

**2017년 WIPO-QUT(호주 퀸즈랜드 공대)
지식재산 과정 참가 결과**

2018년 2월

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훈련 결과 보고서 요약서

성명	이상돈	직급	기술서기관
훈련국	호주	훈련기간	2017.2.13.~2018.2.12 (1년)
훈련기관	퀸즈랜드 공과대학교	보고서 매수	109 매
훈련과제	WIPO-QUT 지식재산권법 석사과정		
보고서 제목	WIPO-QUT 지식재산권법 석사과정 국외훈련결과보고서		
내용 요약	<p>[과정 구성]</p> <ul style="list-style-type: none"> - 8개 과정으로 구성되어 청강수업, 토론, 에세이 작성을 병행 - ①지재권 개론, ②특허법, ③저작권법, ④상표법, ⑤디자인권 및 식물신품종 보호, ⑥전통지식 및 부정경쟁 방지법, ⑦지식재산 관리 및 상업화, 및 ⑧연구보고서 작성의 8개 과정 <p>[과정별 에세이 주요내용]</p> <p><u>[과정①] 미국연방대법원 판결에 기초한 비즈니스특허의 성립성 요건에 대한 연구</u></p> <ul style="list-style-type: none"> - Alice, Mayo 판결 등 최근 미국 연방대법원의 판례 분석을 통하여 특허성립성 판단 기준 연구 - UCT, MoT, Mayo 2 step Test 분석을 통하여 자연법칙, 알고리즘 등으로 판단하는 기준 분석 및 국내 비즈니스 특허에 미치는 영향 분석 <p><u>[과정②] 빌스키 판례에 따른 특허성립성 판단기준에 대한 연구</u></p> <ul style="list-style-type: none"> - 빌스키 판례에서 제시하는 특허성립성 판단기준 분석을 통하여 특허성립성을 판단하는 최적의 기준 연구 		

[과정③] 온라인 서비스 제공자의 법적 책임에 관한 연구

- 저작권법 하에서 온라인 서비스 제공자의 법적 책임에 대한 각국의 제도 및 판례연구를 통하여 서비스 제공자의 법적 책임을 구성하는 이론 및 모델 연구

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- 디자인 보호법, 저작권법의 중복보호 영역, 각국의 제도 및 판례 등의 분석을 통하여 중복보호의 장단점 및 필요성에 대한 연구

[과정⑥] 경쟁법과 지식재산권의 관계 연구

- 지식재산권이 갖는 독점권한과 이에 따른 경쟁법과의 관계에 대한 연구 및 경쟁법이 지식재산권을 제한할 수 있는 합리적 기준에 대한 연구

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- 2017년 WIPO-QUT 지재산권 교육과정 훈련결과 -

I. 훈련 개요

1. 목적 및 배경

- 2017년 심사관 해외훈련사업에 따라 WIPO와 QUT*에서 공동 주관하는 'Master of Intellectual Property Law' 1년 과정(석사) 참가
 - * 호주 퀸즈랜드 공과대학교(QUT, Queensland University of Technology)
- WIPO-QUT 석사과정은 각국 지재산권 전문가를 대상으로 국제 지재산권법 및 정책 전반에 대한 이론 및 실무 지식을 제공
- 훈련 참가를 통해 국제 지식재산권 관련 이슈에 대한 실무적인 이해 증진 및 세계 각국의 교육 참가자들과의 인적 네트워크 구축

2. 훈련지 및 기간

- 훈련기간 : 2017. 2. 13. ~ 2018. 2. 12. (1년)
- 훈련지 : 퀸즈랜드 공과대학  (호주 브리즈번 소재)

3. 훈련 참가자

성명	직급	소속	수행 업무
이상돈	기술서기관	특허심사2국	특허 심사
장일석	공업사무관	특허심사3국	특허 심사
최명환	방송통신사무관	특허심사1국	특허 심사

※ WIPO-QUT 석사과정에 아시아-태평양 지역의 변호사, 공무원 등 총 31명 참가

II. 교육 개요

1. 교육 개요

- 교육명 : WIPO - QUT Master of Laws in Intellectual Property
- 교육장소 : 퀸즐랜드 공과대학 법대
- 과정구성 : 청강수업을 중심으로 주제토론, 현장견학, 그룹 토론을 병행
 - 청강 수업 : 지식재산권 개요 및 관련 판례 학습
 - 현장 견학 : 호주 특허청, 호주 교육청 등 방문
 - 그룹 토론 : 그룹별 토의 및 발표

2. 과정구성

- 지재권 개론, 특허법, 저작권법, 상표법, 디자인권 및 식물신품종 보호, 전통지식 및 부정경쟁 방지법, 지식재산 관리 및 상업화, 및 최종 연구 보고서의 8개 과정(Unit)으로 구성
- 각 과정(Unit)별로 구두 발표(Presentation), 주관식 문제 시험 (Take-Home Exam.), 및 연구보고서(Research Paper)의 3가지를 종합하여 평가가 이루어짐

< '17년 WIPO-QUT 지재권 교육과정 구성 >

과 목 명	수업기간	담당교수	학점
제1학기			
지식재산 일반개요	5주간	Kamal Puri	12
특허와 생물관련 발명	6주간	Bryan Mercurio	12
저작 및 저작인접권	5주간	Kamal Puri	12
상표, 도메인네임 및 지리적표시	6주간	Anna Sharp	12
제2학기			
디자인 및 식물다양성보호	6주간	Kamal Puri	12
전통지식, 경쟁법 등 최근 이슈	6주간	Antony Taubman	12
지식재산의 상업화 및 관리	6주간	Philip Mendes	12
연구 과제(Research Project)	학기간	Matthew Rimmer	12

III. 과정별 내용 및 주요 연구결과

1. 지식재산 일반개론 (General Introduction to Intellectual Property)

□ 교육기간 : 2017. 02. 27. ~ 03. 15.

□ 담당교수 : Dr. Kamal Puri(QUT)

□ 과정내용

○과정 개요

본 과정(Unit)은 지식재산권을 구성하는 각종 권리들의 종류와 역사에 대한 개괄적 소개를 포함. 각종 지식재산권에 대한 권리의 생성, 권리의 이전 및 상업적 이용에 대해 살펴보고, 파리조약으로부터 시작해서 지식재산권 관련 각종 국제조약의 역사를 살펴보면서 그로부터 어떻게 현재의 지식재산권의 모습과 관련 국제기구들이 형성되었는지를 알려줌. 그 외 호주 특허청의 역할과 아시아-태평양 지역의 지재권에 대한 간략한 소개도 포함

○세부 내용

- i) 지식재산권법에 대한 소개 (특허, 상표, 디자인, 저작권 및 관련 권리, 영업비밀, 식물 변종 보호, 지리적 표시, 전통 지식 등)
- ii) 호주 특허청의 역할
- iii) WIPO의 역사, 조직 및 활동에 대한 소개
- iv) 파리 조약, 지역별 특허청, TRIPS 협정, 세계무역기구(WTO)
- v) 지식재산권의 역할
- vi) Research Paper 작성을 위한 연구 방법론 및 기법
- vii) 아-태 지역 내 지재권 보호 관점

□ 주요 연구결과 - Research Paper

○ Topic : Business method Patent subject matter eligibility Based on US Supreme Court decision

Introduction

Although patents granted in different Contracting States for the same invention are independent of each other¹⁾, the United State has great influence on patent systems(court decision, laws, etc) of other countries in the world. In this paper I am going to research the business method patent subject matter eligibility based on US Court decision. It was illegal to protect the software by patents until the mid-1970s in the United States. However, in the 1980's as the pro patent policy came, the Supreme Court ruled that the software could also be eligible for patents in 1982²⁾.

Business method patents are a class of patents which disclose and claim new methods of doing business. This includes new types of e-commerce, insurance, banking and tax compliance etc. After *Diamond v. Diehr* case, USPTO's Manual of Patent Examining Procedures and court decision³⁾ still defined the business method patents were not patentable subject matter⁴⁾. However, in the 1998 SSB case⁵⁾, the CAFC

1). Paris convention Article 4bis Patents: Independence of Patents Obtained for the Same Invention in Different Countries

(1) Patents applied for in the various countries of the Union by nationals of countries of the Union shall be independent of patents obtained for the same invention in other countries, whether members of the Union or not.

2). *Diamond v. Diehr*, 450 U.S. 175 (1981), was a United States Supreme Court decision which held that controlling the execution of a physical process, by running a computer program did not preclude patentability of the invention as a whole.

3). *Hotel Security Checking Co v Lorraine Co*, 160 F.2d 467 (2d Cir 1948), the court stated that a system of transacting business disconnected from the means for carrying out the system is not, within the most liberal interpretation of the term, an art that could be patented.

4). Yumi patent office, Research for the Domestic and Overseas Conditions of the Protection

made a historic ruling that the business method could be patentable subject matter like any other invention. The court established the principle that a claimed invention was eligible for protection by a patent in the United States if it involved some practical application and, in the words of the *State Street* opinion, "it produces a useful, concrete and tangible result. It was called UCT test. The United States, which led to global patent trends, affected patent practices and policies around the world. After case the BM patent spread rapidly around the world especially Korea and Japan.

In the late 2000's, the US patent policies changed because Pro-Patent policies caused several problems like abuse of litigation from Patent Troll. The scope of business method patent subject matter eligibility has narrowed from that time. In *Bilski* case⁶⁾, the United States Court of Appeals for the Federal Circuit (CAFC) reiterated the machine-or-transformation test as the (meaning sole) applicable test for patent-eligible subject matter⁷⁾. It was called MoT test. In recent years, the US Supreme Court narrowed much more the scope of business method patent subject matter. US Supreme Court in *Alice* case⁸⁾, the patents of Alice Corp. were held to be invalid because the

Policies of the Business Method Patents and the Prospects of Development Thereof, 2008, p25.

5) *State Street Bank and Trust Company v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), also referred to as *State Street* or *State Street Bank*, was a 1998 decision of the United States Court of Appeals for the Federal Circuit concerning the patentability of business methods.

6). *In re Bilski*, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (Fed. Cir. 2008)

7). *Bilski v. Kappos*, 561 U.S. 593 (2010), was a case decided by the Supreme Court of the United States holding that the machine-or-transformation test is not the sole test for determining the patent eligibility of a process, but rather "a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under 101 (*Bilski*, 130 S.Ct. 3218, 3226-27 (2010)).

8). *Alice Corp. v. CLS Bank International*, 573 U.S. ___, 134 S. Ct. 2347 (2014), was a 2014 decision of the United States Supreme Court about patentable subject matter (patent eligibility).^[2] The issue in the case was whether certain claims about a computer-implemented, electronic crowd service for facilitating financial transactions covered abstract ideas ineligible for

claims were drawn to an abstract idea, and implementing those claims on a computer was not enough to transform that idea into patentable subject matter. It was called Mayo 2 steps test.

In this paper, I will look through the each test, UCT test, MoT test and Mayo 2 steps test. I assume the virtual business method invention and I'll check if the invention is patentable subject matter based on each test criterion.

I . Patentable Subject matter

35 USC section 101⁹⁾ defines patentable subject matter. If any invention is one of the subject matter, process, machine, manufacture and composition of matter, the application of invention is patentable subject matter. According to US MPEP, process is an act, or a series of acts or steps and machine is a concrete thing, consisting of parts, or of certain devices and combination of devices. Manufacture is defined as an article produced from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand labor or by machinery. Lastly the composition of matter is related to all compositions of two or more substances and all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids.

There are judicial exceptions including laws of nature, physical phenomena, and abstract ideas, or a particular practical application of a

patent protection.

9). Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

judicial exception. Isolated DNA in myriad case or Mores signals are examples laws of nature. Mitigating settlement risk(Alice case), hedging(Bilski case) and a mathematical procedure for converting one form of numerical representation to another(mathematical algorithm) are examples of abstract idea. So, although the invention is one of the four categories defined by section 101, if the invention is one of the exceptions, the invention is not patentable subject matter.

The each test described below defined how to decide if the application is patentable subject matter or not when the application of invention is one of four categories defined by section 101 and one of judicial exceptions.

II. UCT(Useful, Concrete, Tangible) test in SSB case

A. What is Claim

The US Patent 5,193,056¹⁰⁾ is business method of managing and operating mutual funds. It is about the data processing system provided for monitoring and recording the information flow and data, and making all calculations, necessary for maintaining a partnership portfolio and partner fund (Hub and Spoke) financial services configuration

10). Claim 1 : A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising: (a) computer processor means for processing data; (b) storage means for storing data on a storage medium; (c) first means for initializing the storage medium; (d) second means for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio; (e) third means for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund; (f) fourth means for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and (g) fifth means for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

B. Why the US patent 5,193,056 was patentable subject matter

The claimed invention was a data processing system. It was a kind of machine, so it was one of four categories defined by section 101. However the claimed invention was business method of managing and operating mutual funds so it was the abstract idea of judicial exception. In principal, the invention should be rejected but the Federal court made a UCT test. The reason why mathematical algorithm or abstract idea is not patentable subject matter is because the patent could preempt every use of the underlying mathematical algorithm. So, when an invention of an abstract idea which does not preempt every use of that idea and produce a useful, concrete and tangible result, the invention is eligible for patent.

The Federal Circuit ruled that the claimed machine-implemented financial model applied the abstract mathematical principle to produce a 'useful, concrete and tangible' share price, and the investment funds relied on this useful result in subsequent share trades. Patent on that investment model machine claimed only a particular use of a mathematical algorithm in financial models. The patent did not preempt every use of the mathematical algorithm and the public therefore is free to use the algorithm in other applications. Accordingly, the claimed machine was eligible for patent protection¹¹⁾.

III. MoT(Machine or Transform) test in Bilski case

A. What is Claim

The Bilski patent was application 08/833,892 filed at theUSPTO. It

11). 149 F.3d at 1370~1373

claimed a procedure for instructing buyers and sellers how to protect against the risk of price fluctuations in a discrete section of the economy. The patent application described a method for providing a fixed bill energy contract to consumers. Under fixed bill energy contracts, consumers pay monthly prices for their future energy consumption in advance of winter based on their past energy use. The monthly prices remain the same no matter how much energy they then use. Thus, consumers save money relative to others if, for example, a given winter is unusually cold and they use an unusually large amount of energy for heating. On the other hand, consumers pay more than others if a winter is unusually warm and their energy use is lower than average.

B. Why the Bilski's application was not patentable subject matter in prospect of CAFC

The claimed invention was the process of hedging and also one of judicial exceptions. It was an abstract idea. In criterion of SSB case, the application could be patentable subject matter if the invention produced useful, concrete or tangible results. However the CAFC ruled the application was not patentable subject matter. The CAFC brought old criterion that is MoT test, which first articulated in *Gottschalk v. Benson* (1971). The machine-or-transformation test is a test of patent eligibility under which a claim to a process qualifies for consideration if it (1) is implemented by a particular machine in a non-conventional and non-trivial manner or (2) transforms an article from one state to another¹².

The claimed invention was the method and not implemented by any machine or means, so Bilski invention was not satisfied with first

12). Stefania Fusco, "Is In re Bilski a Deja Vu", 2009 Stan. Tech. L. Rev. P1 Archived July 15, 2010.

condition of MoT test. The second condition defined transformation. The CAFC showed examples of what the transformation was. For example, method transforming X-ray attenuation data produced in a X-Y field by an X-ray tomographic scanner to an image of body organs and bones was satisfied with the condition. However the process of graphically displaying variances from their average values of unspecified data obtained in an unspecified manner was not patentable subject matter¹³). Bliski's claimed invention was a procedure for instructing buyers and sellers how to protect against the risk of price fluctuations in a discrete section of the economy. There was not any physical transformation in process so the application also didn't satisfied with the second condition. Overall the bilski application failed to meet the MoT test, so was not patentable subject matter¹⁴).

IV. Mayo 2 steps test in Alice case¹⁵)

A.What is claim

The US Patent 7,294,720 B2 was a system for exchanging an obligation between parties where the exchange is administered by a supervisory institution that ensures real-time settling of obligations between parties by updating shadow records in real-time and instructing one or more exchange institutions to effect, from time to

13). In re Abele, 684 F.2d 902 (C.C.P.A. 1982)

14). Bilski's method claim was patent-ineligible because it did not "transform any article to a different state or thing." Legal obligations (such as options and futures contracts) and business risks "cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances." Moreover, to the extent that signals are involved and are transformed, they are not "representative of any physical object or substance. [In re Bilski,545 F.3d 943, 88 U.S.P.Q.2d 1385(Fed. Cir. 2008)]

15). Alice Corp. v. CLS Bank International, 573 U.S. ___, 134 S. Ct. 2347 (2014)

time, the exchange of obligations in accounts maintained external to the supervisory institution¹⁶).

B. Why the the US patent 7,249,720 B2 was not patentable subject matter

In Alice case, the Supreme Court used the Mayo 2 steps test. In the first Mayo step, the court must determine whether the patent claim under examination contains an abstract idea, such as an algorithm, method of computation, or other general principle. If the answer is affirmative, the court must proceed to the next step. In the second step of analysis, the court must determine whether the patent adds to the idea "something extra" that embodies an "inventive concept."¹⁷ If there is no addition of an inventive element to the underlying abstract idea, the court should find the patent invalid under 101¹⁸). After this case, USPTO made interim guidance on patent subject matter eligibility in 2014. The guidance gave some example of what is no inventive concept. For example, a claim to an abstract idea requiring no more than a generic computer to perform generic computer functions that are well understood, routine and conventional activities previously known to the industry was not something extra¹⁹). In the first Mayo step, we should find out whether the invention contains abstract idea or not. Alice invention that system for exchanging an obligation implemented by generic computer, was abstract idea, so we should proceed to the Mayo second step. As above mentioned, an abstract idea implemented by generic computer has not inventive step or something extra, so Alice

16). US 7,294,720 B2 abstract.

17). In Supreme court and 2014 Interim guidance, "inventive step" , "something extra" and "significantly more" were used the same meaning. And the inventive step is distinguished from inventive step of patentability.

18). Alice Corp. v. CLS Bank International, 573 U.S. __, 134 S. Ct. 2347 (2014)

19). 2014 Interim guidance on Patent subject matter eligibility, USPTO.

invention failed to meet the Mayo steps. As a result, Alice invention was not patentable subject matter.

V. Observation

Let's assume that the invention is the process of reducing risks of stock investment which is implemented on computer system. In the prospect of UCT test in SSB case, we should find out whether the invention produce useful, concrete or tangible results even though the invention is an abstract idea. So if the invention produces useful results to stock market or stock investors, it is patentable subject matter. In MoT test, we should find out whether the invention is implemented by machine or produce any physical transformation. The above invention is implemented by computer that is machine, so the invention is patentable subject matter²⁰). In these two tests, the above invention has the same result. However, MoT test has much more strict rule than UCT test because in UCT test the invention doesn't have to be implemented by machine. Lastly in Mayo 2 steps tests, the invention is absolutely not patentable subject matter because an abstract idea is implemented by a generic computer.

We can see the scope of patentable subject matter has narrowed. UCT test requires just useful results even though it is just an abstract idea. The MoT test requires the inventions have to be implemented by machine. The Mayo 2 steps test requires inventive steps so if the invention implemented by machine has not something extra, the

20). In the *bilski* case, the CAFC didn't mention whether the invention implemented by computer satisfied with MoT test or not

invention is not patentable subject matter. In the late 2000's, there were so many infringement litigations and most of the patents were the business method patent. US government and court made an effort to reduce the abusing of litigations so this trend that narrows the scope of subject matter is a reflection of these efforts.

