged by a judge (has no expertise in the relevant field in general)	None	Selected by the parties concerned	Judged by the arbitrator (an expert who is well versed in commercial transactions)
Formality	Formal (Progress in accordance with highly structured rules)	informal, unstructured	informal, unstructured	Low formality (the parties concerned select proceedings and substantive laws to conduct arbitration proceedings)
Characteristics of Proceedings	Opportunities for submission of evidence and claim	Unlimited submission of evidence, claim and understanding	Unlimited submission of evidence, claim and understanding	Opportunities for submission of evidence and claim
Results	Determination in principle supported by written opinions	An agreement acceptable by each other	An agreement acceptable by each other	Determination in principle supported by written opinions, or a compromise without written opinions
Openness	Public forum	Private forum	Private forum	Private forum
Time	Lengthy	Most efficient	Efficient	Relatively Efficient
Cost	Costly	Least costly	Not costly	Low cost
Corporate confidence	Low	Very high	High	Moderate

Source: Author's reconstruction based on her knowledge and understanding of Lee (2013)

(1) Public mechanism: litigation

Litigation, a mechanism of IP dispute resolution that is carried out in public, in a national court, is based on a state's jurisdiction to resolve stakeholder problems.[22] Litigation arises when one party sues the other party or parties in a court for legal settlement of a dispute, without the need to obtain their consent.[23] Though it is the most often practiced form of dispute resolution around the world, it has limitations in resolving IP disputes.

First, litigation takes a considerable amount of time and has a high cost, compared to ADR. As litigation is carried out in accordance with highly structured rules (see Table 2), the costs of litigation can be particularly excessive in complicated patent cases, imposing a significant financial burden. Prosecuting or defending a patent case through trial, or even through the claim construction and summary judgment phases, requires complex procedures that ultimately contribute to the often lengthy and expensive litigation process.[24] According to a 2009 economic survey commissioned by the American Intellectual Property Law Association (AIPLA), the average cost of patent litigation is over three million dollars in patent infringement cases where the amount in dispute is between $1 million and $25 million. Moreover, the occurrence of related proceedings in several jurisdictions under different laws only adds to this high cost.[25]

It is particularly difficult to resolve cross-border IP disputes through litigation, because of the territorial effect of IP rights, in addition to the cost of litigation. Because court litigation applies the laws of the land (or jurisdiction), the establishment, transfer, and effect of each country's IP rights are determined by the laws of that country, which consequently leads to the risk of conflicting outcomes.[26] Of further

22) McConnaughay 2002, Ibid/ op. cit.

23) WIPO Magazine, June 2009, 'Efficient Alternative Dispute Resolution in Intellectual Property', available at 〈http://www.wipo.int/wipo_magazine/en/2009/03/article_0008.html〉.

24) Smith, M., "Mediation as an alternative to litigation in patent infringement disputes", ADR Bulletin, Vo. 11, No. 6, 2009, pp.113-119. Martin, J., "Arbitrating in the Alps rather than litigating in Los Angeles: The advantages of international intellectual property-specific alternative dispute resolution", Stanford Law Review, Vol. 49, No. 4, 1997, pp.917-970.

25) In the case of litigation between Samsung and Apple, which has taken place in multiple jurisdictions, the cost is estimated at KRW 230,000,000,000 (USD 198,714,940 as of June 25, 2013). 'Harmful effect of lawsuits between Samsung and Apple on the surface', Asia Economy Newspaper, 11-07-2012, available at http://www.asiae.co.kr/news/view.htm?idxno2012071109580012392 (last visited on November 26, 2014).

26) Mattli, W., "Private justice in a global economy: from litigation to arbitration", International Organization, Vol. 55, No. 4, 2001, pp.919-947.

note, as seen in Table 2, litigation must follow fixed rules of procedure, meaning that the court process is inflexible in efforts to resolve disputes. Beyond this, lack of confidentiality, amicability, and judicial expertise can also be drawbacks to the use of litigation to resolve IP disputes (see Table 2). For these reasons, ADR techniques have been employed more frequently in IP disputes, even in the U.S., which is known as a representative, litigation-oriented country.[27)]

(2) Private mechanism: alternative dispute resolution (ADR)

ADR, a mechanism of dispute resolution between the disputing parties in private, uses procedures for settling disputes by means other than traditional litigation. Various forms of ADR mechanisms are commonly utilized, including negotiation, mediation, and arbitration. Negotiation is the most universal and familiar of these, whereby the parties resolve their issues by themselves.[28)] In this sense, negotiation is an excellent method and opportunity to persuade the other party, and has the advantage of allowing the parties to control the outcome by resolving the issues between them directly. However, if disputes cannot be resolved by negotiation, a neutral third party, such as a mediator or an arbitrator, can be involved to assist the parties in reaching settlement of the dispute.

Mediation and arbitration are binding methods of resolving disputes through third-party intervention. Mediation (also known as conciliation), a form of assisted negotiation, is a simple and flexible method aimed at further cooperation between the parties as partners in the future. However, it is different from negotiation, in that a neutral intermediary (or mediator) assists the disputing parties to help resolve their disagreements and conflicts with their consent.[29)] Mediation or conciliation has become globally accepted as an effective method of resolving disputes between the parties. It is useful in reaching a voluntary resolution of disputes, in accordance with rules and principles that are similar to litigation and based on government authority. However, mediation has the drawback of lacking legally binding resolution, in contrast to arbitration and litigation.

While mediation is a non-judicial process of dispute resolution, arbitration is a quasi-judicial procedure in which an arbitration award,[30)] determined by the agreement

27) Sohn and Park 2004, Ibid/ op. cit., pp.204-205

28) Lee, Ibid/ op. cit., pp. 165-190. Sohn and Park 2004, Ibid/ op. cit., pp.204-205

29) WIPO Magazine, June 2009, 'Efficient Alternative Dispute Resolution in Intellectual Property', available at 〈http://www.wipo.int/wipo_magazine/en/2009/03/article_0008.html〉.

between the parties, has the same effect as the final judgment of a court.[31] Like litigation, the losing party must abide by arbitration awards; otherwise, the prevailing party can apply to an arbitration body for the compulsory execution of the award[32]. In contrast, ADR approaches are regarded as more creative and more solution-focused. Though arbitration proceedings abide by legal formalities as in a court of law, the arbitrator can apply whatever procedural rules and substantive law best fit a case or need of the parties.[33] Thus, arbitration is non-judicial adjudication, usually by a panel of one to three privately appointed members chosen by the parties, whereas judgments of court litigation, determined by trial judges, are legally binding.