2. 특허 및 생명공학 발명 (Patents & Biotechnological Inventions)

- 교육기간: 2017. 03. 17. ~ 05. 05.
- 담당교수: Dr. Ben McEniery(QUT)
- 과정내용

○ 과정 개요

본 과정은 다양한 산업 분야의 창조적 활동을 선도하는 특허법의 역할에 대해 살펴보는 것을 목적으로 함. 이를 위해 특허권의 기원과 역할, 특허출원, 특허권을 얻기 위한 절차, 특허권의 성격, 특허협력조약, 국내외 정책 및 실무에 대하여 다룸

○ 세부 내용

- i) 특허법의 역사, 철학, 및 경제학
- ii) 특허출원(명세서, 청구범위, 국제분류), 특허권 획득 절차(파리조약, PCT 출원, 호주·유럽·미국의 국내 출원)
- iii) 특허받을 수 있는 발명, 특허 제외 대상
- iv) 특허성의 실제 심사 요건(신규성, 진보성, 산업상 이용가능성)
- v) 특허권의 소유(선출원주의 vs. 선발명주의), 직무발명
- vi) 특허권의 보호범위 및 보호기간
- vii) 특허권 보호의 예외(실험적 실시, 권리소진, 병행수입, 강제실시권)
- viii) 특허 침해(청구항 해석, 구제수단) 및 침해 주장에 대한 방어
- ix) 영업 비밀과 특허 보호 사이의 관계와 지식재산권 관리
- x) 기술의 상업화, 기술이전 및 라이선스 계약의 기초
- xi) 특허협력조약(PCT)
- xii) 특허법률사무소의 실무

□ 주요 연구결과 - Research Paper

- Topic : Did the United States Supreme Court in v Kappos, 130 S.ct. 3218(2010) formulate and apply the most appropriate test for determining the existence of patentable subject matter?

Did the United States Supreme Court in v Kappos, 130 S.ct. 3218(2010) formulate and apply the most appropriate test for determining the existence of patentable subject matter?

Introduction

There are several hurdles to get a patent. The specification must satisfy with specific requirement in each country's law and the invention has novelty and inventive step. The first hurdle is that the invention must be patentable subject matter. 35 USC section 101²¹⁾ defines patentable subject matter. If any invention is one of the subject matter, process, machine, manufacture and composition of matter, the application of invention is patentable subject matter. According to US MPEP, manufacture is defined as an article produced from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand labor or by machinery. The second category, process is an act, or a series of acts or steps and machine is a concrete thing, consisting of parts, or of certain devices and combination of devices. Lastly the composition of matter is related

21). Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

to all compositions of two or more substances and all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids. As the USSC in Chakrabaty case said²²), there are so many different types of inventions that are patentable. However all subject matter are not patentable subject matter, there are judicial exceptions including laws of nature, physical phenomena, and abstract ideas in the USA. Although the invention is one of the four categories defined by section 101, if the invention is one of the exceptions, the invention is not patentable subject matter.

In Bilski case²³), the United States Court of Appeals for the Federal Circuit (CAFC) reiterated the machine-or-transformation test as the (meaning sole) applicable test for patent-eligible subject matter²⁴). Before the Bilski case, there was UCT test to determine patentable subject matter that was made in SSB case. However, CAFC decided that MoT test was the only test to determine patentable subject matter and supported the rejection of Bilski's patent because the Bilski's process was an abstract idea that didn't related to machine or transform and physical changes. In this paper, I will look through if the MoT test in Bilski's case was appropriate test for determining patentable subject matter and the other tests for determining patentable subject matter.

I . What is the Supreme Court decision in Bilski case

A. Bilski's Claim

22) Anything under the sun made by man is patentable (Diamond v. Chakrabarty, 447 U.S. 303 (1980))

23). In re Bilski, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (Fed. Cir. 2008)

24). USSC said the test should not have been described as the sole test for assessing process claims

The Bilski's patent was application 08/833,892 filed at the USPTO. It claimed a procedure for how to protect against the risk of price fluctuations in a discrete section of the economy between buyers and sellers. The specification of the Bilski's patent application described a method for providing a fixed bill energy contract to consumers. Under fixed bill energy contracts, consumers pay monthly prices for their future energy consumption in advance of winter based on their past energy use. The monthly prices remain the same no matter how much energy they then use. Thus, consumers save money relative to others if, for example, a given winter is unusually cold and they use an unusually large amount of energy for heating. On the other hand, consumers pay more than others if a winter is unusually warm and their energy use is lower than average²⁵). These claims described only the process not mentioning any machine or transformation²⁶).

B. What is MoT Test

The machine-or-transformation test²⁷) is a test of patent eligibility under which a claim to a process qualifies for consideration if it (1) is implemented by a particular machine in a non-conventional and non-trivial manner or (2) transforms an article from one state to another²⁸).

25). In re Bilski, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (Fed. Cir. 2008)

26). A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of: (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumers; (b) identifying market participants for said commodity having a counter-risk position to said consumers; and (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

27). It articulated in *Gottschalk v. Benson* (1971)

Let's apply the MoT test to Bilski's claim. The claimed invention was the method and not implemented by any machine or means, so Bilski's patent was not satisfied with first condition of MoT test. The second condition related to if there are any physical transformation in the process. The CAFC showed examples of what the transformation was. For example, method transforming X-ray attenuation data produced in a X-Y field by an X-ray tomographic scanner to an image of body organs and bones was satisfied with the condition. However the process of graphically displaying variances from their average values of unspecified data obtained in an unspecified manner was not patentable subject matter²⁹). Bilski's claim was a procedure of how to protect against the risk of price fluctuations in a discrete section of the economy between buyers and sellers. There was not any physical transformation in process so the application also didn't satisfy with the second condition. Overall the Bilski's application failed to satisfy with requirement of the MoT test. Therefore the process that claimed in Bilski's application was not patentable subject matter³⁰).

II. Is it the appropriate for determining patentable subject matter

MoT Test has pros and cons. Its greatest advantage is clarity of how to determine patentable subject matter. Most process claims have

28). Stefania Fusco, "Is In re Bilski a Deja Vu", 2009 Stan. Tech. L. Rev. P1 Archived July 15, 2010.

29). In re Abele, 684 F.2d 902 (C.C.P.A. 1982)

30). Bilski's method claim was patent-ineligible because it did not "transform any article to a different state or thing." Legal obligations (such as options and futures contracts) and business risks "cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances." Moreover, to the extent that signals are involved and are transformed, they are not "representative of any physical object or substance. [In re Bilski, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (Fed. Cir. 2008)]

non-obviousness in subject matter eligibility. So, applicants can predict clearly what patentable subject matter is and describe their own inventions according to the MoT test criteria. Even though the scopes of claims become narrow, applicants don't have to risk to reject because of problem in subject matter.

However, MoT Test also has disadvantages. First, it can prevent various patent subjects, such as software, medical diagnosis techniques, linear programming, data compression, digital signals, and conversion of digital signals from being issued. Sometimes these inventions can't describe relating to machine or transforming physical changes. Also the definition of transforming an article from one state to another is not clear. Second, the Test has a weak point. Applicants can pass the MoT test easily if applicants describe their own process claims inserting a generic computer into each step. Let's assume two inventions. Frist on e³¹⁾ is not related to machine and the other³²⁾ just apply the microprocessor to invention. In the MoT test, the first one is not patentable subject matter because there is no machine explicitly recited. The other is patentable subject matter because the step of comparing requires a particularly programmed microprocessor.

Although the MoT test gives the applicant and patent examiners clear

31). A method of evaluating search results, comprising: sorting the results into groups based on a first characteristic; ranking the results based on a second characteristic; and comparing the ranked results to a predetermined list of desired results to evaluate the success of the search.(INTERIM EXAMINATION INSTRUCTIONS FOR EVALUATING SUBJECT MATTER ELIGIBILITY, USPTO, 2009)

32). A method of evaluating search results, comprising: sorting the results into groups based on a first characteristic; ranking the results based on a second characteristic; and comparing, using a microprocessor, the ranked results to a predetermined list of desired results to evaluate the success of the search.

guideline of patentable subject matter, I think it is not appropriate method to determine the subject matter eligibility. As I mentioned, we can pass the Test only according to applying the generic computer to claims.

III. What is other tests?

A. UCT Test

Before the MoT test of Bilski case, there was an test to determine patentable subject matter. It was UCT test. In 1990's, Business method was not patentable subject matter because the business method was just an abstract idea. However in the SSB case³³⁾ in 1998, the CAFC changed the principle that SSB's claimed invention was subject matter eligible for protection by a patent. The court decided if the inventions involved some practical application that meant "it produces a useful, concrete and tangible result. US Patent 5,193,056³⁴⁾ was business method of managing and operating mutual funds. The claimed

33). *State Street Bank and Trust Company v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), also referred to as *State Street* or *State Street Bank*, was a 1998 decision of the United States Court of Appeals for the Federal Circuit concerning the patentability of business methods.

34). Claim 1 : A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising: (a) computer processor means for processing data; (b) storage means for storing data on a storage medium; (c) first means for initializing the storage medium; (d) second means for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio; (e) third means for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund; (f) fourth means for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and (g) fifth means for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

invention was a data processing system. It was a kind of machine, so it went into one of four categories defined by 35 USC section 101. However the claimed invention was business method of managing and operating mutual funds so it was related to the abstract idea of judicial exception. The SSB invention was supposed to be rejected, but the court made a new test called UCT test. The Federal court said when an invention of an abstract idea which does not preempt every application of that idea and the invention produces a useful, concrete and tangible result, the invention was patentable subject matter.

B. Mayo 2 Steps Test

Since the UCT test had been introduced, the business patent application increased sharply. Most of them were process patents and they caused so many infringement litigations in the late 2000's. In this circumstance, the court had to make new test to restrict the BM patent. It was the Mayo 2 Steps test. Even though the invention was related to machine, if the invention had not inventive concept or something extra, that invention was not patentable subject matter in Mayo test. Let's apply this test to Alice case. Alice patent was US Patent 7,294,720 B2³⁵). The Supreme Court determined whether the patent claim contained an abstract idea, such as an algorithm, method of computation, or other general principle and judged the invention was related to an abstract idea. This was the first step of Mayo 2 Steps test. The answer was yes, so the Supreme Court proceeded the

35). It was a system for exchanging an obligation between parties where the exchange is administered by a supervisory institution that ensures real-time settling of obligations between parties by updating shadow records in real-time and instructing one or more exchange institutions to effect, from time to time, the exchange of obligations in accounts maintained external to the supervisory institution

second step. In the second step, the Supreme Court determined if the patent added to the idea "something extra" that embodies an "inventive concept"³⁶⁾ and judged there was no addition of an inventive element to the underlying abstract idea. Finally the Supreme Court decided the patent was invalid under 101³⁷⁾. After this case, USPTO made interim guidance on patent subject matter eligibility in 2014 and this guidance gave some details of what the inventive concept was. For example, a claim to an abstract idea requiring no more than a generic computer to perform generic computer functions that are well understood, routine and conventional activities previously known to the industry was not something extra³⁸⁾.

IV. Conclusion

There are tests for determining patentable subject matter in USA. Each test can produce different results. In the UCT test, we should find out whether the invention produces useful, concrete or tangible results. After the UCT test, here came the MoT test. In MoT test, the patent is patentable subject matter if the invention is implemented by computer or there is any physical transformation in the process. The last one is Mayo 2 steps test. In Mayo 2 steps tests, we should find out if the invention has 'significantly more' or 'inventive concept'. We can see the scope of patentable subject matter has narrowed as time passed.

36). In Supreme court and 2014 Interim guidance, inventive step, something extra and significantly more were used the same meaning. And the inventive step is distinguished from inventive step of patentability.

37). Alice Corp. v. CLS Bank International, 573 U.S. ___, 134 S. Ct. 2347 (2014)

38). 2014 Interim guidance on Patent subject matter eligibility, USPTO.

Inventions come in various ways depending on the technological advances of the time so it is rights to apply the different rules of determining patentable subject matter. However, each rule can prevent the new technology simply because the invention is not patentable subject matter. So it is most appropriate to grant a wide range of patentable eligibility. If it is not right to grant exclusive rights to the inventions in new technology fields, we can reject the inventions in different requirement of patentability such as novelty, inventive step, industrial applicability or specification requirement.

3. 저작권 및 인접 보호권 (Copyright and Related Rights)

교육기간 : 2017. 04. 11. ~ 05. 09.

담당교수 : Dr. Kamal Puri(QUT)

과정내용

○과정 개요

본 과정은 저작권의 보호 요건 및 보호대상과 저작권을 다루는 국제조약을 공부하고 디지털 시대에 있어 저작권법의 개념과 저작권법의 원리 및 정책을 다룸. 저작권법에 대하여 깊이 있는 지식을 학습하며, 저작권법의 최근 역사를 분석 및 평가하고, 빠른 기술 변화와 여러 압력에 대한 저작권법의 대응을 살펴봄. 또한 저작권법과 관련된 최신의 정책, 기술적 및 문화적 이슈를 조사하며 저작권과 연관된 현재의 법적 쟁점들을 비판적으로 평가하고 해법을 제시하는 능력을 배양하는 것을 목적으로 함

○세부 내용

- i) 저작권 역사, 철학 및 중요성
- ii) 저작권의 성립요건, 대상물 및 기간
- iii) 저작권의 국제적 보호
- iv) 저작재산권의 소유권 케이스분석
- v) economic 및 moral right
- vi) 디지털 시대의 저작권 보호 및 예외사항
- vii) 무료 및 오픈 소스와 소프트웨어의 라이선싱
- viii) 저작권 침해 대응 및 구제 수단
- ix) 소프트웨어, 데이터베이스 및 인터넷과 저작권 보호

□ 주요 연구결과 - Research Paper

- Topic : The Liability of Online Service Providers under the Copyright Act

Introduction

The rapid development of Internet technologies has resulted in the expansion of copying and transmission of various forms of copyrighted works. It also entailed the infringement of copyrights. In previous analog world, it was clear who the infringer was and it was relatively easy to claim responsibility. Also, the range of infringing activities was limited. However, in the digital world we need to have different view because online services are available and it cause to infringe copyrights differently than before. If the Internet user infringes the copyright, the user should be primarily responsible. However, it is common for them to have no economic capacity to take responsibility for the infringement. In order to effectively protect copyrights, there is a need to monitor and prevent infringement with a continuous interest in those who are capable of preventing infringement. The copyright law imposes a certain obligation on the provider of the online service which does not directly infringe the infringement but indirectly infringes it in order to secure the validity of the copyright. On the other hand, if they fulfill the obligation, they are exempted from liability for copyright infringement. It is the responsibility of the online service providers to decide whether the copyright act can impose responsibility to the online service provider who mediates the copyright infringement of the Internet users. In this research I will discuss legal grounds for responsibility of online service providers in US and South Korean. I will also examine the disclaimers in the major countries such as US, EU and Japan that impose certain obligations on the online Service Providers and exempt

them from liability for copyright infringement if they fulfill their obligations.

I . Definition of Online Service Provider and it's responsibility

1. Definition of Online Service Provider

Online service providers means literally company or other organization which provides services via a computerized system (now usually the Internet); specifically a company which provides paid members with access to the Internet, as well as exclusive content and services, through its own private computer network³⁹). The scope of online service providers is not clear. In majority viewpoints, Internet service providers, Bulletin Board System Operator, a PC communication service provider, or a person who provides only a connection service without operating a bulletin board, are considered to the online service provider category. Online service providers perform system functions such as creating and operating a network of communication facilities, operating software that can operate the network, or allowing the subscriber to access the Internet. For example, there are various types of media such as cafes and blogs of portal sites, SNS services such as Facebook and Twitter, UCC sites such as Youtube, P2P and web hard. Those who provide services that mediate the distribution of such works are referred to as online service providers⁴⁰). In Korean copyright Act, it defines who the online service providers and also differentiate

39). https://en.oxforddictionaries.com/definition/online_service_provider

40). Kim, Jeongwan.,(2013) Liability of Online Service Providers under the Copyright Act. Law Review 33(2), 2013.8, 251-284

between general online service providers such as 'YouTube and Twitter' and special type of online service providers.⁴¹⁾

2. Liability of Online Service Provider

While online service providers play a purely functional role as intermediaries of information sharing, they also play a dysfunctional role in providing a place for copyright infringement. Copyright disputes in online services occur mainly when a user uploads or downloads a copyrighted work without permission in a website. It is natural that the online service provider himself or herself be liable for copyright infringement when uploading or transmitting the copyrighted work without permission. However, there was a lot of controversy as to whether the service provider should take responsibility for the user's actions. If the online service provider can be held accountable for copyright infringement, what is the basis for the responsibility?⁴²⁾

41). Korean Copyright Act, Article 2,30. The term "online service provider" means either of the following persons: (a) A person who transmits, designates a route of, or provides connections to the works, etc. selected by users to deliver such works, etc. without any modification of their content through the information and communications networks between the points designated by users;

(b) A person who provides the services to allow users to access the information and communications networks or reproduce or interactively transmit the works, etc. through the information and communications networks, or who provides or operates facilities therefor;

Article 104 (Obligation, etc. of Online Service Providers of Special Type) (1) The online service provider who aims principally at enabling interactive transmission of works, etc. by using computers between other persons (hereinafter referred to as "online service provider of special type") shall take necessary measures, such as technological measures, etc. that block illegal forwarding of the relevant work, etc. upon request from the holder of rights. In such cases, matters regarding the request of holder of rights and necessary measures shall be prescribed by Presidential Decree.

42). Kim, Yong Sup., P2P service and copyright law. Sungkyunkwan University Law

The logic of affirming the responsibility of the online service provider is as follows. Firstly, the online service provider has the possibility to earn or obtain the profit through the service. Secondly, only the online service provider can know the user's identity and can stop illegal activities. Third, they should take responsibility for it because they directly or indirectly obtains economic benefits from copyright infringement⁴³). The reasons for the limited position of the responsibilities of online service providers are as follows. Online service providers are merely 'tools' for digital transmission - passive communicators. Based on the fact that they do not know or control most of the actions taken on their systems, they should not be liable for or be limited by the infringement action of the subscriber or users.

II. Responsibility theory of OSP in the United State and South Korea

1. The United State⁴⁴)

Responsibility theory of OSP has been formed and developed through the case law of the United States in the 1990s. Since the 1990s, US courts have denied OSP responsibilities or not in response to various copyright infringements by Internet users. For online copyright infringement in the United States, there are three different

No. 21(3), 31-55

43). Kim, Yong-Sup., A Study on the Liability of Online Service Providers under the Copyright Act. Han Yang Law Review 40, 2012.11, 214-215

44). IL-Hwan Moon., The Legal Duties and Responsibilities of Online Service Provider. The Journal of Intellectual Property 7(2), 2012.06, 145-147

types of theories, direct liability, contributory liability, and subcontract liability.

(1) Direct Liability(Infringement)

Direct Liability is the responsibility of imposing on who infringes directly someone's copyrights. A plaintiff holds responsible to a person who has infringed the copyrighted work. In this case, the court applies the principle of strict liability. In order to be directly infringed, the online service provider must conduct unauthorized copying or distribution of the copyrighted work of others, and it is necessary to perceive that such an act infringes the copyrights of others. The degree of awareness is not necessarily a strong intention to intentionally infringe copyright⁴⁵). However, If OSP provide the space on the Internet to simply post the materials or doesn't have control over the decision to publish or change the material that infringe copyright, Direct infringement of OSP is not established⁴⁶). The first case of direct infringement was Playboy v. Frena case⁴⁷). The users of the electronic bulletin board run by defendant Frena digitally uploaded and downloaded the photos displayed in the magazine issued by the plaintiffs Playboy without permission. The defendant argued that he had not uploaded himself and that he did not know the circumstances. The Court held that even if the defendant did not know that there had been material infringing the copyright on the electronic bulletin board, the defendant directly infringed the copyrights of the plaintiff's distribution and exhibition rights.