Today, arbitration has significant implications as an independent institution, in that it ensures the effectiveness of dispute resolution by acknowledging the binding force of the arbitration award, similar to litigation. Furthermore, arbitration has the advantage of resulting in an arbitral award, which is more appropriate than a court judgment, since industry practice, equity, and virtue, along with positive law, can be criteria for an arbitration award.[34] As arbitration can result in a fairer judgment than litigation for this reason, its potential importance in resolving IP disputes is emphasized.

In terms of proceedings, ADR is in general more informal,[35] flexible, and confidential than litigation, as it is carried out in a private forum (see Table 2). Moreover, ADR processes focus on relieving hostility and restoring relationships to yield the possibility of future cooperation, and thus, they can result in mutually beneficial resolution, voluntarily agreed upon by the parties.[36]

---

30) An arbitration award is considered quasi-judicial or quasi-legislative because it is final and binding.

31) The arbitral award is normally final and not subject to appeal. Such an award is internationally enforceable under the New York Convention for the Recognition and Enforcement of Foreign Arbitral Awards of 1958 (the New York Convention, www.wipo.int/amc/en/arbitration/ny-convention). Schimmel, D., Kapoor, I., "Resolving international intellectual property disputes in arbitration", Intellectual Property & Technology Law Journal, Vol. 21, No. 2, 2009, pp.1-6

32) Mixon, Ibid/ op. cit., pp.484-486

33) Mattli, Ibid/ op. cit., pp.919-947

34) Lee, Ibid/ op. cit., pp. 165-190

35) Negotiation and mediation are informal proceedings in which the parties themselves play a key role. Even though arbitration is an adjudicative process involving formal proceedings in which a third party (i.e., arbitrator) play a dominant role (Schimmel, Daniel, and Kapoor, 2009), its proceedings are informal and flexible in that the parties decide the dispute.

36) Levine, R. E., Topic, M. V., "Using alternative dispute resolution mechanisms to resolve patent disputes", Journal of Intellectual Property Law and Practice, Vol. 7, No. 2, 2012, pp.119-125.

Ⅲ. Requirements for Intellectual Property (IP) Dispute Resolution[37)]

IP disputes have unique characteristics that often eventually lead parties to reconsider their positions and settle because of the intangible nature of the property. Previous studies (e.g., Jabaly 2010, Nixon 1997; Martin 1997)[38)] reveal five factors–expertise, internationality, expeditiousness, confidentiality, and flexibility–as the major considerations when choosing the most effective and efficient method of dispute resolution or conflict management for IP disputes.

1. Expertise

IP rights refer to the legal rights and protections afforded to the knowledge, information, technology, expression, mark, or other intangible assets created or discovered through human creative activities or experiences. As they are intrinsically related to information, knowledge, and technology, an understanding of technical complexity and specialized knowledge are required to resolve intellectual property disputes effectively.[39)]

For instance, patent-related disputes involve highly technical subject matter and complex legal issues. To resolve patent disputes requires interpreting the claims of a patent, which can be defined as the precise technical description of an invention, upon which is based an evaluation of the protection.[40)] If a third party arbitrator or adjudicator is not a specialist fact-finder, with expertise in the relevant subject matter, disputes can be prolonged and entail a higher cost.[41)] In addition, the expanding scope of IP and the rapid development of human intellectual creation abilities make IP disputes more

37) The author summarizes requirements for IP dispute resolution by referring to Lee (2013), Nixon (1997), and Martin (1997).

38) Jabaly, P., "IP litigation or ADR", Journal of Intellectual Property Law & Practice, Vol. 5, No. 10, 2010, pp.730-735. Nixon, A., "Arbitration – a better way to resolve intellectual-property disputes?", Trends in Biotechnology, Vol. 15, No. 12, 1997, pp.484-486. Martin, Ibid/ op. cit., pp.917-970. Lee, Ibid/ op. cit., pp. 165-190

39) Arnold, T., Fletcher, M. G., McAughan, J., Robert, J., "Managing patent disputes through arbitration", Arbitration Journal, Vol. 46, No. 3, 1991, pp.1-5.

40) Smith, Ibid/ op. cit., pp.113-119

41) Martin, Ibid/ op. cit., pp.917-920

complex[42]. The law is often unclear or has difficulty keeping up with the development of IP, and the technical facts are potentially confusing to a lay judge or jury.[43]

To enhance the quality of the final decision and eliminate unnecessary losses, dispute resolvers should have expertise, with relevant experience and knowledge of not only the technology at issue, but also the operative rules of law of the controlling jurisdiction. ADR methods enable parties to select a subject-matter expert, whereas court litigation does not. Therefore, disputes over technically complex issues can be more effectively resolved through ADR techniques.

2. Internationality

IP disputes often take on an international character due to the tacit and transferable nature of intangible assets.[44] Since the intangible nature of the property allows IP able to be created/developed or readily reproduced anywhere in the world with relatively low costs, if the physical conditions to embody IP exist, there is the high probability that IP disputes arise simultaneously in several countries. As seen by the dramatic increase in the number of patent cases filed in the multiple courts,[45] IP disputes tend to arise from multiple countries.

Globalization and the development of information communication technology (ICT) make IP more easily transferable to realize its economic value. The internationalization of IP is also spurred on by the fact that no country is technologically self-sufficient.[46] As firms shift toward open innovation, based on collaboration and external sourcing of knowledge,[47] IP is actively created, used, and protected across national boundaries.

However, IP Rights in a country are determined by the law of that country, which

42) Lee, Ibid/ op. cit., pp. 165-190

43) Martin, Ibid/ op. cit., pp.962-970

44) Delios, A., and Beamish, P., "Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance", Academy of Management Journal, Vol. 44, No. 5, 2001, pp.1028-1038.