45). CoStar Group, Inc. v. LoopNet, Inc., 373 F.3d 544 (4th Cir. 2004)

46). Parker v. Google, Inc., E.D.Pa.2006, 422 F.Supp.2d 492, 78 U.S.P.Q.2d 1212.

47). Playboy Enterprise, Inc. v. George Frena, 839 F. Supp. 1522(M.D.Fla. 1993)

(2) Contributory Liability(Infringement)

Contributory liability is recognized when someone is aware of an infringing act, engages in another infringing act, causes it, or participates actively in infringing activity. Contributory liability is a secondary responsibility that arises from the illegal act of others. There are two requirements for contributory infringement. Firstly, OSPs are aware of infringement. Although OSP does not recognize the infringement directly, the OSP may be aware of the existence of the infringement if there are circumstances or facts that clearly show the existence of an infringing act⁴⁸). Secondly, OSP must have made a substantial contribution to the occurrence of infringement. OSP should be able to control the data uploaded online. The first case was *Sega v. Maphia* case in 1994⁴⁹). Even though you did not actually know that games were uploaded or downloaded from your electronic bulletin board, if Defendant Maphia encouraged the exchange through his electronic bulletin board and provided the opportunity to download only to users who paid a certain fee, these were contributory infringement. The court provided the basis for the contribution liability through USC Patent Act section 271 (b), (c)⁵⁰

48). *A & M Records v. Napster, A & M Records v. Napster*, 239 F.3d 1004 (9th Cir.2001)

49). *Sega Enterprises Ltd. v. Maphia*, 857 F. Supp. 679 (N.D. Cal. 1994)

50). 35. USC 271 (b) Whoever actively induces infringement of a patent shall be liable as an infringer.

(c) Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

(3) Vicarious liability(Infringement)

Vicarious Liability is a liability recognized if OSP has the right and ability to control the infringement act and they obtain economic benefits from the infringement. A well-known case in relation to vicarious liability was custody responsibilities is *A&M Records, Inc. v. Napster, Inc* in 2000⁵¹). In this judgment, the court found that Defendant Napster had sufficient ability to find infringing material on the users' file search listings. Napster also neglected to prevent illegal file exchanges nevertheless it had the right to block access to Napster systems. On the other hand, the economic benefits of Napster grow as the number of users increases, eventually Napster gained direct economic benefits from illegal file exchange. Therefore, the court recognized the defendant's liability for fulfilling the requirements of the vicarious infringement.

2. Korea

Korea has been formed and developed by the case law for the OSP's liability like US. However, unlike US where constitutes the legal principle of OSP's liability in accordance with the patent law, South Korea uses the legal principle of collective tort liability in civil law Article 760 (3)⁵²).

51). *A&M Records, Inc. v. Napster, Inc.* 114 F. Supp. 2d 896 (N.D. Cal. 2000).

52). Article 760 (Liability of Joint Tort-feasors) (1) If two or more persons have by their joint unlawful acts caused damages to another, they shall be jointly and severally liable to make compensation for such damages.

(2) The provisions of paragraph (1) shall also apply if it is impossible to ascertain which of the participants, albeit not joint, has caused the damages.

(3) Instigators and accessories shall be deemed to act jointly.

In Soribada⁵³⁾ case⁵⁴⁾, the court said that Soribada operated an essential server to share and exchange MP3 files and provided MP3 file sharing service. The Court held that Soribada was responsible for assisting the users in infringing copyrights. The court made it clear that Soribada's liability was an illegal from Civil law Article 760(3). An act of aiding in the infringement of copyright is any act of direct or indirect that facilitates infringement of the right of reproduction of the other person. The court also said that it was also possible to provide an aide to recognize infringing acts only in an infinite manner, and to provide an aide by negligence. In the aiding act of infringement, the ancillary does not need to specifically recognize the date and place, the object of reproduction, etc., of actual infringement copyrights. Also, there is no need to know definitively who is executing the actual copying act

III. Safe Harbor provisions in different countries

1. The United State

The United States enacted the Digital Millennium Copyright Act (DMCA) in 1998⁵⁵⁾. The DMCA provides the online service provider

53). Soribada was the first Korean peer-to-peer file-sharing service, launched in 2000 by Sean Yang as a Napster clone. The name 'Soribada' means "Ocean of Sound" or "Receiving (downloading) Sound". It was closed in 2002 by court order but continued to be distributed with a stipulation that its users were responsible for any of the files downloaded. On November 5, 2003, Soribada was relaunched as and in July 2004, the website was renewed as a P2P search portal with a paid MP3 service in December 2004. (<https://en.wikipedia.org/wiki/Soribada>)

54). Seoul high court. 2005. 1. 12. sentence, 2003na21140

55). The Digital Millennium Copyright Act of 1998, Pub. L. No. 105-304, 112 Stat.

with immunity from copyright infringement liability in the course of preventing copyright infringement on the Internet if the online service provider is in a passive position with respect to the infringement behavior of others automatically made through the system that provides the online service without being aware of the infringement. In order for an online service provider to receive indemnity under section 512, OSP must meet two general requirements that apply to all service providers. And according to the types of service providers, Section 512 defines different immunity requirements. The general requirements are as follows. Firstly, the adoption and introduction of a termination policy that terminates the use of copyright infringement users under appropriate circumstances, and a notice to users. Secondly, it requires the acceptance of standard technical measures that copyright owners use to identify and report on their works. Furthermore, the DMCA defines four types of services: (1) transitory digital network communication, which serves only as a conduit that transmits information; (2) System caching that temporarily caches to provide for subsequent use by the user, and (3) information residing on systems or networks at the request of the user. And (4) online service providers use information location tools to help them access online materials. There are detailed requirements for immunity for each type⁵⁶).

2. EU

The European Union has established an indemnity provision for online service providers through the Electronic Commerce Directive (Directive 2000/31/EC of the European Parliament and of the Council

2860.

56). 17 U.S. Code 512 - Limitations on liability relating to material online

of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce)). The EU e-commerce guideline on the responsibilities of online service providers is characterized by the fact that one liability regime applies regardless of copyright, libel or privacy⁵⁷). The EU E-Commerce Directive does not have general rules applicable to online service providers, but it is divided into three types and detailed immunity conditions are specified for each type. The three types are (1) mere conduit service, (2) system caching service, and (3) hosting service.

3. Japan

After the ruling on the so-called NiftyServe case concerning the alleged liability of PC communication service providers(NiftyServe) for the defamation through PC communication in 1997, discussions about the responsibilities of online service providers have been actively conducted, followed by relevant legislation. In the electronic bulletin board of the PC communication company Nifty Serve, nevertheless a person posted the content of damaging the victim's honor 28 times in about 4 months, the operator of the forum was aware of this fact, but left the matter for a month and deleted it. The issue in this case was whether the user relationship between the telecom operator Nifty and whether there was an obligation of Nifty to take preventive measures against the defamation of the members. The Tokyo District Court held that telecommunications carriers and operators had a real direct supervision relationship, so telecommunications carriers were liable for

57). Park, Jeong-Hun., The European Union Legal Regime on the Online Service Provider's Liability. *Kyunghee law review* 48. 2013, 536

the illegal acts of operators. However, this case was returned by the Tokyo High Court of Appeals⁵⁸). Since then, the necessity of legislative measures against online service providers has been raised. In 2001, the law on restriction of liability for damages of certain telecommunication service providers and disclosure of caller information (so called "Provider Limitation of Liability Act") was enacted.

4. Korea

Korea introduced the "Limitation of liability of online service providers" for the first time in the copyright law of May 27, 2003 by referring to legislation such as US DMCA and EU Electronic Commerce Directive. On the premise that the online service provider can in principle be responsible for the infringement of the user's copyright, the law defined two conditions of the reduction or exemption of liability. Firstly, OSP comes to know that the copyright and other rights protected under this Act are infringed and he prevents or suspends the relevant reproduction or transmission. Secondly, OSP comes to know that the copyright and other rights protected under this Act are infringed he tries to prevent or suspend the relevant reproduction or transmission, but it is technically impossible⁵⁹). The Copyright Act was amended on December 28, 2006 to create a special type of online service provider obligation⁶⁰).

58) Sang Ro Kwon., International Trends and Improvements in the Limitation of Liability of Online Service Providers, PRIVATE LAW REVIEW 12, 2004, 83

59). Korean copyright Act 2003, Article 77

60). Article 104 (Responsibility, etc. of Online Service Providers of Special Type)(1)The online service provider who aims principally at forwarding works,etc. by using computers, etc. between other persons (hereinafter referred to as the"online service provider of special type") shall take necessary measures, such as technical

IV. Conclusion

The development of information and communication technology poses a significant threat to copyright holders because it is possible for anyone to easily distribute illegal copies through the Internet in the advanced digital environment. The exchange of information in various forms in the digital environment has resulted in various forms of copyright infringement. The analogue infringement of the previous era was simply disciplined by direct infringement, but it tends to be logically excessive to discipline online service providers by direct infringement. There have been various discussions on how to regulate online service providers. In the early days of these discussions, the United States imposed OSP on direct infringement, but it caused a lot of criticism. As the result, the United States imposed OSP on a secondary infringement based on contributory liability or vicarious liability. This trend of the United States has also affected other countries and they followed the US's legal logic.

On the other hand, OSPs play a key role in the exchange of information such as works through the digital environment. In order to participate in the modern information society, at least one OSP must pass through to access and transmit information. It was also true that OSP made a positive contribution to the copyright industry. So, there were criticisms that giving more responsibility to OSPs could have a

measures, etc. that cut off illegal forwarding of the relevant work, etc. where there is a request from the holder of rights. In this case, matters regarding the request of holder of rights and necessary measures shall be prescribed by the Presidential Decree.

(2) The Minister of Culture and Tourism may lay down and announce the extent of online service provider of special type pursuant to the provisions of paragraph.

negative impact on industrial development. As a result, the United States enacted the Digital Millennium Copyright Act that provided the online service provider with immunity from copyright infringement liability. This OSP immunity legislation of the United State has expanded to major countries such as Europe, Japan and Korea. These days, many countries recognize copyright infringement on the OSP but are indemnifying under certain conditions.

OSP's social responsibility should increase in the digital world, because most copyrighted works proliferate through OSP. However we should guarantee OSP's right so that they can develop technology that contributes to copyright industry. In the future, new technologies will come up the world and bring the new copyright issues we should deal with. We need to be able to develop both copyright holders and OSP who are playing a role in expanding copyright through appropriate legislation.

4. 상표, 도메인 네임 및 지리적 표시 (Trade Marks, Domain Names and Geographical Indications)

□ 교육기간 : 2017. 05. 17. ~ 06. 21.

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□ 과정내용

○ 과정 개요

본 과정에서는 상표를 보호하는 취지를 이해하고, 상표의 등록요건과 심사기준, 심사절차 등을 소개함. 최근 새롭게 도입된 비전형 상표에 대하여 이해하고, 상표의 국제적 보호를 위한 마드리드 시스템을 취지와 절차, 국제상표 분류체계 등을 학습하였음. 상표와 관련된 지재권으로서 인터넷 도메인 네임과 지리적 표시의 보호방법, 등록절차 및 침해 문제 등도 다루었음.

○ 세부 내용

- i) 상표법 개론
- ii) 비전형 상표 (소리상표, 냄새상표, 동작상표, 입체상표 등)
- iii) 등록요건 및 심사기준
- iv) 상표보호와 침해
- v) 마드리드 시스템
- vi) 지리적 표시의 보호
- vii) 인터넷 도메인네임의 보호

□ 주요 연구결과 - Research Paper

- Topic : Trademark on the Internet - focusing on Keyword Search Advertising

Introduction

A trademark is a mark used by a business operator to distinguish the goods of one business from those of others⁶¹). Marks are all marks used to indicate the origin of a good, and there is no limit to its composition or presentation. The Trademark Law aims to protect the trademark, thereby contributing to industrial development by maintaining the credit of the trademark users in the business and protecting the interests of the consumer. Trademark law monopolizes the right of a trademark owner to use a trademark and the use of a trademark by a person who does not have a legitimate right causes a trademark infringement⁶²). Traditionally, in order to infringe on the trademark rights, the trademark of the infringer must be visually presented, such as by attaching the trademark of the right holder to the commodity or the advertisement of the commodity, and the infringer of the trademark right has always been a competitor of the trademark owner. However, as the Internet has become popular and generalized, trademarks are not only attached to the goods or marked in advertisements, but also used in various forms online. The keyword search advertising is one of them. As online advertising through the Internet develops in various forms, the trademark is used not only as a conventional product such as a product or an advertisement, but also in various forms on-line. In the process, there are many cases where it

61)1. Korean Trademark Act Article 2

62). Eun-su Kim., Study on Trademark Use. College of Law. The Graduate School, Seoul National University, 2017, 1-5

is questioned whether or not it is an infringement of trademark. Firstly, there was an issue about whether the keyword search advertising was the use of trademark⁶³). Secondly, there is an issue about who is responsible for infringement of trademark⁶⁴). If a keyword search advertising service provider was the party using a trademark, the service provider could be liable under direct trademark infringement, while the service provider can be liable just as an indirect trademark infringer if it wasn't the party directly using a trademark. In this paper, I will research case examples of each country's on use of trademarks and 'Trademark Use Theory' in the United State. After that, I will discuss about the US courts' and EU's interpretations about who between a keyword search advertising service provider and a competing advertiser is directly using a trademark.

I . Definition of the Keyword Search Advertising

1. Definition of the keyword search advertising

Keyword advertising is a form of online advertising in which an advertiser pays to have an advertisement appear in the results listing when a person uses a particular phrase to search the Web, typically by employing a search engine. The particular phrase is composed of one or more key terms that is linked to one or more advertisements⁶⁵).The

63). The fact that trademark use at least exists in keyword search advertising situation has been commonly recognized by the recent cases in the US, EU, and even South Korea

64). The US courts' and ECJ's interpretations about who between a keyword search advertising service provider and a competing advertiser is directly using a trademark in keyword search advertising are contradicting each other and are probably causing a new debate.

65). https://en.wikipedia.org/wiki/Keyword_advertising

Internet search engine shows linked addresses of a product or service related to the keyword in the category. If an Internet user is interested in a searched product or service, the user can click on the linked address to go to the site. Google's keyword advertising is one of the most popular platforms. Google Adwords displays a hyperlink to an advertiser's website in the Sponsored Link of a search engine when a user enters a keyword through Google after the advertiser has purchased a particular search term. This is how Google Adwords works

- ① Create an account with Google Adwords, create an ad for the product or service provided within that program, select a targeting option to show ads on relevant websites, and set a daily budget.
- ② When a user searches for a product or service and then visits a Google network site related to the business, the advertiser's advertisement is displayed on the site.
- ③ The user who is exposed to the advertisement moves to the website and performs additional activities. The advertisement cost is charged only for the click or the exposure⁶⁶). The Keyword search advertising is not uniformly exposed to unspecified persons but to persons who have interests in the related goods and services as advertisements according to the keywords. So it has some advantages to be performed only for the target of the sale of goods and service⁶⁷).

2. What is the issue of the keyword search advertising?

A keyword search advertising using registered trademark is a result of a contract in which a service provider manipulates a search engine program to change a search result and sells the right of advertising using the keyword to an advertiser⁶⁸). Advertisers can maximize the

66). <http://www.google.com/adwords/how-it-works>

67). Man-su Jung., International Advertising. Seoul Economic Management. 2014, 160-161

advertising effect by purchasing keywords with high search frequency and displaying their ads together in search results. There is no problem if an advertiser purchases and advertises a common phrase from a search engine company and advertises, but if an advertiser purchases and advertises trademark of another person trademark it will cause a problem of trademark infringement. In particular, when a competitor of a trademark owner purchases a keyword containing the owner's trademark and places a link of his or her homepage before the trademark owner in the search result, it will be an issue because of having a great influence on the interests of the trademark owner. The problem with the trademark law in relation to keyword search advertising is whether the advertising activity based on the keyword corresponds to the trademark use as a requirement of the infringement of the trademark. And if the keyword search advertising is one of the trademark use, there is an issue on who uses the trademark and which responsibility the search engine provider or the advertiser takes?

II. The Trademark Use

1. Initial Interest Confusion Theory

Initial Interest Confusion is a legal doctrine under trademark law that permits a finding of infringement when there is temporary confusion that is dispelled before the purchase is made⁶⁸⁾. The initial interest confusion theory is to admit a trademark infringement when a trademark is used to confuse a consumer even though the actual sale

68). Dae-hee Lee., *Interent and Intellectual Property Rights*. ParkYoung-Sa. 2002, 312-313

69). https://en.wikipedia.org/wiki/Initial_Interest_Confusion

of the product is not achieved⁷⁰). In the traditional confusion possibility theory, the trademark infringement was judged whether the consumer was confused based on the purchase point of the product. However, the initial interest theory expanded the time when the consumer was interested in the brand for the first time before the point of purchase.

The leading precedent case for the initial interest confusion theory was that *Brookfield Communications, Inc. V. West Coast Entertainment Corp.* Plaintiff Brookfield Communications was an entertainment information company that sold computer software that included entertainment information using the trademark Moviebuff. Defendant West Coast Entertainment Corp that was the largest video rental chain in the United States, launched a service to provide entertainment information on its website under the domain name moviebuff.com, which used 'Movie Buff' as a meta tag. When an Internet user typed MovieBuff on the search site, it led to westcoastvideo.com instead of Brookfield Communications' website⁷¹). The defendant emphasizes that even if the defendant's website using the plaintiff's trademark in the meta tag is presented to the users in search results, users are not directly connected to the defendant's website, and that users still have the opportunity to choose from multiple result websites. Even if users entered the defendant's website, they could know whether it is not the plaintiff's website. So the defendant insisted that there was no confusion. The court considered separately the question of whether West Coast could use "MovieBuff" in any of its HTML code. The court found that while doing so might cause a search engine to include West Coast's site in the results returned for the search term "MovieBuff", it is unlikely to

70). Thomas McCarthy., McCarthy on Trademarks and Unfair Competition, Fourth Edition, Westlaw Database (updated March 2010) §23:6

71). *Brookfield Communications v. West Coast Entertainment Corp.*, 174 F.3d 1036 (9th Cir.1999)

cause confusion as the searcher will see West Coast's site listed by the domain name (e.g., westcoastvideo.com) and will not be confused as to the source of that site⁷²). However, the court found that there was a first interest confusion due to the use of the trademark in the meta tag, as the defendant inappropriately benefited from the credibility accumulated in the trademark of Brookfield Communications.

2. Trademark Use Theory

The trademark use theory is that it is necessary to examine whether there is 'use' of a trademark in light of the definition of Trademark Act before judging whether there is any possibility of confusion or dilution in trademark infringement⁷³). Even if a registered trademark is used, it does not constitute a trademark infringement unless the use of the registered trademark corresponds to the use of the trademark under the Trademark Act. Thus, there is no further discussion of the possibility or dilution of the trademark. Traditionally, confusion of consumers in judging trademark infringement was the main subject and there was no great interest in the use of trademarks⁷⁴). However in the trademark use theory, the use of trademark in the judgment of infringement is the first requirement to judge⁷⁵). Since 2003, the district court in the United State accepted the trademark use theory ruled that there was no infringement of trademark rights in keyword search advertising because

72). https://en.wikipedia.org/wiki/Brookfield_Communications,_Inc._v._West_Coast_Entertainment_Corp.#Use_of_metatags

73). Jun-seok Park., The Concept of 'Trademark Use' on the Internet and Its PositionThe Justice. 2011.2, 185-211

74). Won-Oh Kim., Contending Legal Issues on the 'Trademark Use' under Trademark Law. The Journal of Intellectual Property 14(1), 2012.06, p8

75). In the trademark use theory, it is not necessary to judge possibility of confusion because there is no 'use of trademark' in keyword search advertising where the owner's trademark is not visually presented.

there was no "use of trademark". In *1-800 Contacts, Inc. v. WhenU.com and Vision Direct, Inc* case⁷⁶⁾, the federal court denied the trademark infringement because there was no use of trademark in keyword searching advertising.

3. Recent cases in EU and the United State

Even though there is still an issue on whether keyword search advertising is one of trademark use, recent cases in EU and the United State showed considered the keyword search advertising is one of the trademark uses. In the *Rescuecom Corp. v. Google Inc* case, the US federal court ruled keyword search advertising corresponded to the trademark use⁷⁷⁾. Rescuecom Corp. has registered a trademark 'Rescuecom' as a computer franchise company. Google sold the trademark Rescuecom as a keyword for search ads, and when a Google user searched for the word Rescuecom, the competitor's site link appeared as an ad. So, Rescuecom Corp. has filed a lawsuit against Google for trademark infringement and dilution. District court rejected the plaintiff claim using the trademark use theory in *1-800 Contacts, Inc. v. WhenU.com and Vision Direct, Inc* case because there was no 'trademark use' in Google's keyword search advertising. However, the appeals court unlike *1-800 Contacts v. the WhenU.com* judgment

76). *1-800 Contacts, Inc. v. WhenU.com and Vision Direct, Inc.*, 414 F.3d 400 (2d Cir., June 27, 2005). **The fatal flaw with this holding is that WhenU's pop-up ads donotdisplay the 1-800 trademark.** The district court's holding, however, appears to have been based on the court's acceptance of 1-800's claim that WhenU's pop-up ads appear "on" and affect 1-800's website. See, e.g., *id.* at 479 (stating that WhenU has "no relationship with the companies on whose websites the pop-up advertisements appear") (emphasis omitted) (emphasis added). As we explained above, the WhenU pop-up ads appear in a separate window that is prominently branded with the WhenU mark; they have absolutely no tangible effect on the appearance or functionality of the 1-800 website.

77). *Rescuecom Corp. v. Google Inc.*, 456 F. Supp. 2d 393, 401.

acknowledged that there was 'use of trademarks'⁷⁸⁾. EU also admitted there was trademark use in keyword search advertising in *Louis Vuitton v. Google* case⁷⁹⁾. The European Court of Justice recognized the use of the trademark if an advertiser buys a brand name from Google. Plus, if users type the keywords in a search engine and the advertiser's site link will appear in the search advertisement.

III. Discussion on the subject of Trademark use

Who uses the trademark and which responsibility the search engine provider or the advertiser takes? There is no doubt that the liability of the advertiser who purchased the keyword and requested the advertisement is direct infringement. The question is whether the responsibility that a search engine service provider, such as Google, is responsible for direct infringement, or indirect infringement⁸⁰⁾. If we take the position that the advertiser(competitor) of the keyword search advertising is the subject of using a trademark, the search engine service provider will take only responsibility for indirect infringement. This approach is taken by the *Louis Vuitton* judgment of the European Union. On the contrary, if we take the position that a search engine service provider is the subject of using a trademark the search engine

78). The federal court ruled there was no infringement because there was no confusion in Google's action considering that Google advertised a separate Sponsored Link for keyword search ads.

79). *Louis Vuitton Malletier v. Google Inc. and Google France*, TGI Paris, 4. Fevrier 2005

80). In the United States, there are two types of indirect liability: contributory liability and vicarious liability. *Inwood Labs., Inc. V. Ives Labs., Inc.*, 456 U.S.A. 844 (1982) was the leading case as regards infringement of the trademark right. Stacey L. Dogan, *Beyond Trademark Use*, 8 *Journal on Telecommunications & High Technology Law* 135 (Winter 2010), FN 40

service provider may directly bear the infringement liability when the possibility of confusion is recognized in individual cases. This approach seems to be taken by the mainstream of US courts.

1. Louis Vuitton v. Google France in EU⁸¹⁾

In *Louis Vuitton v. In the Google France* case, the European Court of Justice affirmed the use of the trademark in "AdWords", Google's keyword search advertising system, like *Rescuecom's* appeal case in the United States. The court ruled that the advertiser was a direct infringer and that Google could only be responsible for an indirect infringement. Google serving as an internet referencing service provider stores and sells keywords in the transaction. However, Google did not use the trademark of plaintiff even though the keyword stored in Google's server was identical to plaintiff's trademark. The court ruled that the subject of using trademark is competitors who pay for Google and use advertising services. The court also found that just creating such a technical environment and collecting a price to make a competitor's advertisement would not make Google as a trademark user⁸²⁾. The court confirmed the guideline⁸³⁾ that if Google were not in a position to recognize or control the infringement of a competitor's trademark through advertising, Google would not be liable for (indirect) infringement by a competitor's conduct.

81). *Google France SARL v Louis Vuitton Malletier SA* (C-236/08, C-237/08 & C-238/08) [2010].

82). Sentencing Para. 57. "The fact of creating the technical conditions necessary for the use of a sign and being paid for that service does not mean that the party offering the service itself uses the sign."

83). "Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market"

2. The United State

In the most US case, the search engine service provider seems to be interpreted as the subject of using trademark in keyword search advertising. In 2004 Netscape's appeal decision, which was the first case related to keyword search advertising, there was a controversy whether the liability of search engine service provider is direct infringement or indirect infringement. The courts pointed out that there was a possibility of use of the trademark, possibility of confusion and dilution, so that the court dismissed the decision of district court but held judgment on the controversy⁸⁴). After *Playboy Enterprises, Inc. V. Netscape Communications Corp* case, there were some cases such as *Geico*⁸⁵), *Rosetta Stone*⁸⁶) case. However, in these cases, the position of the court was still not clear. In the *Rescuecom* case⁸⁷), the court recognized Google's use of the *Rescuecom* keyword as the use of the trademark, and found that Google's use of the *Rescuecom* trademark was a trade-off activity that would determine whether it infringed the trademark. In light of this, it seemed to be clear that the search engine service provider was the other side of the infringement of trademark rights and that the nature of the responsibility is direct infringement. In *1-800 Contacts* case⁸⁸), even though the issue was about pop-up advertising the court found that the service provider of the advertisement was the subject of using the trademark⁸⁹).

84). *Playboy Enterprises, Inc. V. Netscape Communications Corp.*, 354 F.3d 1020 (Jan. 2004, 9th Cir.)

85). *Gov't Employees Ins. Co. v. Google, Inc.*, 330 F. Supp. 2d 700 (E.D. Va. 2004).

86). *Rosetta Stone Ltd. v. Google, Inc.*, 2010 WL 3063152 (E.D.Va., August 03, 2010)

87). *Rescuecom Corp. v. Google, Inc.*, 562 F.3d 123, (2d Cir. 2009)

88). *1-800 Contacts, Inc. v. Whenu.Com, Inc.*, 414 F.3d 400 (2d Cir., June 27)

89). Jun-seok Park., *The Concept of 'Trademark Use' on the Internet and Its Position*The Justice. 2011.2, p193

IV. Conclusion

There was an issue about whether the keyword search advertising was 'Trademark use' or not for a while. At first, the keyword search advertising was recognized as Trademark use through Initial Interest Confusion Theory in the United State. After that, Trademark Use Theory came up and denied that the keyword search advertising was infringement of trademark because it was not one of trademark use. In recent cases in EU and the United State, it is recognized as 'Trademark use' to use the keyword identical to other's trademark in advertisement. However, whether the service provider like google has to be imposed direct or indirect responsibility is still controversial issue. In Louis Vuitton case, EU court imposed indirect responsibility on the search engine service provider. On the contrary, US seemed to be opposite, which meant the search engine service provider have to be responsible for direct infringement. I believe that imposing direct infringement on the search engine service provider is more reasonable than indirect infringement. Firstly, in the logic of the trademark law, like a person involved in the distribution of goods of another person, a keyword search advertising service provider can bear the responsibility of direct infringement. Secondly, in the process of keyword search advertising, service provider rather than advertiser has more influence in determining the point and place of final advertisement. If you think imposing direct infringement on the search engine service provider is too much, we can make a legislation to give the search engine service provider immunity in some detailed situation like copyright Act⁹⁰). The

90). The United States enacted the Digital Millennium Copyright Act (DMCA) in 1998. The DMCA provides the online service provider with immunity from copyright infringement liability in the course of preventing copyright infringement on the Internet if the online service provider is in a passive position with respect to the infringement

search engine service provider's social responsibility is increasing in the digital world as the e-commerce market is getting bigger. However we should also guarantee search engine service provider's right so that they can develop technology that contributes to trademark industry.

behavior of others automatically made through the system that provides the online service without being aware of the infringement.

5. 디자인 및 식물다양성보호 (Industrial Designs and Plant Variety Right)

교육기간 : 2017. 07. 17. ~ 08. 30.

담당교수 : Dr. Kamal Puri, Dr. Mark Perry(WIPO)

과정내용

○과정 개요

본 과정은 두개의 과정으로 구성되어 있음. 디자인 보호법 과정은 디자인 제도의 역사, 경제적인 측면, 디자인 보호의 목적, 디자인 출원방법, 등록절차 등에 관한 전반적인 내용을 검토하며, 식물 다양성 보호 과정에서는 식물 육종가의 권리 보호를 위한 식물신품종 제도에 관해서 소개하였음.

○세부 내용

[디자인 보호법 과정]

- i) 디자인제도 개관
- ii) 보호를 위한 실체적 요건
- iii) 디자인권 침해 및 방어
- iv) 디자인권의 소유, 이전 및 실시
- v) 디자인권의 국제적 보호
- vi) 디자인권과 저작권의 중첩
- vii) 디자인 사무 실무

[식물 다양성 보호 과정]

- i) UPOV 개관
- ii) 식물신품종 심사요건
- iii) 다른 국제조약(TRIPS, CBD, ITPGRFA 등)과의 관계

□ 주요 연구결과 - Research Paper

- Topic : Overlapped region between Design Act and other laws in Korea

Introduction

The importance of intellectual property, along with the arrival of knowledge society, has been emphasized more than ever. After Apple and Samsung's design patent disputes, social awareness about the protection of design are spreading. It is a reality that various designs of everyday life are recognized as the creation of intellectual property and are protected through various protection systems in Korea. Industrial design is protected by intellectual property right represented by design right and copyright. Although both laws have the same purpose of protecting intellectual property rights, they apply differently, and there are many differences in registration procedures, methods, and protection periods. In recent years, the trademark law and the unfair competition prevention act have been actively used as a protection measure for design. In recent years, there has been an increasing tendency of overlap protection in design. For example, trade dresses such as three-dimensional shapes and packaging designs of products have become possible to be protected by the trademark, design, copyright, and competition laws. Especially in the field of applied art such as crafts and textile design, design rights and copyright rights tend to approach each other. Recognition of overlapping protection for the same subject does not directly lead to conflicts of rights between different rights entities, but it can cause conflicts between legal ideas and impede legal stability. In addition, there is criticism that the area to be guaranteed for free practice in the public domain is limited. There is also criticism that it may be abused as a means to extend the protection period of intellectual property rights.

I am going to research on various Korean laws for protecting design and dual protection of applied art between design protection Act and copyright Act. This paper also examines the various theories for the boundary of design protection law and copyright law. In addition, I am going to examine Supreme Court decision which denied the double protection of the design protection law and copyright law, and the recent Supreme Court decision which recognized the recent double protection. I will also look at other countries' legal systems for dual protection of Design Protection Act and Copyright Act in Korea.

I . What is the design and laws for its protection

1. Definition of Design

Industrial design is a compound word of 'industry' and 'design'. In the dictionary definition, industrial design is defined as 'industrial design or design of industrial production', 'formative activity to determine various morphological characteristics of industrial products mass.'¹⁾ World Intellectual Property Organization (WIPO) defined the Industrial Design as a feature, decoration, and form that applies to industrial products that make it look special in the past²⁾. In recent years, WIPO describes that in a legal sense, an industrial design constitutes the ornamental or aesthetic aspect of an article. An industrial design may consist of three dimensional features, such as the shape of an article, or two dimensional features, such as patterns, lines or color³⁾.

1). <<http://www.korean.go.kr>> <<http://www.doopedia.co.kr>>

2). WIPO, 「Glossary of Terms of Law of Copyright and Neighboring Rights」, 1983, p133

3). WIPO, "Frequently Asked Questions: Industrial Designs", <http://www.wipo.int/designs/en/faq_industrialdesigns.html>

Also, WIPO is saying that in the field of Industrial property, Industrial design means the visual aspect of object, including its two-dimensional and features three-dimensional features of shape and surface⁴).

2. Laws for Protection of Design in Korea

According to the above general definition, design means that a formal element is realized as an entity with an organic relation, which is the result of intellectual activity of the creator and is protected by various laws. Among them, the Design Protection Act actively protects design as part of industrial property rights, and is the most widely applied law in the design industry with copyright law. In Korean Design Act defines the design a shape, pattern, or color of an article, which invokes a sense of beauty through visual perception. In this Act 'design' must be embodied in an article of corporeal movables that can be independently traded. In the Design Protection Act, design has to be meet the requirements of (i) article property, (ii) morphology, (iii) visuality, and (iv) esthetics⁵).

If the design corresponds to a creation expressing a human thought or emotion, it meets the requirements for a copyright work. The Copyright Act declares that design can be related to copyright through Article 2(Definition) of the Act. The Copyright Act defines works of applied art as the works of art that may be reproduced in the same shapes as article, and whose originality may be recognized apart from the articles

4). WIPO, "Glossary of Terms of Concerning Industrial Property Information and Documentation", 「Handbook on industrial Property Information and documentation」, 2013, p8. I .11, <<http://www.wipo.int/export/sites/www/standards/en/pdf/08-01-01.pdf>>

5). Desing and Laws., Definition and Protection of Design Legislation, Association of Content Property for Next Generation

used for reproduction. And designs, etc. are included. According to the definition, the Korean Supreme Court said that in order to be protected by the Copyright Act as an applied arts work, the requirement of 'reproducibility' for industrial use and 'separability' from the practical and functional elements of the goods must be met⁶⁾.

Trademark Act declares that design can be related to trademark law through Article 2 (definition) and Article 92 (relationship with design rights of others) of the same Act. A trademark is defined as 'a mark used to distinguish goods of one business from those of others and the mark is defined as all indications used to identify the source of goods, irrespective of the composition or methods of the expression thereof, which include any sign, letter, figure, sound, smell, three-dimensional shape, hologram, movement, color, etc. Therefore, a design can be a trademark if it is used as a means to identify the creator's own products and other's products⁷⁾.

The Unfair Competition Prevention and Trade Secret Protection Act declares that the use (implementation) of the design can be unfair competition practice through Article 2(definition). The regulations related to design protection under the Unfair Competition Prevention Act include Article 2(1)(a) confusion of the product subject, (i) imitation of the product form and (j) General Provisions. Article 2(1)(a) defines confusion of the product subject as an act of causing confusion with another person's goods by using marks identical or similar to, another person's name, trade name, trademark, or container or package of goods, or any other mark indicating another person's goods, which is widely known in the Republic of Korea; or by selling, distributing, importing, or exporting goods bearing such marks. It means if the form

6). Korean Supreme Court, 2004. 7. 22, 2003do7572.

7). GU-ho, Lee., Current Status of Legislation on Design, Design and Laws, p18-32

of the product is 'gaining the ability to display the origin and the ability to show up', the design is protected from imitation. 2(1)(i)⁸⁾ is more directly defined for the type of product. This is a provision to protect the interests of capital and labor investors. 2(1)(j)⁹⁾ can be used as a basis of design protection¹⁰⁾.

The patent Act and the utility model Act protect the highly advanced creation of a technical idea utilizing the laws of nature'. If these technical ideas are manifested as goods, designs can also be protected by Patent Act.

II. Dual protection between Design Act and Copyright Act

1. Where is the region of dual protection?

In the field of applied art, overlapping areas of copyright and design protection law occur. The applied arts are the application of design and decoration to everyday objects to make them aesthetically pleasing. The term is applied in distinction to the fine arts which aims to produce objects which are beautiful or provide intellectual stimulation. The fields

8). (i) An act of transferring or lending goods whose shape has been copied (referring to the form, image, color, gloss, or any combination of these, including the shape of any prototype and the shape in goods brochure; hereinafter the same shall apply) from the goods manufactured by any other person; exhibiting such goods for transfer or lending; or importing or exporting such goods: Provided, That either of the following acts shall be excluded herefrom:

9). (j) Any other acts of infringing on other persons' economic interests by using the outcomes, etc. achieved by them through substantial investment or efforts, for one's own business without permission, in a manner contrary to fair commercial practices or competition order

10). Jin-won, Choi., Current Status of Legislation on Design, Design and Laws, p116-133

of industrial design, graphic design, fashion design, interior design, and the decorative arts are considered applied arts¹¹⁾. Design protection Act defines design as a shape, pattern, or color of an article. Therefore, all the designs can be said to be applied arts, but if applied arts are produced only once, or they cannot be produced in large quantities these are not the design that is defined by Design protection Act. In this sense, there is no dispute that applied art can be registered as a design right because it has the possibility of industrial use as the shape of mass-produced goods. Therefore, it is possible to give the applied arts a duplicate right based on the copyright law or the design law¹²⁾.

2. What is the issue of the dual protection?

The biggest advantage of copyright law lies in the convenience of copyright acquisition and the broad protection scope. Copyright is convenient in that the rights are automatically created without any procedural effort at the moment of creation completion, and it will be protected internationally until 70 years after the artist's death. On the other hand, design rights can secure stable rights in that they go through the registration process and have a relatively short protection period for 20 years. Dual protection by copyright and design protection law has various issues. First, it is a problem that the expired design can be substantially protected by copyright Act. While the period of design right protection is 15 years, copyright is protected until 70 years after the copyright owner die. So it is possible to claim copyright once

11). Copyright Act defines applied art as the works of art that may be reproduced in the same shapes as article, and whose originality may be recognized apart from the articles used for reproduction. And designs, etc. are included;

12). Jae-Kyung, Lee., 이재경., Copyright for Applied Art- Lee Seung Hwan vs Country Koko case ,The Journal of Comparative Private Law 1(4), 2008.12, 683-727

the protection period of the design right expires and it is supposed to be placed in the public domain. It might cause to restrict free use and harm legal stability¹³⁾. Second, if the same design is protected by copyright laws other than the Design Protection Act, the intention of the design restriction law, such as novelty requirements, registration requirements, and the duration of the short term, may be lost¹⁴⁾.