45) In the case of Korea, the cross-border patent cases more than doubled for the last five years. According to Korea Intellectual Property Association (KIPA), the Korean firm's patent cases filed a lawsuit against the foreign companies accounted for 186 in 2010, 280 in 2011, 224 in 2012, 342 in 2013 and 300 in 2014.

46) Martin, Ibid/ op. cit., pp.917-970

47) Chesbrough, H., "The era of open innovation", MIT Sloan Management Review, Vol. 44 No. 3, 2003, pp.35-41.

does not apply beyond the its border, leading to many international IP disputes. Due to the different IP laws and different degrees of enforcement in each country,[48] it is problematic to determine which country's law should be applied. Even though a court judgment may have been decided by determining the applicable law, there can be difficulties in executing and enforcing the judgment in each country. In the international context, there are no public courts that handle international commercial disputes.[49] Through the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, widely considered the foundational instrument for international arbitration, cross-border disputes can now be efficiently resolved through arbitration. As an arbitration award is deemed to have the same legal effect as a domestic court judgment and is recognized and enforced by the member countries of the Convention, cross-border enforcement of arbitration awards has been greatly enhanced.

3. Expeditiousness

IP disputes require more rapid resolution than do those of many other fields. As technically sophisticated products--e.g., mobile phones or LCD monitors--are developed through a great many IPRs, especially related to patents, IP disputes are often associated with these products.[50] As the life cycle of such technically sophisticated products becomes shorter, more time-efficient dispute resolution methods are require d.[51] In this case, dispute resolution mechanisms require faster and more efficient proceedings, including greater flexibility in schedules, in order not to lose time in creating economic value from IPRs.

In the case of Korea, it is estimated that arbitration takes about four to six months, while the time required for Supreme Court litigation in that country is, on average, two to three years.[52] If disputes are resolved through the courts in a field involving products with a short life cycle, such as mobile phones, for which the life-cycle is generally two

48) IP rights have a territorial effect, primarily derived from the legal protection granted by the local sovereign power, and so can exist in parallel in different jurisdictions.

49) The only exception is the European Court of Justice (ECJ), which deals with certain disputes between private parties under European Community law (Mattli and Slaughter 1995).

50) Lee, Ibid/ op. cit., pp. 165-190

51) Yun, S. H., "ADR in IP Dispute", Journal of Arbitration Studies, Vol. 13, No. 1, 2002, pp.125-166 [in Korean].

52) Lee, Ibid/ op. cit., pp. 165-190. Jabaly, Ibid/ op. cit., pp. 730-735.

years, IP rights may not be effectively protected because of long periods of litigation.

For example, if the dispute concerns computer software, a micro-electronics patent, or a biotech product, public court adjudication or an improperly managed arbitration generally take longer than the life cycle of the product involved. This amounts to a real loss for the firm with the patent at stake, in terms of the welfare of the whole community, as well as at the level of the parties, since those patents are outcomes of significant research and development (R&D) investment.

4. Confidentiality

IP disputes often involve proprietary know-how with respect to patented inventions or trade secrets and other proprietary information. A significant concern in IP disputes is the protection of technical and commercial information. Their protection is vital to firms, as serious damage may occur if patented inventions or trade secrets and other proprietary information, for which a significant investment has been made, are released to the outside, especially to competitors.

In public court procedures with strict formality and process, there is great likelihood that technical and commercial information may be leaked to the outside, in the process of identifying fact relevance or clarifying evidence for court proceedings. This is why parties in ordinary litigation constantly fear that confidential information, such as trade secrets and technological innovations, will be publicly disclosed. However, ADR mechanisms allow the parties to control the manner and extent of the dissemination of sensitive information, ensuring that it remains confidential.[53)]

5. Flexibility

The pace of technological change and the increasingly complex technical underpinnings of intellectual property law have created a need for a flexible process of resolving disputes. Because the law often cannot catch up with technology advances or because technical facts are potentially confusing to a lay judge or jury, resolution mechanisms for IP disputes require blended or innovative mechanisms and solutions

53) McConnaughay, Ibid/ op. cit.

that can be adequately tailored to the parties' particular situation or a specific dispute.[54]

As seen in Table 2, the court process relies on highly structured rules, while the ADR processes have greater flexibility to deal with IP disputes. ADR mechanisms can apply whatever rules of procedure, evidence, and substantive law best fit the parties' commercial relationship or a specific dispute.[55]

Ⅳ. AHP Approaches for IP Dispute Resolution

1. An application of the AHP approach to IP dispute resolution

The choice of conflict resolution strategy relies largely on the context of the dispute, since the nature of the conflict differs, and its consequences vary to the participating actors.[56] More specifically, the conflict resolution choice presents a multi-criteria decision-making problem, since there are many factors, interactive attributes (e.g. political, cultural, traditional, etc.), and complex relationships involved. For such problems, the Analytic Hierarchy Process (AHP) is a highly preferred analysis methodology to assess decision makers' priority preferences (preference opinions), as suggested by Falkner and Benhajla (1990)[57] and Satty (1988).[58]

The main strength of the AHP method is to quantify subjective judgments of decision makers by assigning corresponding numerical values based on the relative importance of factors (i.e., priorities) under consideration.[59] AHP can thereby support rational decision-making on several qualitative factors, such as satisfaction feelings and preferences. Another strong point is that AHP analysis can reduce the risk of making bad decisions and support the decision makers' judgment by considering many factors, as is necessary in multi-criteria decision problems.[60]

---

54) Lee, Ibid/ op. cit., pp. 165-190

55) Mattli, Ibid/ op. cit., pp.919-947

56) Tjosvold, D., "The conflict-positive organization: it depends upon us", Journal of Organizational Behavior, Vol. 29, No. 1, 2008, pp.19-28.

57) Falkner, C. H., and Benhajla, S., "Multi-Attribute Decision Models in the Justification of CIM Systems", The Engineering Economist, Vol. 35, No. 2, 1990, pp.91-114.

58) Satty, T. L., Multi-criteria Decision Making: The Analytical Hierarchy Process, Pittsburgh, Pennsylvania: RWS Publications, 1988.

59) Saaty, T.L., Decision Making for Leaders, New York: RWS Publication, 1995.

60) Tsang, E. W. K., "Motives for strategic alliance: A resource-based perspective. Scandinavian", Journal

In light of these advantages, AHP is regarded as an outstanding management tool for complex multi-criteria decision problems. In this sense, AHP has been used in a wide variety of complex decisions, such as the strategic planning of organizational resources, the evaluation of strategic alternatives, and selecting a best alternative.[61] Several papers have compiled AHP success stories in very different fields.[62]

As stated above, the AHP research method is very good tool to support the sound decision-making by quantifying the expert's judgments. This study also applies the AHP methods to analyse multi-criteria decision problem about IP disputes by reflecting IP-related expert's opinion. In order to identify the overall priorities or overall rankings of resolution methods for IP disputes, all the criteria (i.e. variables) were evaluated using the AHP pair-wise comparison process by experts from the relevant academic or practical field.[63] The present study conducted a questionnaire survey of the relevant IP experts to ask about prior preferences, that is, which resolution choice is the best fit to resolve IP disputes among various types of IP disputes, by making a mutual pair-wise comparison for each criterion depicted in Figure 1. To solicit the expert's judgments, forty questionnaires were disseminated to IP-relevant experts, a group comprising 15 professors and researchers, 10 patent managers in firms, 10 patent attorneys, and 5 patent examiners. From January 27 to February 27, 2015, twenty-one responses were deemed valid with a response rate of 52.2%.[64]

---

of Management, Vol. 14, No. 3, 1998, pp.207-221.

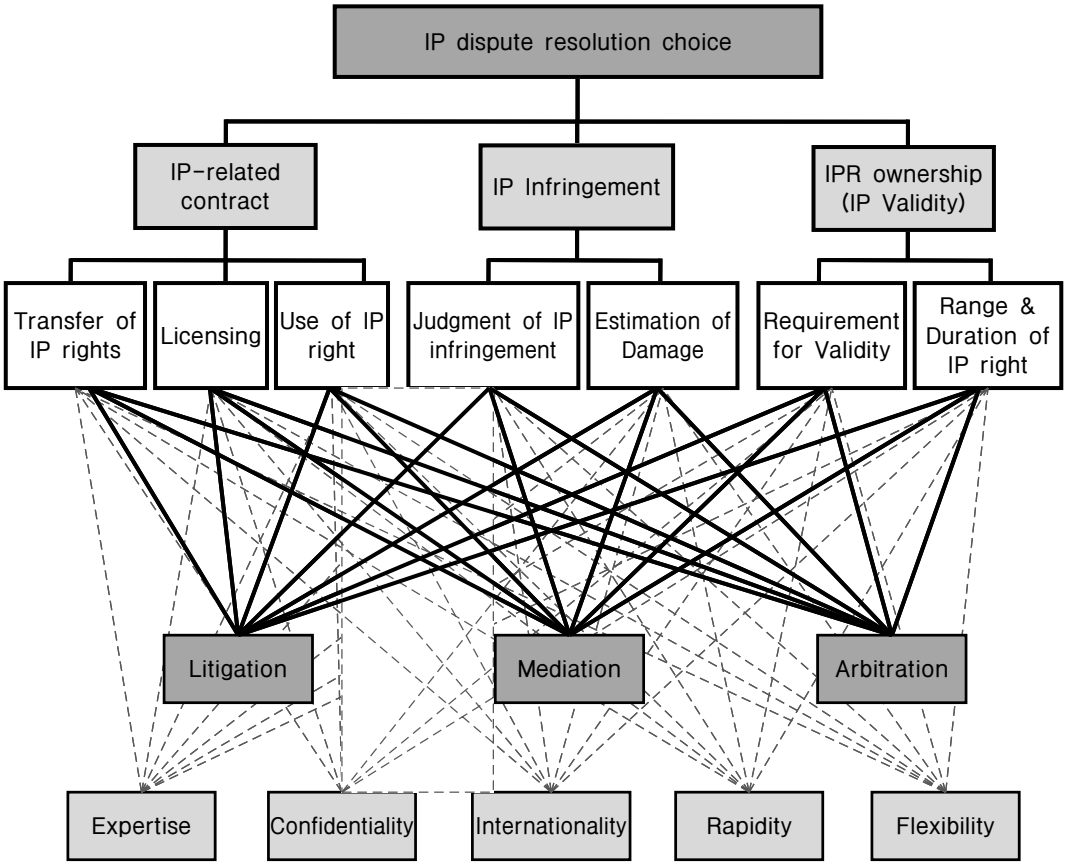
61) Albayrakoglu, M.M., "Justification of New Manufacturing Technology: A Strategic Approach Using the Analytical Hierarchy Process", Production and Inventory Management Journal, Vol. 37, No. 1, 1996, pp.71-76. Yang, J., and Lee, H., "An AHP Decision Model for Facility Location Selection", Facilities, Vol. 15, No. 9, 1997, pp.241-254. Yanga, J. and Shia, P., "Applying Analytic Hierarchy Process in Firm's Overall Performance Evaluation: A Case Study in China", Interational Journal of Business, Vol. 7, No. 1, 2002, pp.29-46.

62) Forman, E. and Gass, S., "The analytic hierarchy process: An exposition", Operations Research, Vol. 49, No. 4, 2001, pp.469-486. Kumar, S. and Vaidya, O., "Analytic hierarchy process: An overview of applications", European Journal of Operational Research, Vol. 169, No. 1, 2006, pp.1-29. Omkarprasad, V. and Sushil, K., "Analytic hierarchy process: An overview of applications", European Journal of Operational Research, Vol. 169, No. 1, 2006, pp.1-29. Ho, W., "Integrated analytic hierarchy process and its applications. A literature review", European Journal of Operational Research, Vol. 186, No. 1, 2008, pp.211-228. Liberatore, M. and Nydick, R., "The analytic hierarchy process in medical and health care decision making: A literature review", European Journal of Operational Research, Vol. 18, No. 1, 2008, pp.194-207.

63) Satty, Ibid/ op. cit.

64) The author made an effort to consult a greater number of experts to avoid the bias that may be present when judgments are considered by a single expert.