3. Theory of boundary setting for overlap protection in design¹⁵⁾

A. Stufentheorie

The German has long stood on the stufentheorie stance that industrial design, which falls within the scope of applied art, requires a high level of creation or level of formation(Gestaltungshöhe) in order to be protected by copyright law. However, recent precedent¹⁶⁾ has argued that it is not reasonable to deny copyright protection or impose special requirements on the condition that a certain form can receive design protection. The theory was virtually discarded.

B. Doctrine of separability

Separability test is a method of deciding whether copyright protection can be obtained depending on whether the design is separately

13). Kim Jong-Kyun., A Current Pattern and Standard of Solution on the Competitive Legal Systems for Design Protection Archives of Design Research 24(1), 2011.02, 27-36

14). In-Chul, Kim., Analysis of application related to art protection (design) in Korea Copyright Law, Design and Laws, 2017.03, p82-95

15). Won-oh, Kim., A Current Pattern and Standard of Solution on the Competitive Legal Systems for Design Protection, 2017.03, Design and Laws, 33-63

16). BGH GRUR 2014,175 -Geburstagszug

identified from the practical aspect and exist independently. This theory came from the *Mazer v. Stein* case¹⁷⁾, which is cited as the first case to protect design by the copyright Act in the United States. The separability theory is an approach that emphasizes the principle of copyright law that copyright law does not protect the function. As to the concrete contents of this 'Separability test', the United States court recognized the copyright of the applied art if it meets either Physical Separability or Conceptual Separability.

C. Doctrine of functionality

"Doctrine of Functionality" determines the protection of specific creative works and determines the distribution of protection methods so as to clarify the boundaries, thereby minimizing the conflict between each law, such as conflict between patent law and trademark law, conflict of copyright law and design law¹⁸⁾. The principle of this function is to divide the boundary between the Patent and Design, in that utility functionality is protected by a utility patent and only decorative design is protected by a design patent¹⁹⁾.

4. Research on Korean supreme court decision

The Korean Copyright Act article 4²⁰⁾ defines the applied arts is one

17). *Mazer v. Stein*, 347 U.S. 201, 218 (1954). (Mazer held that a traditional piece of sculpture could be copyrighted, even though it was intended to be reproduced as part of a useful article.)

18). Won-ho, Kim., Legal Requirements for the Protection of 3-dimensional Marks - particularly reference to the Shape of a Product or Container, 2002, *Industrial Right* Vol 11, p189-238

19). Jong-gap, Na., The Design Patent and Functionality with focus on American Design Patent, 2000, *YONSEI ASSOCIATION OF LEGAL RESEARCH*, Vol7(1)

of examples of protectable copyright works. So, applied arts can be protected by Copyright Act and also Design protection Act. However, at first the Korean Supreme Court denied the dual protection and said the applied arts should be protected by only Design protection Act in Taihan textile co v. Covington Fabrics Corp case. After the case, the Court changed its stance and recognized the dual protection in Hiddink case.

A. Taihan textile co v. Covington Fabrics Corp case²¹⁾

Covington Fabrics Corp., a US registered copyright owner, filed a lawsuit on June 21, 1993, in which the Korean textile company infringed the fabric design "Le desire" and "le basket". The court stated that all works of applied art created for the purpose of mass production cannot be immediately protected as copyrighted works. Only if applied art has an independent artistic characteristic or value, it is protected as a copyrighted work. The court denied the infringement because the Covington's fabric design was not copyright work. The Court said the reason why was if the dual protection of mass-produced applied arts were possible, the purpose of design Act would be faded.

B. Hiddink case²²⁾

Lee Kyung Soon, a representative and designer of Nuvitis, a company specializing in industrial design, developed a tie pattern that symbolizes the Ki, and Yin of Korea for the 2002 World Cup soccer tournament. Hiddink, who was the national soccer coach of the time, wore the

20). Article 4 (Examples of Works)(1) The following shall be the examples of works referred to in this Act: 4. Paintings, calligraphic works, sculptures, printmaking, crafts, works of applied art, and other works of art;

21). Supreme Court 1996. 2.23, Sentence 94do3266.

22). Supreme Court, 2004. 7.22.sentence, 2003do7582

winning streak and became known as "Hiddink Tie." Mr. Jang made and used a Hiddink tie. Lee Sang-sun sued Mr. Jang claiming that he violated the copyright of her tie pattern. The Supreme Court stated that any applied art could be protected by copyright act regardless of its protection by design act. The Court stated if the plaintive design was a type of applied art as a tie design that can be duplicated in the same shape on the article and distinguishable from the tie, it could be considered to be an applied art work as defined in Article 2 of the Copyright Act.

5. How about other countries?

Although there are differences in foreign countries, most countries recognize overlapping protection of the applied art. The United Kingdom and France have a great deal of overlap protection in design. The UK is characterized by the reduction of the copyright to the duration of the design right if it is double protected by copyright Act and Design Act. Germany has recognized dual protection of applied arts under copyright law requiring high creativity of the design²³⁾. The United State has recognized dual protection of the applied art by Copyright and Patent Act. The United States is characterized by the patent law as a central system for design protection as a protection law for applied arts. The protection of applied arts under copyright law was based on the famous Mazer v. Stein's case. The Mazer case recognized the copyrights of the lamp parts, which were the practical products of mass production. The Supreme Court stated that it did not lose its copyright because it could be used for practical purposes, mass

23). Kim Jong-Kyun., A comparative study: Legal Protestation for Industrial Design by Design Protection Acts and Copyright Law, 2001, Archives of Design Research, 24(1), 27-36.

production, and the subject of design patent. In Japan, the protection of art works is recognized only for fine arts, and exceptionally, only applied arts that are one-time made of are protected by copyright law. Japan takes legislative forms that exclude overlap protection by copyright law for practical applied arts²⁴). However the judge admits double protection because they judge based on the theory of separability when judging whether applied art is an art work or not. In the UK, design protection is classified as three rights and each design is protected independently of each other. CDPA²⁵) Article 52 prescribes protection of copyright protection and RDA(A)²⁶) prescribes protection of registered design rights. CDPA is a restriction of the copyright effect when the copyright that is generated at the time of creation is subsequently used in production. This is because the duration of copyright is matched to the 25 years of registered design right. France acknowledges the overlap protection of copyright and design rights. Since 1902, it has been protected from copyright law without distinction between pure art and applied arts, based on the "unite de l'art" theory that works should be protected regardless of the value or use of the works. The reason why is because the interpretation or value criterion of the beauty is subjective and it is based on the premise, it is impossible for a judge to judge pure artisticity of a work. In Germany, applied arts are included in the works of artistic works under the Copyright Act, and they are considered to be protected as designs or models by the Design Protection Act. From the viewpoint of protection requirements, the copyright law requires application of "high level of form formation", that is high creativity. According to the German court case, design usually lacks a high degree of artistic creativity.

24). Jong-gune, Kim., Current Status of Legislation on Design, Design and Laws, p64-81

25). Copyright, Design and Patents Act 1988

26). Registered Design Act 1949

III. Conclusion

There is criticism that the overlapping protection of applied art works can cause conflict between copyright law and design law, which is different from the purpose of legislation, protection requirements and effects. There is also criticism that the design that should be used as an ??the public domain after the period of protection ended under the Design Protection Act is protected again by copyright Act. There is also a view to protect the applied art of copyright and applied art of design protection law separately according to certain standards. For example, the applied art protected by the Copyright Act is restricted to artwork produced only once or a small amount and the applied arts protected by the Design Protection Act are limited to those produced in large quantities. However, it is highly subjective to distinguish between applied arts protected by copyright law and design protection law according to certain standards. As above "unite de l'art" theory mentioned the interpretation or value criterion of the beauty is subjective and it is based on the premise. Protecting applied arts as one of copyright law and design protection laws is very difficult in setting the boundaries and also causes irrationality. For example, if the applied art is protected only by the Design Protection Act in order to prevent double protection, this will result in the state imposing design rights holder on application or registration for protection their rights. On the other hand, if the applied art is protected by Copyright Act it causes the reason for the existence of Design Protection Act to be dismissed. I believe that dual protection of the applied art is appropriate in modern world where various fields are converged. However, when it is judged that dual protection is excessive in certain situation, it is reasonable to create a basis to exclude the applied art from dual protection. In this

respect, I think that dual protection based on the separability theory of Korea is very reasonable.

6. 전통지식 등 최근 이슈, 반독점법과 지재권의 접점 (Traditional Knowledge and Other Emerging Issues; Interface Between Antitrust and IP Rights)

□ 교육기간 : 2017. 09. 11. ~ 10. 04.

□ 담당교수 : Dr. Stephen Coronos(QUT 법대)
Dr. Natalie Stoianoff(UTS 법대)

□ 과정내용

○ 과정 개요

본 과정에서는 전통지식(Traditional Knowledge) 문제를 포함한 지재권 분야의 최근 이슈들과 함께, 서로 다른 영역에 있는 반독점법과 지재권법이 그 방향이 대립하는 경우에 이를 어떻게 해결하고, 상호 협력해가는지 다룬다. 외부 세계로부터 고립된 채 자신들의 전통을 고수해가는 토착민(indigenous people)의 전통 지식의 보호 차원에서 제기되어, 그 영역을 확장해가고 있는 전통지식에 관한 이슈와 더불어, 보편적 인권, 기후변화, 생물학적 다양성 보호 등의 다양한 주제에 있어서 지재권 보호가 어떤 역할을 할 수 있는지에 관하여 학습한다. 또한, 특정 시장의 독점을 금하는 반독점법과 독점권인 지재권을 부여하는 지재권법이 하나의 시장에서 어떻게 조화를 이룰수 있는지를 다룬다.

○ 세부 내용

- i) 유전적 자원 접근에 관한 지재권 및 국제법 시스템
- ii) 전통 지식 및 문화에 대한 보호
- iii) 지재권과 공공 보건, 환경보호 및 보편적 인권
- iv) 지재권법과 반독점법의 정책적 목표
- v) 지재권 라이선스 거절, 끼워팔기(tying), 결합판매(bundling)
- vi) 반경쟁적 행위에 대한 소송
- vii) 불공정 경쟁으로부터의 보호

□ 주요 연구결과 - Research Paper

- Topic : Relationship between competition Laws and Intellectual Property Rights

I. Introduction

In 2011, there was a big lawsuit between Samsung and Apple to get many people's attention. Apple sued against Samsung because Samsung infringed Apple's patent in several countries and Samsung also sued Apple. Most important issue of the lawsuit was whether Samsung abused their essential patents. Apple claimed that Samsung violated the FRAND conditions in the license agreement. In this lawsuit, many experts were looking forward to the court decision about what the definition of FRAND in practical case and what the abuse of patent was. Unlike the expectations of the experts, this lawsuit was settled because of bilateral agreement and still left the issues unsolved. After a few years, the issues came out again. The Korean Fair Trade Commission charged Qualcomm with a penalty of one billion dollars on Jan 2017 because Qualcomm abused their patents when Qualcomm licensed with other Korean companies such as Samsung, LG²⁷). For a long time, there was dispute on whether competition law could control or restrict the intellectual property rights or not. Nowadays, there seems to be no dispute about that competition law can limit the patent rights if exercise of patent rights is beyond the scope of the patent right. However, it still remain unanswered that standard essential patent's holder under FRAND can file a complaint to seek injunction against, or prevention of, infringement against a person who infringes, or is likely to infringe, his/her rights. I am going to research on the basis of that the competition law can restrict the intellectual property rights in Korea and cases in some countries. If standard essential patent's holder under FRAND breaks the FRAND conditions, it is also the issue whether the competition law can restrict the patent rights or not. As above mentioned, the patent rights can be restricted when the exercise is beyond the justifiable exercise of the right. The problem is what is the beyond the scope of the patent rights especially when standard essential patent under FRAND conditions exercises because there is no specific rule on the intellectual property policy as to what the FRAND condition means in most standardization organizations. Furthermore, the FRAND declaration alone cannot clearly identify what the actual obligation of the patentee is. In this paper, I

am going to research on what the definition of FRAND is and why the FRAND conditions cause problem. Lastly, I am going to research on the recent case, especially the basis of Korean Fair Trade Commission when they charged Qualcomm with a penalty of one billion dollars on Jan 2017.

II. The process of Standardization and FRAND

What is the FRAND

In the process of standardization, the standardization body's intellectual property policy requires patent holders to disclose patents that are considered "essential" prior to the adoption of technical standards. The patentee will be required to give a guarantee or commitment to grant permission to a third party under the FRAND condition if the patent rights that he or she holds are proved to be essential for the implementation of technical standards. Accordingly, if the patentee declares that the patentee is ready to grant a license to a third party under the FRAND condition, the patent will be adopted as a technical standard. If the patentee does not have a FRAND declaration, and if the patentee refuses the FRAND declaration despite the absence of any other technology to replace the patent, the process of adopting the technical standard may be discontinued. If the patentee is found to have a patent right after the standardization, the standardization body will ask the patentee for the FRAND declaration. If the patentee rejects the FRAND declaration, the standardization body will take necessary follow-up measures such as disapproval of the technical standard.

1) Fair

Fair is a fundamental condition in the licensing process, and it is a concept contrast to being unfair and illegal to exploit the market's monopoly position. Fair is a matter of knowledge and procedures that may be seen as equivalent to what lawyers sometimes call legitimate legal procedures. In other words, it can be interpreted that both sides need to be aware of the fact that, before the commencement of the proceedings, there is a "procedure for reaching the result. and that the procedure considers both sides equally well"²⁸⁾

2) Reasonability

Reasonability can be interpreted as a concept that emphasizes the outcome rather than the process. It can be interpreted that the end result must reach both satisfaction and acceptance of the parties. In relation to the FRAND declaration, it can be said that the end result means a practical royalty. Therefore, it is suggested that a standard patentee can violate the FRAND if he or she forces mutual license for commercial patents by using the power of the standard patent²⁹⁾. For example, Carl Shapiro and Hal R. Varian have shown that

Larry M. Goldstein & Brian N. Kearsy, *Technology Patent Licensing*, Aspatore Inc., 2004, p27

reasonable practice means royalty that could be received in competition with other technologies, not just those licensed after the patent was locked in³⁰). Daniel G. Swanson and William J. Baumol have argued that 'the royalty under competition before technology standards is reasonable³¹).

3) Non- Discriminatory

The notion of non-discriminatory can be interpreted that both parties should not be disadvantaged in comparison with third parties in consultation with other patent holders or practitioners who have similar conditions³²). It is difficult to say that the non-discriminatory requirement does not mean that all parties should receive the same level of licensing. In the case of different levels of loyalty, in view of the relationship between the standard patent holder and the other party, if such a difference cannot be seen as unjustifiable, it should be regarded as meeting the non-discrimination requirement³³).

Why is the issue on FRAND

Although the FRAND Declaration is a very important factor in adopting the technical standard of the standardization body, there is no specific rule on the intellectual property policy as to what the FRAND condition means in most standardization organizations³⁴). Furthermore, the FRAND declaration indicates that the patentee is ready to grant the license to the third party under the FRAND condition and the FRAND declaration alone cannot clearly identify what the actual obligation of the patentee is³⁵). In order to ensure that the standard patentee has complied with the fair and reasonable conditions of FRAND, there must be a clear standard for this. However, despite the importance of the criteria, FRAND has the limitation that it cannot be set clearly. Because the value of the patent can be variously evaluated according to the user and the execution condition can be varied not only by the simple royalty but also by the scope, effect and duration of the license³⁶). In

European Commission, Non-Opposition(Case No. COMP/M.6381- Google/Motorola Mobility), 2012.02.13. The Standard Patent is also called standard essential patent.

Carl Shapiro & Hal R. Varian, Information Rules: A Strategic Guide to the Network Economy, Harvard Business School Press, 241 (1999).

Daniel G. Swanson & William J. Baumol, "Reasonable and Nondiscriminatory (RAND) Royalties, Standard Selection, and Control of Market Power", 73 Antitrust Law Journal 1,5 (2005).

Larry M. Goldstein& Brian N. Kearsy, Technology Patent Licensing, Aspatore Inc., 2004, p27

Song, Jaeseop.,(2014) Limitations on the Exercise of Rights Based on Standard Essential Patent – Focusing on Injunction and Damage Claim, The Justice , 2014.2, 210-249

For example, The IEEE is not responsible for ... determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory.

Mark A. Lemley, supra note 5, at 1906. It is pointed out that the standardization body has no policy as to the cost and scope of the granting of licenses under FRAND conditions (Id. At 1964-1965).

Dong-Bae Choi, Seungju Lee., A study on the legal issues of the Essential Patent and FRAND terms, Chungnam Law Review 24(2), 2013.12, 685-709

many cases, the license agreement includes confidentiality clauses that refrain from disclosing specific conditions of conduct. As a result, it is extremely difficult for the other party to conclude a separate license agreement with a standard patent holder to compare his or her operating conditions with those of a third party.

III. Relationship between competition Laws and Intellectual Property Rights

Conflicts between Competition Act and Intellectual Property Rights

There was a long dispute whether competition Act could restrict intellectual property rights. Both competition Act and intellectual property rights ultimately are mutually complementary relations in pursuit of a common goal, in that they promote "creative business activities and promote the sound development of related industries and the national economy³⁷." In this perspective, Korean Monopoly Regulation and Fair Trade Act Article 59 defines "This Act shall not apply to any act which is deemed the justifiable exercise of the right under the Copyright Act, the Patent Act, the Utility Model Act, the Design Protection Act or the Trademark Act." These days, although most experts, scholars think conceptually competition Act could restrict intellectual property rights, the question is when the competition Act can restrict intellectual rights in real case. There will be four different cases relating to conflicts between the competition Act and the exercise of patent rights. First, the exercise of patent rights is the justifiable and there is no restricted competition. Second, the exercise of patent rights is not the justifiable and there is no restricted competition. Third, the exercise of patent rights is not the justifiable and there is restricted competition. Lastly, the exercise of patent rights is the justifiable and there is restricted competition. First and second case will be not the issue because in both case there is no conflicts between competition Act and the exercise of patent rights. In the third case, there is an issue on what the 'not justifiable exercise of the rights' is³⁸. In the last case, there

Guidelines on Unfair Exercise of Intellectual Property Rights(2015), The Korean Fair Trade Commission, In Korean recent Supreme Court case(2014.2.27, sentence2012do24498), the court said intellectual property system encourages creative business activities by providing incentives for new technological innovations through legitimate rewards for innovative technologies and in this regard, the Intellectual Property System and the Fair Trade Act ultimately pursue a common goal.

In relating with third case, the Supreme Court said that unless the contents of the agreement on the patent dispute exceed the results that may arise when the patent right is exercised justifiably, such agreement shall be a justifiable exercise of the patent right and in case of exceeding this, the Fair Trade Act can be applied as an unfair exercise of patent rights. Also, the court specifically defined five instances of non-legitimate exercise of patent rights. First, If it is clear that the patentee's patent is invalid or that the competitor does not infringe the patent, the patentee and the competitor enter into an agreement for the purpose of restricting competition in the relevant market. Second, If the patentee prevent the competitor from releasing the related product to the market even after the expiration of the patent period. Third, If the patentee prohibits research, manufacture or sale of the same product, in the case of invention of the method, regardless of the

is an issue whether the competition Act can restrict the exercise of the patent rights or not, when the exercise of patent rights is justifiable and also it causes a restricted competition.

1) Theories in Korea

A) Theory of confirmation

The Fair Trade Act naturally applies in this case as there is no reason to discriminate between the exercise of intellectual property rights and the exercise of general property rights. In the event of a conflict between the intellectual property law and the Fair Trade Act, it is sufficient to immediately examine whether the case corresponds to the illegal requirement of the Fair Trade Act³⁹). It is the pluralism in Korea.

B) Theory of dichotomy

After classifying the exercise of the intellectual property rights into intrinsic and non-intrinsic exercise, if the exercise falls into non-intrinsic plus if it's not abuse of the rights, the Fair Trade Act can be applied.

C) Theory of first Intellectual property Act applying

In view of the relationship between the Intellectual Property Law and the Fair Trade Act as a kind of special law and general law, Intellectual property law applies intellectual property rights in the field of intellectual property rights but it is interpreted that fair trade law can be applied when it is used for unfair purposes deviating from the purpose of intellectual property rights system⁴⁰)

2) The Court decision in Korea

The court decision didn't say which theory the court took definitely. However, the court described general concept. First, the court said when there is conflicts between competition Act and patent rights like category 4(where intellectual property rights causes both restricted competition effect and efficiency increase effect), the court should judge which one is better than the other. Also, the court defined An act that is not recognized as a legitimate exercise of a patent right means a case in which the substance appears to be an exercise

manufacturing method. Fourth, If the patentee prohibits research and development related products related to other patents which is not directly related to the patent. Fifth, If a competitor fails to launch a product immediately after the expiration of the patent period, and it has the same effect of extending the exclusive right of the patentee by not allowing competitors to do research or testing without infringing their patent rights until the end of the patent period.

Jin-yeol, Joo., How Patent Settlement Can Be Unfair Concerted Conduct? - A Comment on Korean Supreme Court 2012Du24498 and 2012Du27794 Decisions concer, A-joo University, Legal research 18

Hung-gi, Back., The harmony and Conflict of IPR Law and Anti-trust law, the policy information 13, 2006

of a patent right outside the scope of the act but violates the intrinsic purpose of the system beyond the purport of the patent system. Whether or not this applies shall be judged by considering the purpose of the patent law, the content of the patent right, and the effect of the act on fair and free competition

How about Standard Essential Patents

As we have seen, the exercise of patent rights is limited to competitive law if it is beyond reasonable scope and there is competition restriction. In addition, if there is a social effect of the patent right but there is a competition limitation, it should be judged by each case. In the case of 'standard essential patent', it is a problem that it is necessary to limit the exercise of the right to seek injunction against the infringement of patent right because it is just a patent that be included in the technical standard. In the process of adopting the technical standards, the right holder of the patent included in the technical standard is required to guarantee or commit to grant the patent to any third party under the condition of FRAND⁴¹⁾. In this situation, there are conflicting opinions as to whether the request for prohibition of infringement, which prohibits the production, sale, and importation of infringing products, should be permitted in light of the purpose of the FRAND Declaration⁴²⁾. There is a view that standard essential patent holders are at a greater risk of abusing the infringement claim to receive more practice fees than the actual value of the standard patent in negotiations for granting standard patent licenses. Most domestic and international scholars agree that a standard patentee who submits a FRAND declaration cannot file a non-infringement action against a practitioner who pays at least a reasonable level of licensing fees and is willing to license the patent. According to Maurits Dolmans, a standard essential patentee has declared that by submitting a FRAND declaration, he will license his patents on FRAND terms, so he can not be allowed to file an infringement claim. The patent holder only can file a complaint to seek an injunction if the practitioner declares that he is not willing to license under the FRAND condition⁴³⁾. On the other hand, there is a claim that even if the FRAND declaration is made, there is no promise to renounce the patent infringement claim, and if the patentee cannot make such a request, the patentee may suffer a great disadvantage. If a standard essential cannot file a complaint to seek an injunction, the patentee can only be relieved by exercising his right to claim damages after infringement. It may result in encouraging infringement by eliminating the incentive that a third party who intends to implement a standard patent should be granted permission to conduct through sincere negotiations. These results suggest that there is a high possibility that patent holders will show a passive attitude toward participation in standardization⁴⁴⁾.

Song, Jaeseop.,(2014) Limitations on the Exercise of Rights Based on Standard Essential Patent – Focusing on Injunction and Damage Claim, The Justice , 2014.2, 210-249 (40 pages)

Cha, Sang Yook.,(2015) The Possibility of Limitations on the Exercise of an Injunction Right based on Standards Essential Patents, The Journal of Intellectual Property 10(4), 2015.12, 61-108 (48 pages)

Ho-young, LEE., A Study on Enforcement of the Korea Anti-Monopoly Act on Breaches of the FRAND Commitments by SEP Holders, commercial Law Review, 31-4, 2013, p276

Moon-ji LEE.,Standard Setting, Patent Hold-Up, and the EU Competition Law Standard setting occurs across jurisdictional boundaries, Commercial Case Law, 25-4, 2012.12, p230

1) Cases in other countries

A) Apple v. Motorola in the United State⁴⁵⁾

The Judge Posner said that Motorola's patent rights were adopted as technical standards in return for the FRAND declaration, so Motorola would be obligated to grant standard patents under FRAND conditions. In addition, Motorola may receive a reasonable royalty even if it does not recognize the right to claim infringement. And that it is not permissible to demand an infringement on the basis of the need for a means to oppress the opponent in order to proceed with the negotiation under more favorable terms.

B) Apple v. Motorola Mobility in the United State⁴⁶⁾

The Judge Crabb said that the consent to deprive the patentee of the right to demand infringement should be clear. However, there is no provision in the ETSI or IEEE intellectual property policy to infer that the standardization body and standard patent holders have intention or agreement to prohibit the infringement claim. Therefore, Motorola Mobility did not violate the FRAND Declaration just because it exercised the right to demand infringement prohibition.

C) Germany

There was a verdict in the Düsseldorf District Court that did not allow the standard patentee who made the FRAND declaration to claim the infringement claim⁴⁷⁾. After the decision, in Orange Book Standard case, the Federal Supreme Court (BGH) subsequently confirmed that it was possible to challenge the abuse of rights under certain requirements for the patenting rights of non-infringers⁴⁸⁾.

D) Netherlands

The Hague District Court in Philips v. SK Kasetten case said that if the infringement of the standard patent rights is recognized, the right to claim infringement must be recognized. The FRAND declaration does not imply the acceptance of infringement. Therefore, if the actual license agreement is not concluded, the right of the defendant to be granted is not excluded, or the right to demand infringement of the patentee is not excluded⁴⁹⁾.

Apple, Inc. v. Motorola, Inc., 869 F.Supp.2d 901 (N.D.Ill.,2012)
Apple, Inc. v. Motorola Mobility, Inc., 2012 WL 5416941 (W.D.Wis. 2012).
Siemens v. Amoi, Regional Court of Dusseldorf (Feb. 13, 2007), Case 4a O 24/05, para.62.
German Federal Supreme Court (May 6, 2009), Case KZR 39/06.
Philips v. SK Kasetten, District Court of The Hague (March 17, 2010), Cases 316533/HA ZA 08-2522 and 316535/HA ZA 08-2524, para.6.18.

E) Japan

The court in Samsung v. Apple case said that Samsung Electronics did not provide the necessary information to determine whether Apple was subject to the FRAND condition, nor did it offer specific alternatives to Apple's proposed conditions which meant that Samsung breached the obligation to provide important information and negotiate good faith at the preparation stage of the contract. Therefore, Samsung Electronics' infringement claim is not allowed for abuse of rights⁵⁰).

2) Cases in Korea

A) Samsung v. Apple in Korea⁵¹

The Seoul central district court said that if the FRAND declaration is made, there is a need to limit the exercise of the rights of standard patent holders in light of the purpose of the patent law. It cannot be interpreted that the patent holder who declared FRAND conditions abandoned the exercise of the right to claim infringement to a third party who arbitrarily conducts his or her standard essential patent without the license. If the third party are conducting unauthorized use of a standard patent without permission of the patent holder, or discussing the validity or infringement of a standard patent, that the patent holder files a complaint to seek an injunction is not against the principle of estoppel.

B) The Korean Fair Trade Commission V. Qualcomm⁵²

The Korean Fair Trade Commission charged Qualcomm one billion dollars on Jan 2017. The Korean Fair Trade Commission said standard essential patent holders with FRAND commitments are not permitted to enforce unilateral licensing agreements by means of threats, such as prohibition of sales. Nonetheless, Qualcomm was able to enter into a licensing agreement with the handset maker while avoiding a rigorous license negotiation process against FRAND commitments. In view of the FRAND Commitment and Commitment, the expected normal trading practice for a request for a grant of a standard essential patent is a granting irrevocable license under FRAND conditions, not a simple neglect. What Qualcomm claims that it is merely a reservation of the patentee's voluntary arbitration is not that the patentee will not exercise any rights. In position of the third party, there is an incomparable fundamental difference in terms of patent infringement risk, as opposed to entering into a licensing agreement. Therefore, it is not the scope of normal business practice to disclose to the other party only the position of rejecting the request for permission to execute the standard essential patent

東京地方裁判所平成23年(ヨ)第22027号事件(平成25. 2. 28. 判決)
Seoul central district court, 2012. 8. 24, 2011Kahap39552
2015SiGam2118(20.01.2017)

IV. Conclusion

The case of conflicting between competition Act and Intellectual Property Rights will be very various and there will no proper answers. However almost everyone agree that if the exercise of patent rights is deemed unworthy of legal protection, such as violating the purpose or function of the patent system, disturbing the fair competition order and the order of trade, violating the principle of good faith in the relationship with the consumer or the other party, the exercise of patent rights cannot be allowed as abusing rights. Also, in the case of standard essential patents with FRAND conditions, these standards will need to be even more stringent because a FRAND commitment violation of a standard essential patent would result in the elimination of the sole means of preventing competition limiting behavior in itself, given that no alternative technology exists in the standard. However, there is no clear definition of FRAND especially in practical cases. On ambiguous criteria of the FRAND condition, it is not desirable to restrict exercise of the patent rights to competition laws by judging the abuse of patents because there is also no reasonable royalty applying to every case. If the standard essential patent holder unilaterally refuses to license agreement with the third party like Qualcomm in The Korean Fair Trade Commission V. Qualcomm case, it must be the abuse of patent rights and should be restricted by competition Act. However, if the bilateral license negotiations between the standard patent holder and the third party are simply broken, it is not desirable to limit the abuse of patents. There will be many reasons for the breakdown of the negotiations, and the court or administration must comprehensively review what the patentee has taken in the negotiation process like Samsun v. Apple in Korea. There is no standard that can be applied in all cases and we should judge reasonably each case on the basis of the purpose of competition law and the patent system.

7. 지재권 관리 및 상업화 (IP Management & Commercialization)

교육기간 : '17. 09. 11.~ 10. 04.

담당교수 : Dr. Philip Mendes(IP Australia)
Brian Richards IP 컨설턴트 (BDO)

과정내용

○ 과정 개요

최근 지재권에 대한 경제적 가치가 매우 높게 평가되어 있으나, 대부분의 지재권이 상업화되지 못하고 소멸되고 있는 실정임. 본 과정에서는 지재권의 가치를 정확하게 확정하고 평가하는 방법과 이에 대한 상업화 방법을 다룸. 상업화 방식으로서 라이선싱 계약, 창업, 지재권 공유 및 협력 등을 설명. 구체적인 사례 연구로서 상표, 특허 등 지재권 창출에서부터 상업화에 이르는 전과정을 학생들간의 그룹 토론을 통하여 논의하고 발표하였음. 또한 상업화 과정에서 요구되는 협상 기술과 경제적 이익 증대를 위한 협상 전략을 소개하였음.

○ 세부 내용

- i) IP 확정 및 평가 절차
- ii) IP 보호 방법에 관한 사례
- iii) IP 공유와 협력
- iv) IP의 상업화 방법
- v) 라이선스 계약에 관한 사례
- vi) 창업과 벤처캐피탈 설립
- vii) IP 거래를 위한 협상 전략
- viii) 아시아·태평양 국가들의 IP 관리 현황

□ 주요 연구결과 - Research Paper

- Topic : University Technology Transfer in the Republic of Korea: Challenges and Success

Introduction

In past 40 years, Korea is one country that succeed in using technology transfer as a significant factor to drive economic growth. In the early phase of industrialization, the R&D policy of Korea focus on foreign technologies transfer in order to obtain technological competitiveness in high-tech products. Korea used foreign technology as a significant source to build its R&D and innovation base as well as develop its domestic capacity with highly educated personnel. In past decade, the Korean government established various technology transfer policies for commercializing the technologies developed by public research institutes to achieve advanced technological innovation and competitive advantage as well as to increase economic growth.¹⁾ Korean Government had launched a series of pro-technology transfer programs after the enactment of the Korean Technology Transfer Promotion Act of 2000 which in 2006 the title was changed to the “ Technology Transfer and Commercialisation Promotion Law”, which resembles the US Bayh-Dole Act of 1980 and the US Stevenson-Wydler Technology Innovation Act of 1980 in many ways.²⁾

University technology transfer (UTT) is one of mechanism that has been exploited by Korean government in developing technology and innovation system as well as enhancing creative economy of the country. UTT outcome by the universities have increased rapidly since the early 2000s, nevertheless emerging issues and challenges of UTT performance have been acknowledged by all stakeholders nowadays. As major mission of the universities is teaching and fundamental research, enhancing commercialisation of university research is not a priority, nevertheless, universities in Korea recently have faced pressure to combine eminence in teaching and research with commercialisation and fund-raising activities. Thus, there are many factors that cause an impact to the effectiveness of UTT in Korea.

Jae-Seung Han and Sang-Yong Tom Lee, 'The impact of technology transfer contract on a firm's market value in Korea' (2013) 38(5) The Journal of Technology Transfer 651.

Anthony Bartzokas, 'Monitoring and analysis of poli-cies and public financing instruments conducive to higher levels of R&D investments The “POLICY MIX” Project Country Review Korea' (2008) Maastricht, The Netherlands: United Nations University.

The research paper is structured with the question whether the Korean UTT system is on the path to success or failure. What are the causes and factors that obstruct the effectiveness of UTT performance in Korea.

The first section of the paper will explore background of UTT and current state of UTT performance in Korea. Section 2 will examine the statistics of UTT in Korea. While related laws and government policy as well as the challenges of UTT performance will be discussed in Section 3, which will analyze practical issues and conditions that cause an impact on technology transfer success in detail. The recommended solution on effective UTT performance will be provided as well.

I. University technology transfer

University technology transfer (UTT) is a process by which knowledge flows from academic researches to industrial production or services, bridging the disparate cultures of the donor and recipient organizations.³⁾ Initially, technology transfer was referred to “two different ways of technology transfer. Horizontal technology transfer is the transfer of technological knowledge or innovation between organizations, industries, and nations. Vertical technology transfer is the transfer of technological knowledge or innovation, from basic to advanced research, for development through to commercialization”.⁴⁾ More recently, technology transfer has been considered as “the route of technological knowledge, ideas, and research results from the initial conceiving organization to the user organization, which focuses on licensing-in and technological cooperation.”⁵⁾

After being invented by scientists or professions in research laboratories, new technologies go through a sequence of processes and are eventually applied by recipients. Recipients can, and mostly, be business firms, and those firms involved can be classified into several groups. For example, the technology may flow from universities to an existing company or an intermediary; also, the transfer can occur between academic institutions and a startup or spinoff. Existing companies could be large or small entities and they generally seek for partnership with universities in different stages. In addition, there is a distinction between spinoffs and startups: startups are companies created by licensing an early-stage

Goldhor, Richard S and Robert T Lund, ‘University-to-industry advanced technology transfer: a case study.’ (1983) 12.3 *Research Policy* 121.

Foster, G. ‘Traditional cultures and the impact of technological change’ (1971) *Harvard Business Review*.

Camp S, Sexton D, ‘Technology Transfer and Value creation: Extending the theory beyond information exchange’ (1992) 17 *The Journal of Technology Transfer* 68.

invention to an independent entrepreneur, with the goal of developing the company around the growth and commercialization of the technology; spinoffs are new companies formed by individuals related to the university or university research park to develop a technology that was discovered in, and is transferred from, the parent organization.⁶⁾

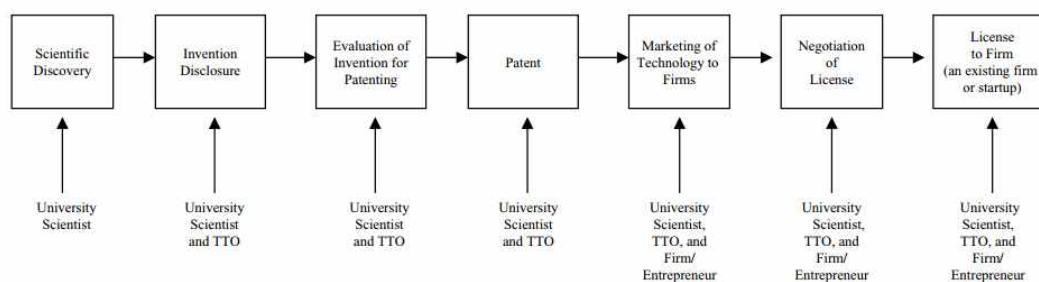
That is to say, new inventions trigger the foundation of both startups and spinoffs, but startups are operated by an entrepreneur who works outside universities while faculty members establish the latter.

Models of UTT

Since being introduced at the first time, UTT has been developed several times, and so as the models of UTT.

As people defined UTT as a flow where technology and knowledge transferred from colleges to public, the models were initially divided into shielded innovation transfer in which inventions ultimately went to the market and unshielded technology transfer where the basic researches were taken to applied or developmental levels.⁷⁾ Although some critics argued that the shielded pattern was not consistent with universities' mission, shielding an invention was the most popular choice among universities because it is an energy-saving way and can cut down investors running cost, which can improve universities' competition to attract capital investment.⁸⁾

More recently, several definitions of traditional UTT model come from different perspectives. Some scholars outlined the traditional model of UTT as a general linear flow (Figure 1).⁹⁾



Bercovitz, Janet and Maryann Feldman, 'Entrepreneurial universities and technology transfer: A conceptual framework for understanding knowledge-based economic development' (2006) 31.1 *The Journal of Technology Transfer* 175.

Parker, Zilberman, D, 'University technology transfers: Impacts on local and US economies' (1993) 11.2 *Contemporary Policy Issues* 87.

Ibid.

Siegel, Donald S, et al. 'Toward a model of the effective transfer of scientific knowledge from academicians to practitioners: qualitative evidence from the commercialization of university technologies' (2004) 21.1 *Journal of engineering and technology management* 115-142.

The process starts with a discovery by scientists or faculty of colleges and ends when another party obtains the license of the invention. To be finally licensed, technology transfer offices (TTOs), an institution embodied in universities and firms might be involved. TTOs take responsibility for deciding whether to patent the inventions and for make an evaluation regarding commercialization potential prior to interest being expressed by companies, and after the patent is granted, TTOs are in charge of, sometimes with faculty input, seeking for the potential corporate licensees.¹⁰⁾ Other opinions characterize traditional technology transfer as an organization-centric model, which is considered as a combination of triple helix model theory and the concept of multiversity.¹¹⁾ Under the triple helix model, universities, industry and government have connection with each other, and reciprocal relationships are formed among the three institutions in which each attempts to enhance the performance of others.¹²⁾ The multiversity is a modular institution centered on undergraduate and graduate schools with multiple activities and organizations, including science parks and research institutes, undertakings integrate or release from the core depending on the needs of the students, faculty, and regional communities.¹³⁾

As the technology has developed rapidly and society has experienced a huge number of changes, the models of UTT has been crafted, or proposed to be altered in the last decade. For example, Miller and Acs propose universities find methods and models focused on supporting individuals in unleashing their knowledge to solve local and regional challenges.¹⁴⁾

Benefits and challenges of UTT

UTT has proven to be an extremely valuable method of ensuring that innovative university discoveries become more readily accessible as commercial products. This enables the outcome of technology innovation to be available outside university laboratories.¹⁵⁾

What's more, connecting university technology with industry is a mutually beneficial

Ibid.