Figure 1. The Hierarchy Structure of Criteria and Alternatives in AHP



After summarizing the opinions of the evaluators, that is, the respondents of the survey, each criterion was quantified by finding the value of maximized Eigen value, consistency index (CI), and consistency ratio (CR). According to Taylor III (2002),[65] the Consistency Index (CI) can be calculated by using the formula as follows:

$$CI = \frac{maks.\,eigenvalue - n}{n-1} \quad (1)$$

$$maks.eigenvalue = \sum_{i} wi.ci \quad (2)$$

After acquiring the Consistency Index (CI), the next step is calculating the

65) Taylor III, B. W., Management Science, New Jersey: Pearson Prentice-Hall, Inc., 2002.

Consistency Ratio (CR) by using the formula (3):

$$CR = \frac{CI}{RI} \quad (3)$$

Description:

n = Amount of items compared

wi = Weight

ci = Sum of column

CR = Consistency Ratio

CI = Consistency Index

RI = Random Consistency Index

The CR index in AHP is used to maintain consistency in the decision-making of the responder, as some judgments are based on intuition, which is not always consistent. If the consistency ratio (CR) is higher than 10% (CR $\geq$ 10%), the result from the AHP method means no use of decision-making. Among the respondents (21 responses from survey of this study), the consistency ratio of 0.098 was obtained (CR $<$ 10%), which allowed the use of the average of the entire reference group.

2. Selecting criteria and building the hierarchy structure

The AHP approach involves decomposing a complex and unstructured problem into a set of components organized in a multilevel hierarchic form. Thus, it is first necessary to sort out the decision problem's components that constitute the hierarchical structure. In order to make well-founded decision choices with the use of an AHP method, this is probably the most important step.[66] Through surveying the literature and conducting interviews with IP experts, problem components are identified, and then divided into a hierarchy layer, according to the relevant relationship of each component and independent level. The hierarchical structure is shown in Figure 1, which consists of three levels: the overall goal of the decision, the criteria, and the alternatives.

66) Lee, S., Kim, W., Kim, Y., Oh, K., "Using AHP to determine intangible priority factors for technology transfer adoption", Expert Systems with Applications, Vol. 39, No. 7, 2012, pp.6388-6395.

The goal (and purpose of this paper)–to determine the best resolution choice for various types of IP disputes–is in the first level. The second level is a list of criteria that consists of the three main criteria that are the primary causes of IP disputes: IPR ownership, IP-related contract, IP infringement. As described in Section 2.1, disputes arise from disagreements or conflicts over the above three, and separate resolution strategies should be considered for each. In the third level, the sub-criteria are derived from each field of the criteria: transfer of IP right, licensing, use of IP right, judgment of IP infringement, estimation of damage, requirement for validity, range/duration of IP right. The last level (i.e. the fourth level) provides alternative choices, that is, resolution choices of IP disputes. The lines between levels indicate relationships between the factors, choices, and the goal.

As presented in Figure 1, this paper presents two types of alternatives, that is, resolution choices for the decision's problem, to provide guidelines for IP dispute resolution strategies, since the resolution method and focal point to decide IP disputes effectively should be applied differently by the types of IP disputes (see Section 2 and 3 for details). First are the means of resolving IP-relevant disputes (i.e. resolution methods), which are litigation (Alternative A), mediation (Alternative B), and arbitration (Alternative C). The second set of alternatives consists of important considerations for resolving IP disputes, that is, Expertise (Alternative A), Confidentiality (Alternative B), Internationality (Alternative C), Expeditiousness (Alternative D), and Flexibility (Alternative E), that are important factors to lead successful conclusion of IP disputes (see Section 3 for details). Two sets of alternatives should be considered when choosing the most suitable resolution strategy of IP disputes.

Ⅴ. Evaluation of IP Dispute Resolution Choices

This paper used AHP as depicted in Figure 1 to identify the best possible resolution strategy for IP disputes. To implement the AHP method, this paper utilized the software 'Expert Choice 2000', which makes structuring and modifying the hierarchy simple and quick and eliminates tedious calculations. When making pairwise comparisons using Expert Choice, there are three terms that can be used: importance, preference, or likelihood.[67] This paper make pairwise comparisons based on

preference, and the evaluating indicators of pair-wise comparisons are divided into nine levels on a scale from 1 (meaning equal preference between two criteria) to 9 (referring to absolute preference between two criteria), as recommended by Saaty (1988).[68] By making pairwise comparisons, criteria (i.e. IP dispute resolution choices) are prioritized.

The questionnaire for pairwise comparisons is divided into three categories. The first category contains questions about which type of IP disputes (discussed in Section 2.1) can be more easily settled by negotiation. For an example, there is a question of which type of dispute can be more effectively resolved through negotiation in disputes over 'Requirement for Validity of IP rights' and 'Range and Duration of IP rights'. The second category's questions are about which resolution method (discussed in Section 2.2) seems to be a more effective way to resolve IP disputes. The last category contains questions about which factors (discussed in Section 3) are the more important considerations in resolving IP disputes. Through the pairwise comparison using Expert Choice, the resulting weights for each criterion, the performance value for each alternative, and their ranks are presented in Tables 3, 4, and 5.

Table 3 shows the relative preference, that is, the weight, for negotiation as the IP dispute resolution mechanism. The overall priorities were derived by multiplying the weighting values of (A) by (B) as in Table 3. For example, in the case of indicator 1), the value of IP validity, viz. 0.082, was multiplied by the value of requirement for validity of IP right, viz. 0.333. The same procedure was applied for each indicator, thereby obtaining the relative weight. Specifically, the relative weight of indicator for "IP-related contract' is the highest, viz. 0.682, implying that the conflict over IP-related contracts can be most easily solved by means of negation among three types of IP disputes, that is, IP-related contract, IP ownership and IP infringement disputes.

---

67) Satty, T.L. and Vargas, L.G., Model, Methods, Concepts and Applications of the Analytic Hierarchy Process, Boston: Kluwer Academic Publishers, 2001.

68) If the score for each factor has similar weight in terms of level of preference between subjects of comparison, it is expressed in words such as "same" or with the number '1'. If the score for each factor has absolute importance between subjects of comparison, it will be numerically converted into '9'.

Table 3. Weights for IP Dispute Resolution by Negotiation and the Ranking Results

Criteria	Weight of each dimension (A)	Rank	Sub-criteria	Weight of each item (B)	Relative weight [(A)*(B)]	Rank
IPR ownership (IP Validity)	(1) 0.082	3	Requirement for Validity of IP right	0.333	0.027	7
			Range and Duration of IP right	0.667	0.055	5
IP-related contract	(2) 0.682	1	Transfer of IP right	0.109	0.074	4
			Licensing	0.309	0.211	2
			Use of IP right	0.582	0.397	1
IP Infringement	(3) 0.236	2	Declaration of IP infringement	0.800	0.189	3
			Estimation of Damage	0.200	0.047	6

Negotiation is the most amicable means to settle disputes without institutional involvement, but direct negotiations, either informal, by letter, or through formal face-to-face discussions, are often unproductive. As seen in Table 3, the subject matter of IPR ownership is minimally addressed by means of negotiation, since the weights (0.082) are much lower than in others. In particular, the issue over whether the validity of IP right is met by the requirements cannot be resolved without the help of a third party's assistance. Since judgment on the validity of IP rights requires the final decision of the administrative authorities, it is natural this kind of dispute rarely reaches a voluntary agreement between disputing parties. When it comes to dealing with disputes over IP validity, various other resolution mechanisms (e.g., litigation, mediation, or arbitration) can be used to resolve IP disputes more effectively than by means of negotiation.

Table 4 shows which resolution method is more suitable among various types of IP disputes described in Section 2.1.[69] In terms of proceedings, there are generally three types of binding methods for resolving disputes through third-party intervention: litigation, mediation, and arbitration. Some issues will need to be closely monitored when determining an appropriate resolution method, particularly issues about the IPR's grant, validity, and extent of the right granted. It is argued that disputes over those issues should be determined only by the authority that granted the right or by the courts of that country due to the territorial effects of IP rights.

69) As stated above, the suitability of IP dispute resolution mechanisms will vary according to the nature of disputes.

Table 4. Weights for IP Dispute Resolution Methods and the Ranking Results

Criteria	Sub-criteria	Alternative	Weighting value	Standardized value	Rank
IPR ownership (IP Validity)	Requirement for Validity of IP right	Litigation	0.503	0.79	5
		Mediation	0.153	0.24	18
		Arbitration	0.345	0.54	10
	Range and Duration of IP right	Litigation	0.530	0.83	4
		Mediation	0.178	0.28	17
		Arbitration	0.291	0.46	11
IP-related contract	Transfer of IP right	Litigation	0.225	0.35	15
		Mediation	0.229	0.36	14
		Arbitration	0.545	0.86	3
	Licensing	Litigation	0.076	0.12	21
		Mediation	0.288	0.45	13
		Arbitration	0.637	1	1
	Use of IP right	Litigation	0.089	0.14	20
		Mediation	0.292	0.46	11
		Arbitration	0.618	0.97	2
IP Infringement	Declaration of IP infringement	Litigation	0.477	0.75	6
		Mediation	0.145	0.23	19
		Arbitration	0.379	0.59	8
	Estimation of Damage	Litigation	0.413	0.65	7
		Mediation	0.222	0.35	15
		Arbitration	0.365	0.57	9

In line with this argument, such issues as the validity of IP rights or declaration of IP infringement are rarely carried out in a private forum (i.e., mediation or arbitration). As seen in Table 4, the weighting value of mediation or arbitration is much lower than litigation in terms of dealing with disputes over IPR ownership. Considering the great public interest in challenging invalid IP rights (e.g., patents),[70] a judgment by the

70) U.S. Federal Judge Swygert once wrote, '[Issues such as patent validity and enforceability are] inappropriate for arbitration proceedings and should be decided by a court of law, given the great public interest in challenging invalid patents' (Beckman Instruments, Inc. v. Technical Develop. Corp., 433 F.2d 55, 63 [7 Cir. 1970]).

judiciary is seen to be a more effective way to resolve disputes over validity and enforceability of IP rights.

As for ADR methods, especially arbitration, they are the more useful method for resolving IP-related contract issues. As the life cycle of technology becomes faster and competition keener, domestic and foreign firms maintain complex, long-term commercial relationships by establishing strategic alliances, such as cross-licensing and patent pools between firms. In such circumstances, maintaining commercial relationships is important. Taking this background into account, ADR techniques are more appropriate for resolving IP contractual disputes, such as conflicts over the ownership and transfer of IP rights. As ADR processes result in mutually beneficial agreement between parties by focusing on cooperation in the future, disputing parties can take satisfactory paths to managing the conflict and maintain a good contractual relationship.

Table 5. Weights for Requirements of IP Dispute Resolution and the Ranking Results

Criteria	Sub-criteria	Alternative	Weighting value	Standardized value
IPR ownership (IP Validity)	Requirement for Validity of IP right	Expertise	0.575	0.954
		Internationality	0.274	0.961
		Expeditiousness	0.047	0.904
		Flexibility	0.072	0.727
		Confidentiality	0.032	0.865
	Range and Duration of IP right	Expertise	0.577	0.957
		Internationality	0.241	0.846
		Expeditiousness	0.048	0.923
		Flexibility	0.099	1.000
		Confidentiality	0.036	0.973
IP-related contract	Transfer of IP right	Expertise	0.576	0.955
		Internationality	0.271	0.951
		Expeditiousness	0.047	0.904
		Flexibility	0.073	0.737
		Confidentiality	0.033	0.892
	Licensing	Expertise	0.577	0.957
		Internationality	0.254	0.891
		Expeditiousness	0.051	0.981
		Flexibility	0.084	0.848
		Confidentiality	0.034	0.919
	Use of IP right	Expertise	0.581	0.964
		Internationality	0.251	0.881
		Expeditiousness	0.051	0.981
		Flexibility	0.082	0.828
		Confidentiality	0.036	0.973

Criteria	Sub-criteria	Alternative	Weighting value	Standardized value
IP Infringement	Declaration of IP infringement	Expertise	0.556	0.922
		Internationality	0.285	1.000
		Expeditiousness	0.045	0.865
		Flexibility	0.08	0.808
		Confidentiality	0.033	0.892
	Estimation of Damage	Expertise	0.603	1.000
		Internationality	0.227	0.796
		Expeditiousness	0.052	1.000
		Flexibility	0.081	0.818
		Confidentiality	0.037	1.000