Bradley et al. 'Models and methods of university technology transfer' (2013) 9.6 *Foundations and Trends® in Entrepreneurship* 571.

Etzkowitz H, 'Research groups as 'quasi-firms': The invention of the entrepreneurial university' (2003) 32.1 *Research Policy* 109.

Kerr,C, *The Uses of the University* (Cambridge, MA: Harvard University Press,2001); Miller, David J, and Zoltan J Acs, 'Technology commercialization on campus: twentieth century frameworks and twenty-first century blind spots' (2013) 50.2 *The Annals of Regional Science* 407; Bradley above n 9.

Miller, David J, and Acs, above n 11.

Woodruff Health Sciences Center, *Technology transfer contributes multiple benefits to universities* (June 2014)

<http://news.emory.edu/stories/2014/06/technology_transfer_nai_article/>.

arrangement. Technology transfer can be a significant source of revenues for the university and provide industry with important new technologies.¹⁶⁾ The collaboration with industry provides faculty opportunities to obtain sufficient research funds, to test the practical application of their theory as well as employment opportunities for students.¹⁷⁾ Technology transfer is beneficial for industry because utilizing university-developed technologies can help maintain a comparative advantage in the marketplace and save R&D time and cost, and being affiliated with a university might provide a halo effect for the firm.¹⁸⁾ Also, firms that collaborate with universities have greater access to new university research and discoveries.¹⁹⁾

However, technology transfer will not really make universities or research institutions rich because building a robust technology transfer program takes a large amount of time and money. First, to establish TTO requires sufficient financial investment. After that, it takes around 8 to 10 years to arrange a TT institution such as building an IP portfolio, establishing contacts, and developing skills in technology transfer. And it may take up to two decades or more before a university technology transfer program substantially affects the local economy. Although the ultimate impact may be very large for the academic institution or the wider community, most universities can barely survive.

What is the situation of UTT in Korea?

In Korea, university technology transfer began to be promoted in earnest in 2000 when the Technology Transfer and Commercialization Promotion Act was established to construct a series of bases for technology transfer, thereby making the installation of organizations dedicated to technology transfer mandatory and providing incentives for technology transfer.²⁰⁾

According to Act on promoting technology transfer and commercialization, transferrable technology refers to intellectual property (IP) rights applied for and registered under the Patent Act, including patents, utility models, designs, layout design of semiconductor integrated circuits, and software; or IP-related goods or information; or scientific, technological and industrial know-how that can be transferred or commercialized.

Siegel et al., above n 7.

Lee, Yong S, 'The sustainability of university-industry research collaboration: An empirical assessment' (2000) 25.2 *The Journal of Technology Transfer* 111.

Bradley et al., above n 9.

Lee and Yong, above n 15.

Jae-Woong Min, YoungJun Kim, 'What affects corporate commercialization of public technology transfer in Korea?' (2014) 22.2 *Asian Journal of Technology Innovation* 302.

There are three main organizations that provide funds for UTT projects which are: the Ministry of Trade, Industry and Energy (MOTIE), the Ministry of Science, ICT and Future Planning (MSIP) and the Korean Intellectual Property Office (KIPO). The MOTIE allocates government budget for Research & Development (R&D) programs; the MSIP is the main part that takes responsibility for channeling technology transfer and commercialization and the KIPO has some proportion of the funding for technology transfer and commercialization.²¹⁾ These three organizations respectively triggered projects to support UTT. For instance, the MOTIE funds the activity to promote technology transfer and transactions as well as some follow-up projects of transferred technology such as supporting technology license office (TLO) embodied in universities; and the MSIP supports the cost of technology valuation and feasibility analysis when establishing lab-based company, a key channel for direct commercialization of research outcome from public research institutes.²²⁾

II. Statistics of University technology transfer in Korea

In the reality that technological competition system is intensifying, it is necessary to continuously increase R&D investment to prevail competitive advantage. Korean government has tried to increase its R&D expenditure. As a result, Korea's GDP on R&D and net GDP expenditure is among the highest across the developed nations.

In 2014, Korea's Gross Domestic spending on R&D was 4.29% and 1st rank followed by Israel (4.11%), Japan (3.58%), Finland (3.17%), Sweden (3.16%), Denmark (3.05%), and China(2.05%).²³⁾ Even though the total R&D expenditure was small compared to USA, Korea's total R&D expenditure was \$60.5 billion and 6th rank in 2014.²⁴⁾ Korea also has a good indicator of other science and technology competitiveness such as the number of SCI thesis and Patent registration. Korea's SCI papers in 2014 was 54,691 and ranked 12th. The number of Korea's patent application to USPTO, EPO and JPO was 3,152 and ranked 4th in 2014.²⁵⁾ As the statistics showed above, Korea has competitiveness of technological field. However, Korea's techniques trade balance was still minus 5.7 billion dollars in 2012 which meant that Korea had the highest technical trade deficit among member countries of

British Council's Global Education Dialogue, *South Korea Research Report* (Mar 2015) Global Education Dialogues Research <www.britishcouncil.org.au>.

Young Jun Lee, Seon U Kim, 'Measures to Promoting Technology Commercialization of Universities and Government-funded Research Institutes' (2013) *Stepi Insight* 123.

OECD, Main Science and Technology Indicators 2015-1.

USA (\$456.9 billion), China (\$211.8 billion), Japan (\$164.9 billion), Germany (\$109.9 billion) and France(\$63.8 billion).

Korea's Science & Technology Key Indicators at a Glance, 2015, KISTEP.

the Organization for Economic Cooperation and Development (OECD).²⁶⁾

The Korean government analyzed the reasons and found that the output of R&D in universities was not good enough. So, the Korean government has put a lot of effort into promoting the commercialization of technologies developed in universities. Even though the public technology transfer policy of the government has improved the infrastructure of technology transfer and commercialization these various efforts the technologies obtained from the government R&D programs have not been transferred to the Korean industry property.

The ratio of the university's ownership of technical transfer business division in 2014 was 65.7% which was lower than that of the public research institute (73.6%). The total number of employee in the department was 405 and each university had an average of 6.7 employees. When we based on FTE (Full Time Equivalent), the number dropped 5.1 employees.²⁷⁾ The average number of years of work experience was 2.8 years, and the ratio of work experience less than 2 years was the highest at 47.6%.

In 2014, 63.0% of all universities did not conduct any education related to technology transfer or commercialization for researchers. Only 37% of all universities conducted education to researchers and the average number of training was 10.9. Also, this trend was almost the same as the staff in division. 52.6% of all universities did not conduct any education related to technology transfer or commercialization for the staffs. When the developed technology was filed and registered as an industrial property right, the ratio of the financial compensation to the researchers was very low at 42.9%. Most universities (90.2%) reflected in the achievement evaluation of the researchers or developers. When technologies were transferred, only 37.1% of the universities made monetary compensation for the staff in technical transfer business division.

The number of technology transfer in universities was 3,712 and the number of developed technology was 14,633. The rate of technology transfer was 25.4% which increased 10.1%p comparing to 2007. The types of contracts were as follows. Technology transfer was 774, free transfer was 32, license was 2,855 and etc. (such as OEM) was 51. 92.8% of technology was transferred to SME and 3.2% to larger company such as

USA (+35.9 billion dollars), Japan (28,5 billion dollars) and Australia (-3.3 billion dollars). Source: <<http://news.naver.com/main/read.nhn?mode=LSD&mid=sec&sid1=101&oid=022&aid=0002718175>>

See Sung-gi, Lee (2015)., Public research institutes (universities and research institutes) Technology transfer commercialization Survey Report, Korea Institute for Advancement of Technology(KIAT). In order to investigate and analyze the current state of technology transfer and commercialization of universities, this report includes the results of the public technology transfer and commercialization survey conducted in 2015 for the public research institutes stipulated in the Law Concerning Transfer of Technology and Promotion of Commercialization. 141 of the 152 universities responded to this survey.

Samsung, LG. Only 108 technologies were transferred to large company. In terms of transferred parties, 72.9% of royalty income received from SMEs, 16.6% of large company, and 10.5% of other institutions. 61.4% of the total transferred technology is acquired using public sector research and development costs. The transfer of the technical achievements obtained by utilizing the private sector research and development expenses accounted for 38.6% of the total transferred technology.

In 2014, the university's royalty income was about 45 million dollars, an increase of about 12.1 million dollars from the previous year (3.2 million dollars). In types of contacts, total royalty consisted of technology transfer (21.5%), nonexclusive license (41.3%), exclusive license (32.4%) and etc. (4.8%). The technology revenue from technology transfer was 9.6 million dollars. The nonexclusive license fee was 18.5 million dollars. The royalty income from the exclusive license was 14.5 million dollars. Royalty income by amount was as follow. The amount less than 500 dollars was 20.7%. The amount between 500 dollars and 1000 dollars was 5.9%. The amount between 1000 dollars and 5000 dollars was 25.2%. The amount more than 5000 dollars was 23%. The technology transfer efficiency²⁸⁾ of universities is 1.16%. In 2014, the university spent a total of 4.3 billion dollars' R & D expenditures and gained 50 million dollars in technology transfer. It was 10.5% that the transferred technology was successfully utilized for product, service production, and process improvement to earn revenues (sales). 66.5% of the transferred technologies have not been able to grasp the status of commercialization since the technology transfer contract.

The above statistics is showing some problems of technologies transfer in Korean universities. First, the number of technology transfer and the total royalty income were very small. Even though technology transfer efficiency has increased since 2009,²⁹⁾ it was still about 1%.³⁰⁾ Second, universities in Korea do not have enough employees to transfer technology. Furthermore, monetary compensation system is not good enough to encourage researchers or staffs in technical transfer business division. Researchers in universities get a good evaluation instead of monetary compensation and the staffs in transfer division even do not get a good evaluation. Besides, universities do not make efforts to improve ability and knowledge regarding technology transfer for researchers and staffs. Third, the results of the joint research with large corporations are owned by large companies and universities in form of joint ownership,

The technology transfer efficiency = Total income from Royalty / Total R&D expenditure.

The technology transfer efficiency was 0.84%(2009), 0.85%(2010), 0.92%(2011), 1.05%(2012), and 0.94%(2013).

In 2013, total Royalty income of Korean universities was 36 million dollars. However, Stanford University was \$108M and University of California was \$106M.

thus technology transfer does not happen. In the future, when the university wants to make a technology transfer contract with other SMEs, the technology transfer cannot be done because it is necessary to obtain the consent of the large company who is joint owner. In addition, most of the technologies developed with the government are transferred to SMEs, and it is another problem that technology transfer to large corporations is not possible. Finally, universities did not follow the technology which transferred to SME or large company which mean the universities have a very passive attitude towards royalty income from technology transfers.

III. Challenges of University technology transfer in Korea

Korean laws and system in relation to technology transfer are in a little bit closed system. Currently, these related laws and systems encourage companies to develop their technologies by themselves without importing from universities, and discourage universities not to transfer their technologies to overseas.

However, nowadays, diverse technologies are converging and combined into one product. For example, to implement driverless cars, it needs various technologies such as communication technology, mechanical technology, A.I. technology etc. So, it is very difficult for company to develop all technology which is needed to a product without outsourcing the technology these days. And it takes lots of time and lots of costs to develop all technology alone. Therefore, technology transfer is essential for company these days. Especially we need to make the most of university technology, since university has lots of competent researchers.

Key challenges which are barriers to the effectiveness of technology transfer that need to overcome include: Joint ownership issue, R&D government funding system, Tax system , vague regulation for transferring technology to overseas, and poor quality patent system.

(1) The need to improve system to assign joint ownership of patent to a 3rd party easily.

Major Law for university technology transfer is “The Act on Technology Transfer and Commercialization Promotion” which was enacted in January 2001. The goal of this Act is to promote technology transfer from Public sector to Private sector. In here, Public sector includes public research institute and universities. This Act declares that public sector has

the responsibility of transferring technology to private sector and this Act provides various methods for transferring technology (Article 3).

There are other laws related to university technology transfer such as Regulations on Public Official Job Invention, Regulations on management of national R & D projects, Act on Promotion of Venture Business and Patent Act.

According to Patent Act, in case of universities, research is conducted with support from government agencies or large corporations. If university applies for a patent, university will apply as a joint ownership. Therefore, technology transfer of the universities will be performed as transfer of patent rights that are joint ownerships.³¹⁾

At present, the requirement of consent of other shareholders is strict when transferring a shared patent. Article 99 of the Patent Act stipulates that if a patent is transferred to a third party, the other party's consent must be obtained.

**[Current] Patent Act, Article 99 (Transfer and Joint Ownership of Patents)
specifies that:**

- (1) A patent is transferable.
- (2) If a patent is jointly owned, no joint owner of the patent may transfer his/her share or grant any pledge over his/her share, without the consent of all other joint owners.
- (4) If a patent is jointly owned, no joint owner of the patent may grant an exclusive or non-exclusive license of the patent, without the consent of all other joint owners.

If the university is a holder of a shared patent, the law should be amended to make it easier to grant rights to technology transferred agencies. It is necessary to give other sharers an opportunity to buy first or to relax other sharers' agreement conditions when university transfer its technology to private sector.

[Suggesting amending] Patent Act, Article 99 (Transfer and Joint Ownership of Patents)

- (1) A patent is transferable.

Deokchul Choi, 'The role of joint ownership in Patent', The etnews (online), 3 February 2016. <<http://www.etnews.com/20160203000195>>.

- (2) If a patent is jointly owned, joint owner of the patent may transfer his/her share or grant any pledge over his/her share, unless joint owner specifically agree to the contract
- (4) If a patent is jointly owned, joint owner of the patent may grant an exclusive or non-exclusive license of the patent, unless joint owner specifically agrees to the contract

Since some countries such as U.S., Canada, France already allow joint owners to assign their right to the 3rd Party, Korea may consider about this issue.

(2) The need to reduce the gap between technology providers and technology users

In the past, the technology in Korea has been driven by the government. Supplier-centered policies by the government are made from this time. However, Government-centered policy seems to be limited in current technologies where various technologies are fusion with each other. The government tries to achieve its technological goal by supporting universities, without considering SMEs. But It is time to change form government-centered policy to company-centered policy. Chief executives in private sector are concerned about 'where are the promising business opportunities to earn profit' rather than 'what technology to pursue technology transfer', so there is a significant information asymmetry between university and private sector. That is many university technologies are not transferred because university technology is far from market demand.

<Reasons why SMEs do not adopt IP for commercialization>³²⁾

Difficult to identify the promise of technology	Difficulty in finding new business items	Difficulty in navigating information
47.6%	46.8%	31.5%

Until now, the technology transfer project has been supporting the commercialization of the completed research results of universities, but it is not suitable for the demand of the private sector. As a result, private companies prefer direct development rather than open innovation, such as acquiring external technology through technology transfer. This leads to low transaction and low profit. Thus, a new transaction system is required in order to identify and support the needs of private sector. It is necessary for the university to develop the technology that meet the company need, it is needed to have expertise pool to support the problem of the patent and commercialization through the technology transfer.

32) Presidential Council on Intellectual Property, Activation of technology transactions (10 April 2015) <[http://www.msip.go.kr/cms/www/news/news/report/_icsFiles/afieldfile/2015/06/19/\(5호\) %20시장주도%20IP기술거래활성화%20방안.pdf](http://www.msip.go.kr/cms/www/news/news/report/_icsFiles/afieldfile/2015/06/19/(5호) %20시장주도%20IP기술거래활성화%20방안.pdf)>.

Since companies often do not know what level of technology is transferred from the universities, a system to evaluate technology is essential.³³⁾ The evaluation system should Integrate Database for real transactions between universities and private companies and also, Database should have evaluation cases about technology transfer. In other words, the value of the university technology should be evaluated when universities finish research, and Database can allow private company to access to the university technology and Database can give private company about which technology is valuable. And the evaluation of technology should be reliable. It means there should be a reliable quality which is supported by government.

(3) The need to adjust tax system for technology transfer

Korean companies have a closed corporate culture with the high percentage of their own technology development ratio, which is far higher than the use of external technology, in other words, most companies are focused on developing their own technologies rather than buying external technologies. According to some reports, as for the company's technology acquisition method, self-development accounts for 84.5%.

<Korean company's technology acquisition method>³⁴⁾

Direct technology development	Joint development	Purchase a license	M&A
84.5%	11.7%	1.5%	0.3%

And companies often try to take out without paying the proper price even when they need external technology. Thus, companies need to change their strategy for technology development in order to facilitate university technology transfer. To do this, companies need to get incentives to introduce university technology. Adjusting tax benefits would be a proper way for the company to introduce external technology. The current tax system is more favorable for developing technology by itself than the introduction of external technology. The tax exemption rate is 25% (small and medium-sized company) for technology development by itself and 7% for technology acquisition from outside. In terms of tax deduction, it is advantageous to develop technology directly. Considering that SMEs are a major consumer of university technology, adjustments to tax policies are needed. In

POSCO research institute, 'To appreciate the value of technology properly' (24 March 2016) <<https://www.posri.re.kr/ko/board/content/13883>>.

Korea Institute for Advancement of Technology, 'The results of the survey on the actual status of domestic enterprise technology commercialization' (December 2015).

terms of tax exemption, it is necessary to design external technology to be more advantageous than direct technology development³⁵).

(4) Vague regulations for transferring technology to overseas

The Management Regulations of the National R & D Project allows SMEs in Korea to have priority for being transferred technology, when university or public research institute are going to transfer their technology which is funded by government (Article 21 (1) of the Regulation). This clause only declares the principle of domestic company priority, but it does not specify what kind of procedures should be practiced, and in some cases, there is no exemption for transferring the technology to 'overseas'. The most difficult stage among the various stages of technology transfer is to find a demanding company. There is no rule as to whether public research institutes actively found domestic company. Therefore, there is a problem that unnecessary controversy may be caused to the technology holding organization and the technology transfer contributor when the overseas technology transfer succeeds.

In addition, complex foreign trade laws such as the Industrial Technology Protection Act, the Foreign Trade Law, the Defense Business Act, and the Unfair Competition Prevention Act, which regulate foreign technology transactions, are also a psychological barrier for the universities to transfer their technology to overseas. Although the prevention of overseas technology leakage through industrial security is an important value in international competition, there is psychological inertia that domestic technology should be maintained in domestic. In addition to this psychological inertia, due to the procedural complexity of transferring abroad, universities have trouble in finding legal boundaries between technology transfer overseas and technology leakage prevention. As a result, technology transfer practitioners in universities try to avoid transferring technology overseas due to vague concerns that they may violate industrial confidentiality protection, and that they could bind to the future responsibility. One of the ways to solve these complex legal problems is to integrate laws related to the regulation of foreign technology transfer into one. Although each law is different in purpose, it is necessary to determine at least whether the technology can be transferred overseas or not and it is necessary to make it possible to find the related procedures to transfer technology overseas.³⁶

Ministry of trade, industry and energy, 'Activation plan of external technology introduction' (March 2017)
<http://www.motie.go.kr/common/download.do?fid=bbs&bbs_cd_n=81&bbs_seq_n=159126&file_seq_n=3>.