Table 5 presents important factors to be considered when resolving IP disputes effectively. Among the five primary factors (see Section 3 for details), 'Expertise" has the highest value, followed by 'Internationality'. As stated above, IP disputes often involve complex technical and legal issues resulting in extremely lengthy proceedings. The greater expertise in the relevant disputes, the earlier its identification and the easier it is to design a process to avoid impasse. For this reason, expertise in the relevant IP field is a very important factor to deal with IP disputes effectively. As seen in Section 3, the lack of expertise leads to higher costs and longer times to resolve IP disputes. In particular, expertise is the most highly required factor to determine the damage of IP infringement, as seen in Table 5 where the weighing value of 'estimation of damage by IP infringement' is the highest among other sub-criteria, viz. 0.603.

'Internationality' is also an important factor, particularly with regard to settling disputes other than IP validity. This result is related to the fact that issues on IP validity are rarely addressed in the international context. Considering that cross-border IP disputes now occur more frequently, judgments should be enforceable internationally to make the effective use of IP in the global markets.

Ⅵ. Conclusion and Discussion

Given the rising importance of IP as an economic asset, the increasing frequency and complexity of IP disputes, and the lack of research on conflict resolution strategy choice of IP, it becomes increasingly important, especially for SMEs (small- and medium-sized enterprises), to consider cost- and time-efficient dispute resolution

mechanisms and to develop an adequate IP dispute resolution strategy. Traditionally, most IP disputes had previously been settled by litigation and were seldom resolved through ADR techniques. In recent years, ADR methods have become more common in resolving IP disputes, and various types of ADR techniques have been developed. In today's economy, experiencing rapid development of technology, economic globalization, and growing use of IP rights, ADR is perceived to be more advantageous for handling complicated international disputes.[71)]

This study's AHP application supports the recent trend toward ADRs as the preferred resolution mechanism, over traditional litigation. Its findings show that resolution methods are somewhat different, depending on the type of IP dispute; overall ADR processes, especially arbitration, are viewed as the more appropriate methods to resolve IP disputes. However, conflicts over IP validity and infringement are shown to be more effectively resolved through court processes. In order to reach a successful conclusion of these disputes, 'internationality or enforcement in the world anywhere' is highly desirable, in contrast to the court process. Considering that ADR methods are regarded collectively as a powerful tool to help the parties safely explore ways of setting up a cheaper, faster, and better process to resolve domestic and international disputes, an institutional system should be developed through which ADR methods can be actively drawn upon and used in an international context. Especially, arbitration is the most useful instrument for cross-border enforcement due to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, also known as the New York Convention.

Even though the scope of arbitrability has been extending, the subject matter of these disputes, especially disputes over the validity of IP rights, still exceeds the jurisdictional scope of arbitrability in many countries. Disputes involving the validity or infringement of IP remain controversial, as challenging issues with regard to handling IP disputes in the international context. However, those particular issues will be resolved exclusively by binding arbitration conducted in accordance with the Arbitration Rules of the World Intellectual Property Organization (WIPO). In addition to the active role of the WIPO, an appropriate institutional environment should be established that could resolve issues related to IP 'validity' and 'infringement' in the international context by further developing various advanced types of ADR techniques.

71) Jabaly, Ibid/ op. cit., pp. 730-735.

References

Albayrakoglu, M.M., "Justification of New Manufacturing Technology: A Strategic Approach Using the Analytical Hierarchy Process", *Production and Inventory Management Journal,* Vol. 37, No. 1, 1996, pp.71-76.

Ansson Jr., R.J., "International intellectual property rights, the United States, and the People's Republic of China", *Temple International and Comparative Law Journal,* Vol. 13, 1999, pp.1-26.

Arnold, T., Fletcher, M. G., McAughan, J., Robert, J., "Managing patent disputes through arbitration", *Arbitration Journal*, Vol. 46, No. 3, 1991, pp.1-5.

Bernstein, D., "A case for mediating trademark disputes in the age of expanding brands", *Cardozo Journal of Dispute Resolution*, Vol. 6, No. 2, 2005, pp.139-162.

Barney, J.B., "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, No. 1, 1991, pp.99-120.

Barsky, N.P., Marchant, G., "The most valuable resource - measuring and managing intellectual capital", *Strategic Finance*, Vol. 81, No. 8, 2000, pp.58-.62.

Chesbrough, H., "The era of open innovation", *MIT Sloan Management Review,* Vol. 44 No. 3, 2003, pp.35-41.

Delerue, H., Lejeune, A., "Managerial secrecy and intellectual asset protection in SMEs: the role of institutional environment", *Journal of International Management,* Vol. 17, No. 2, 2011, pp.130-142.

Delios, A., and Beamish, P., "Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance", *Academy of Management Journal,* Vol. 44, No. 5, 2001, pp.1028-1038.

Fainshmidt, S., White, G.O., Cangioni, C., "Legal Distance, Cognitive Distance, and Coflict Resolution in International Business Intellectual Property Disputes", *Journal of International Management*, Vol. 20, No. 2, 2014, pp.188-200.

Falkner, C. H., and Benhajla, S., "Multi-Attribute Decision Models in the Justification of CIM Systems", *The Engineering Economist*, Vol. 35, No. 2, 1990, pp.91-114.

Fey, C.F., Beamish, P.W., "Joint venture conflict: the case of Russian international joint ventures", *International Business Review,* Vol. 9, No. 2, 2000, pp.139-162.

Folsom, R.H., Gordon, M.W., Spanogle Jr., J.A., *International Business Transactions: A Problem Oriented Coursebook,* West Group Publishing, 2002.

Forman, E. and Gass, S., "The analytic hierarchy process: An exposition", *Operations*

Research, Vol. 49, No. 4, 2001, pp.469-486.

Grantham, W., "The Arbitrability of International Intellectual Property Disputes", *Berkeley Journal of International Law*, Vol. 14, No. 1, 1996, pp.175-221

Hanel, P., "Intellectual property rights business management practices: A survey of the literature", *Technovation,* Vol. 26, No. 8, 2008, pp.895-931.

Ho, W., "Integrated analytic hierarchy process and its applications. A literature review", *European Journal of Operational Research*, Vol. 186, No. 1, 2008, pp.211-228.

Jabaly, P., "IP litigation or ADR", Journal of Intellectual Property Law & Practice, Vol. 5, No. 10, 2010, pp.730-735.

Kamiyama, S., Sheehan, J. and, Martinez, C., "Valuation and Exploitation of Intellectual Property", 2006, http://dx.doi.org/10.1787/307034817055.

Kumar, S. and Vaidya, O., "Analytic hierarchy process: An overview of applications", *European Journal of Operational Research*, Vol. 169, No. 1, 2006, pp.1-29.

Lee, J. Y., "Promoting an arbitration system for international dispute resolution in international in intellectual property rights cases", *Journal of Arbitration Studies,* Vol. 23, No. 2, 2013, pp.165-190 [in Korean].

Lee, S., Kim, W., Kim, Y., Oh, K., "Using AHP to determine intangible priority factors for technology transfer adoption", *Expert Systems with Applications*, Vol. 39, No. 7, 2012, pp.6388-6395.

Levine, R. E., Topic, M. V., "Using alternative dispute resolution mechanisms to resolve patent disputes", *Journal of Intellectual Property Law and Practice*, Vol. 7, No. 2, 2012, pp.119-125.

Lewicki, R.J., Saunders, D.M., Barry, B., Minton, J.W., *Essentials of Negotiation*, McGraw-Hill Publishing, 2004.

Liberatore, M. and Nydick, R., "The analytic hierarchy process in medical and health care decision making: A literature review", *European Journal of Operational Research*, Vol. 18, No. 1, 2008, pp.194-207.

LoVoi, J., "Competing interests: anti-piracy efforts triumph under TRIPS but new copying technology undermines success", *Brooklyn Journal of International Law*, Vol. 25, 1999, pp.445-.482.

Martin, J., "Arbitrating in the Alps rather than litigating in Los Angeles: The advantages of international intellectual property-specific alternative dispute resolution", *Stanford Law Review*, Vol. 49, No. 4, 1997, pp.917-970.

Mattli, W., "Private justice in a global economy: from litigation to arbitration",

International Organization, Vol. 55, No. 4, 2001, pp.919-947.

Mattli, W., Slaughter, A., "Law and politics in the European Union: A reply to Garrett", *International Organization*, Vol. 49, No. 1, 1995, pp.183-190.

McConnaughay, P., ADR of Intellectual Property Disputes, "SOFTIC SYMPOSIUM 1 (Nov. 15, 2002)". http://www.softic.or.jp/symposium/open_materials/11th/en/ PMcCon.pdf.)

Nixon, A., "Arbitration - a better way to resolve intellectual-property disputes?", *Trends in Biotechnology*, Vol. 15, No. 12, 1997, pp.484-486.

Omkarprasad, V. and Sushil, K., "Analytic hierarchy process: An overview of applications", *European Journal of Operational Research*, Vol. 169, No. 1, 2006, pp.1-29.

Riahi-Belkaoui, A., "Intellectual capital and firm performance of US multinational firms: a study of the resource-based and stakeholder views", *Journal of Intellectual Capital*, Vol. 4, No. 2, 2003, pp.215-226.

Satty, T. L., *Multi-criteria Decision Making: The Analytical Hierarchy Process*, Pittsburgh, Pennsylvania: RWS Publications, 1988.

Saaty, T.L., *Decision Making for Leaders,* New York: RWS Publication, 1995.

Satty, T.L. and Vargas, L.G., *Model, Methods, Concepts and Applications of the Analytic Hierarchy Process*, Boston: Kluwer Academic Publishers, 2001.

Schimmel, D., Kapoor, I., "Resolving international intellectual property disputes in arbitration", Intellectual Property & Technology Law Journal, Vol. 21, No. 2, 2009, pp.1-6

Smith, M., "Mediation as an alternative to litigation in patent infringement disputes", ADR Bulletin, Vo. 11, No. 6, 2009, pp.113-119.

Sohn, K. H., Park, J. A., "Agreement on international intellectual property dispute resolution", *Journal of Arbitration Studies*, Vol. 14, No. 2, 2004, pp.204-205 [in Korean].

Taylor III, B. W., *Management Science*, New Jersey: Pearson Prentice-Hall, Inc., 2002.

Terpstra, V., Sarathy, R., Russow, L., *Global Environment of Business,* Garfield Heights: North coast Publishers, 2005.

Tiefenbrun, S., "Piracy of intellectual property in China and the former Soviet Union and its effects upon international trade: a comparison", *Buffalo Law Review,* Vol. 46, 1998, pp.1-69.

Tjosvold, D., "The conflict-positive organization: it depends upon us", *Journal of Organizational Behavior*, Vol. 29, No. 1, 2008, pp.19-28.

Tsang, E. W. K., "Motives for strategic alliance: A resource-based perspective. Scandinavian", *Journal of Management*, Vol. 14, No. 3, 1998, pp.207-221.

Yang, J., and Lee, H., "An AHP Decision Model for Facility Location Selection",

Facilities, Vol. 15, No. 9, 1997, pp.241-254.

Yanga, J. and Shia, P., "Applying Analytic Hierarchy Process in Firm's Overall Performance Evaluation: A Case Study in China", *Interational Journal of Business*, Vol. 7, No. 1, 2002, pp.29-46.

Yun, S. H., "ADR in IP Dispute", *Journal of Arbitration Studies*, Vol. 13, No. 1, 2002, pp.125-166 [in Korean].

Wang, C.L., Lin, X., Chan, A.K.K., Shi, Y., "Conflict handling styles in international joint ventures: a cross-cultural and cross-national comparison", *Management International Review*, Vol. 45, No. 1, 2005, pp.3-.21.

Wilson, M., "TRIPS agreement implications for ASEAN protection of computer technology", *Annual Survey of International and Comparative Law*, Vol. 4, 1997, pp.18-.55.

WIPO, *Introduction to intellectual property: Theory and practice,* London: Kluwer Law International, the World Intellectual Property Organization, 1997.