(5) The need to improve poor patent protection environment

If the university develops technology, it intends to acquire patent rights together. When university is trying to transfer this technology, they are often based on these patents. In other words, the SME that receives the technology may also appreciate the value of the technology on the assumption that the technology has patent rights. Despite soaring patent disputes, technologies with stable and strong rights are poor in Korea. In Korea, the amount of damages for patent infringement is 10% of the US, and the dispute settlement system is inferior. So, a small number of people are arguing that they do not need a patent system. Therefore, the unstable patent rights of technology developed by the university can be a psychological hindrance for SMEs to receive university technology. When we look more closely at the Korean patent environment, most of the inventions of universities are being filed with patents that are not valued without practical examination of business feasibility. As a result, there has been a point of pointing out that ineffective patents are still being produced.

The reason for this is that the evaluation of R & D at universities is focused on quantitative evaluation rather than qualitative evaluation of patents. Also, even if patent holder wins the patent infringement lawsuit, the domestic patent court infringement lawsuit damages are very small with an average of 78 million WON (about 88,000 AUD), so the market value and the status of the patent are very low. From this point of view, the legal protection environment of the patent can be poor. However, if SME is caught up in patent litigation due to the technology which is transferred from university, SME will have very difficult time due to the economic burden and time burden about the litigation.

Therefore, if the value of patent technology can be enhanced by strengthening protection of patent rights, it will be a momentum to activate technology transfer. To do this, if the university intends to apply for a patent, it should be screened for the marketability and the value of the patent so that a patent application can be filed only for high-quality technology. In addition, if SMEs becomes involved in patent litigation due to technology received from the university, a support system is needed to resolve it promptly, such as an arbitration system and an arbitration system. The improvement of the stability of the patent system will make the transaction of patent technology more active.

Byoungdon Yoo, 'Regulation and Improvement Direction of Overseas Technology Transfer of National R & D Projects', Korea Technology Innovation Society Journal (May 2014).

(6) Ownership of Intellectual property and institutional issues

In case graduate students and/or non-faculty or employees engaged in research. This issue can occur and cause tensions between universities and students. It can be resolved by allowing students to own their inventions creating during enrollment.

Apart from that, mindset of researchers is another significant issue that obstruct the effective technology transfer of the university. As researchers or professors focus only on research not commercialisation. Even though the Government funding aiming of successful commercialisation but it appears in many cases that incentives are not passed on to professors/researchers properly. Furthermore, according to the system in evaluating university quality, the priority is on patents and academic citations not on aspect of business. In this case, innovation challenge prizes may be applied as a method to reward the innovators to stimulate innovation for achieving a future goal. Currently, innovation challenge prizes have not been used broadly in Korea and there is only limited extent of prizes offered.³⁷⁾

The weaknesses of the R&D system in basic research and university research competences is another current problem. As most of Korean universities have not considered research as a matter of priority as the quality of research does not help the researchers in recruitment or promotion. This issue can be regarded as an outcome of the weaknesses of the domestic knowledge base which involves with the flow of R&D funds from the government. Public funding for university research in general is always lower than research institutes funding, however, there is an exception of a few leading research universities.³⁸⁾ While low ranking universities have faced the problem that they cannot attract private sector to fund their research as well.

(7) Technology holding companies (THCs)

In 2010, there is an establishment of Technology holding companies (THCs) for profit organizations which creating by individual universities or group of universities for the purpose of commercialisation early stage technology of the university by start-ups or joint venture. However, there is conflict issue between THCs and TLOs regarding university

OECD, Industry and Technology Policies in Korea (OECD Publishing).
Bartzokas, above n 2.

technology licensing as well as issue of the failure of THC's in commercialisation phase that the universities seem not to satisfy with. As a result, some THC's have operated just only two or three years then has been dissolved, this issue should be resolved as a suitable long timeframe for effective operation is needed for THC's. And well-equipped THC's will be useful for the universities in providing advice regarding intellectual property for the start-ups.³⁹⁾

Conclusion

Korea is one major country that has actively engaged in fostering and promoting technology transfer and commercialisation. Even though, the Korean Government has created framework in Science and Technology since 2001 which included mid and long-term science and technology policies and plans, as well as support for R&D programs. And the improvement of UTT in Korea continues moderately since the implementation of the Technology Transfer Promotion Act and with a robust support of the government in enhancing many strategies to foster UTT in the country. Nevertheless, UTT performance of Korea in past few years seems to be ineffective when compared to the performance of other major countries as the United States or the United Kingdom. The conditions that affect the functioning of UTT system vary from legislation to a lack of expertise in IP commercialisation, including an issue on balance of incentive gain between university and researcher. The solution to improve UTT performance in Korea may include legislation amendment and a change of UTT practice and system in many aspects.

OECD, above n 37.

8. 개별 주제 연구 (Individual Research)

교육기간 : 2017. 10. 09. ~ 2018. 02. 12.

담당교수 : Matthew Rimmer (QUT)

과정내용

○과정 개요

이 단원은 WIPO-QUT 코스를 통한 경험을 적용하여 구조화 된 개별 연구 프로젝트를 수행 할 수있는 수단임. 선행 연구 단원에서 받은 기술과 지식뿐만 아니라 이전 연구 논문에서 얻은 피드백, 도서관 기술 및 이전 7 개 단원에서 개발 한 분석 기술을 활용함. 이 과정을 통해 주도적으로 주요 연구 프로젝트를 성공적으로 완성하고 프로젝트를 관리 할 수 있음을 추구함. 이 논문은 지적 재산권 법에 관한 실질적인 연구를 구성하고 개별적으로 수행되며 실용적이고 현대적인 지적 재산권 문제의 법적 측면을 조사 및 분석함. 주제는 이전에 과정 중 어느 하나에서 주제를 개발하도록 교육

○세부 내용

- i) 최근 지식재산권 관련 주요 세계 이슈
- ii) 미래에서 지식재산권의 기회 및 도전 이슈
- ii) 연구주제 선정 방법론 및 연구 논문 작성 방법론
- iii) 개별 연구 주제 관련 면담

□ 주요 연구결과 - Research Paper

- Topic : Necessity of Allowing Computer Program Claim format under Patent Act and How to allow it in Korea

I. Introduction

Whether or not computer program related inventions are patentable under patent law has long been the subject of controversy. However the view that the invention of a computer program is the subject of a patent under certain conditions is internationally unified. As a type of a specific claim for acquiring rights to a computer program related invention, there are a method of claiming a device for a system to be executed by the computer program and a method for claiming the medium containing the computer program and there is a method of claiming the steps performed by the computer program in a time-lapse manner. Finally, there is a method of claiming the program itself. So, we can claim computer-related invention in different types of claim format such as apparatus, method, medium and program itself⁴⁰). Most countries allow every type of claim formats such as Japan, Germany and EPO⁴¹). However Korea still doesn't allow the program claim format and Korean Intellectual Property Office(KIPO) is trying to revise Korean Patent Act to allow program claim format⁴²). Why this is an issue in Korea. The reason is the environment of distribution was changed. In the past, the inventions related to computer-related invention were distributed by CD disk. So if there were the program invention claimed as medium format and someone sell the CD including the patented program, the patent owner can file a complaint to seek infringement against the person⁴³).

Korean Intellectual Property Office, Computer-related Invention Examination Standards

Yoon-Myoung Kim., A Study on the Improvement of the Patent System for Rationalizing the Protection System of Computer Invention, Software Policy & Research Institute, 2014, p62-63

The biggest objection to this revision of the patent Act is conflict with copyright law. Article 10 of the TRIPS Agreement stipulates that computer programs are protected as literary works, and Korean Copyright Act protects computer program as copyright works. The patent right covers the subject of technical idea. On the other hand, copyright does not protect the idea itself and protects the expression of thought. Thus, copyright and patent laws have fundamental differences in the scope and effectiveness of protection. However, the conflict between Patent Act and Copyright Act relating to computer program is another big topic to research so I am not going to review this issue.

Korean Patent Act Article 2 (Definitions) 3. The term "executing" means any of the following activities: An invention of a thing: Manufacturing, using, selling, leasing, importing the thing or offering to sell or lease the thing (including displaying a thing for the purpose of sale or lease; hereinafter the same shall apply); Article 94 (Effects of Patent) A patentee shall have the exclusive right to commercially and industrially execute his/her patented invention: Provided, That the foregoing shall not apply where an exclusive license of

However these days, most computer programs or applications are distributed by online. We usually download programs or applications. The issue is whether patent owners can exercise their right or not, if their program is illegally transmitted in current system. There are a few issues relating to allowing program claim format. First, it is a question of whether this effort goes against global trends or not. These days many countries is trying to the scope of patentability of computer related inventions. Second, what the best means is to protect the illegal transmission of patented invention will be examined. In detail, how other countries solved this problem will be discussed. After that why current Korean Patent Act has problems in relation to illegal transmission is reviewed firstly and necessity of this research will be derived. Various issues are reviewed during this review process. The issue of definition of goods and the issue of double protection of copyright are addressed. Next, the argument against the patent protection of the computer program invention and the argument to affirm it are reviewed. Finally, there is a discussion about what is the most rational way to solve illegal online transmission of computer program invention.

II. Relationship with global trend; Is this effort to be contrary to global trend?

In 1981 the US Supreme Court ruled that *Diamond v. Diehr's* judgment, the patentability of a computer program was first recognized. After that, in the case of the *State Street Bank (SSB)* case in 1998, the criteria for judging the eligibility of a computer program were relaxed. As a result, the controversy over the patentability of the computer program became silent, resulting in a rapid increase in related patent applications. Also, with this trend in the United States, applications for software patents increased rapidly around the world⁴⁴). As time passed, there were some arguments about patentable subject matter of computer program invention. In the US Supreme Court's decision in *Bilski* in 2010, the court concluded that hedging the risk of commodities trading could not be patented as an 'abstract idea'. As a result the debate on patent eligibility for computer programs has begun to rekindle. In recent years, in *Mayo* and *Alice* case, the US Supreme Court restricted

the patent has been granted so that the exclusive licensee can have the exclusive right to execute the patented invention under Article 100 (2)

The total number of patents registered in the United States Patent and Trademark Office (PTO) has increased about 1.7 times over 20 years since 1981, but the number of SW patent registrations has increased about 25 times over the same period , The ratio of SW patents among all patents has increased dramatically from about 2% in 1981 to 15% in 2001. Won-Joon, Kim., *The Status of Software Patent and the Software Precedents Trend in the U.S*, Institute for legal studies Chonnam Nafional University, 2016.9, 491-522 (32 pages)

more the scope of the patentable subject matter of computer program invention(also software invention). In SSB, all software patents were patented, and the scope of the case was narrowed in the case of Bill Smith. After the Alice case, the range was further narrowed through MAYO 2 test⁴⁵). This tendency is for the following reasons. There has been a fundamental question as to whether SW patents contribute to innovation from SW companies in recent years, and negative public opinion about its industrial and economic usefulness is increasing. A total of 82% of defendants filed for patent infringement have been sued for SW patents, five times more than chemical patents. Especially, it is analyzed that NPEs are likely to exploit SW patents because of the broad and ambiguous functional claims widely used in SW patents. These problems are not only strengthening the judgments of US courts but also changing the policy of software patents all over the world. The New Zealand Parliament passed a patent bill that bans the SW patents in principle after five years of long debate On February 28, 2013. As a result, software(computer program) patents are no longer available in New Zealand except for embedded software. The German Parliament said that SW patents are hindering the technological innovation of small and medium-sized SW companies, which are the majority of companies, and protection of SW is desirable for copyright law protection. According to a report released by the White House in June 2013, the issue of SW patents is explicitly pointed out, analyzing the phenomenon of patent monsters. In order to overcome these problems, the White House seeks to improve the SW patent system, unlike New Zealand⁴⁶). Recognizing the program claim format will result in increasing patent applications instead of registration copyright. According to the KIPO report⁴⁷), the number of copyright registrations has decreased by half and the number of patent applications has increased since Japan accepted the program claims. In the end, this could be a policy to strengthen software patents. Then there may be questions about whether these changes are going against global trends. However, even after Alice's decision in the US, the computer program patents are still being registered and the infringement lawsuit recognizes the validity of computer program patents. Computer program inventions have inherent disadvantages. The claim is very broad and ambiguous. It looks like the basic idea that from an external perspective, because it can be seen that the investment time in the specification seems to be longer than the investment time in the invention. There is a concern that if a program is subsumed by things that are subject to protection under the Patent Act, general programs

Soo-mi LEE., Shifted Standards of Patent Eligibility Test for Computer Programs, Inha Law Review : The Institute of Legal Studies Inha University 17(2), 2014.06

Kim, Kyung-hwan, "The Crisis of Software Patents," Patent for Invention, No. 11-12, 2013, 2013,p 25

International discussion on software patents, Korean Intellectual Property Office, 2014

will also be subject to patent protection. However, unlike those concerns, the idea of involving programs with things is not intended to protect new programs that are not protected by patents. In order for a program to be protected by a patent, the method implemented by the program must satisfy the inventive requirements and must be invented. In order to be invented, it must be the creation of technical ideas. If a program is not a technical invention, it cannot be patented. Therefore, incorporating the program into a thing does not mean expanding programs that are not inventions into the subject of patent protection. The international trend is to recognize the actual invention of the program by strengthening the constitutive part of the invention or the inventive step, and the claim format provides one more means of expressing the invention of the program that has passed these international standards. This global trend is to improve the problems of these software patents. This international trend is intended to protect high quality program inventions by applying more stringent standards. Therefore, acknowledging the program claim format is not contrary to this international trend. In addition, the high standard of patentability and inventive step of the program invention, which is a global trend, is strictly applied to protect the quality of the computer program invention with the patent right and in order to protect such protected patents from unauthorized transmission reasonably, it is considered to correspond with the basic idea of the patent Act.

III. Necessity to allow computer program format in Korea

How other countries handle the on-line transmissions of the computer program invention

The acceptability of computer program inventions has a different standard in each country. In the United State, after Mayo and Alice case, computer program invention can be patentable subject matter if the invention relating to an algorithm, method of computation passes the Mayo 2 steps test⁴⁸). In Germany, computer program 'itself' is excluded, but the patentability is recognized only when the computer program is combined with the product⁴⁹). The European Patent Office excluded from the patent application the computer program

In the first Mayo step, the court must determine whether the patent claim under examination contains an abstract idea, such as an algorithm, method of computation, or other general principle. If the answer is affirmative, the court must proceed to the next step. In the second step of analysis, the court must determine whether the patent adds to the idea "something extra" that embodies an "inventive concept."

Yoon-Myoung Kim., A Study on the Improvement of the Patent System for Rationalizing the Protection System of Computer Invention, Software Policy & Research Institute, 2014, p37-38

in Article 52(2)⁵⁰⁾ of the European Patent Convention. However, a computer program may also be patented if it exhibits additional technical effects beyond the normal range so that the invention does not fall within the "as such" as referred to in Article 52 (3)⁵¹⁾. Japan Patent Act Article 2 (1) requires the availability requirements of natural laws. It was a common interpretation that the mathematical algorithm itself, which is the basis for writing software, does not fall under the patent law and is not covered by the patent law. However, the invention of apparatuses, apparatuses, and systems having functions realized by software can also be affirmed by the utility of natural laws. In recognition of the fact that software-related inventions are not totally denied under the Patent Law under this concept, the Patent Office examination practice has revised the examination criteria for software-related inventions since 1975. As a result, it has been revised several times regarding the examination criteria related to computer program, and it has been protected under the area of patent protection system. In the case where the information processing by software is realized by using the hardware resources in detail, the computer program invention is patentable subject matter. However, if the computer program is not related to the hardware resources, the invention will be rejected because it is not patentable subject matter. In each of these different legal systems, how illegal transmission of a program invention is handled is examined.

1. The United Kingdom, Germany and EPO

The United Kingdom Patent Office Examination Guidelines (MoPP) explains that in the case of a computer program claim, it should look at what the claimed invention does and not what claim's format is⁵²⁾. It is understood that this practice of the United Kingdom is in accordance with the European Patent Office's jurisprudence. In the *Astron Clinica* case in 2008, the United Kingdom Patent Court found that the European Court of Appeals initiated

EPC Art. 52 Patentable invention

(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1 : (a) discoveries, scientific theories and mathematical methods; (b) aesthetic creations (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers; (d) presentation of information

(3) The provision of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

Cho, Chae-young, "The Subject of Patents: Focusing on the Expansion of Patent Subjects", Intellectual Property Research, Vol.4 No.2, 2009, p 45

UKIPO, Manual of Patent Practice, 1.13 (2016) ("When determining if an invention falls foul of the exclusions, it is critical that the examiner consider the substance of the invention rather than the form of claim provided, by looking beyond the strict literal wording of the claims. For example, when a claim is directed to a computer program, the examiner must look at what the computer program will do when run, as established in paragraph 49 of *Astron Clinica Ltd & Ors v The Comptroller General of Patents, Designs and Trade Marks* [2008] RPC 14."); 1.35 ("Where a claim involves the use of a computer program, it does not naturally follow that the claim must be excluded. Instead, the contribution of a claim to a computer program must be assessed by reference to the process the program will cause a computer to perform, because the assessment is based on the substance of the invention . . .").

the acceptance of computer program claims in the 1998 IBM trial⁵³), and said that a computer program claim format was acceptable. Germany also follows the EPO Judicial Court's jurisdiction, and 138) allows computer program claim format⁵⁴). So, in these countries computer program claims is permitted by the interpretation of the law which means these countries can deal with illegal transmission of patented computer program invention under their Act and interpretation. Especially, Germany allows computer-program product claim format so they can handle illegal transmission as direct infringement. The claim of a program product is a claim of a thing⁵⁵), and the act of transmitting the program through the Internet may be a direct infringement of the patent right⁵⁶). In order to transfer the program product to the Internet, the product must be produced first and if the product itself constitutes an infringement and sells or leases such produced products through the Internet, such acts constitute another infringement.

2. Japan

In the past, Japan did not recognize computer programs as patents. Through the amendment of the examination guideline in 1997, JPO permitted the method of ordering computer program inventions and the computer-readable recording medium. Then, in 2000, considering that the software was circulating on the network, JPO has revised their examination guideline to allow that 'program' specifying the plural steps performed by the computer can be claimed⁵⁷). After revision of guideline, JPO amended the Patent Act in 2002 to support their guideline. By this amendment, if the patented program invention is transmitted illegally, the patent owner can claim it as direct infringement.

3. The United State

There are a few article that program claim format in USA is allowed⁵⁸) and there are also granted patents which claims is program itself⁵⁹). However, the United States does not

IBM/Computer Program Product T 1173/97, [1999] OJ EPO 609

Sun-hee Yoon., A Study on the Revision of Domestic Indirect Infringement System by Comparison and Analysis of Indirect Infringement Analysis Criteria in Patent Laws of Other Countries, Korean Intellectual Property Society, 2016, p235

In Europe, the invention is largely divided into a product invention and a process invention.

In relation to the infringement of the program's Internet transmission in Europe Daniel J.M. Attridge, Challenging claims! Patenting computer programs in Europe and the USA, I.P.Q. 2001, 1, 22-49, at fn. 104.

Korean Intellectual Property Office, Japan Invention examination criteria and business related invention casebook related to computer · software, 2002, p.3.

Protection in Japan International Intellectual Property Protection Association, Computer Software Related Business Field Survey research report on the way to do, 2010, 11 page.

U.S. Patents No. 6,748,378 (2004. 6. 8.) Claim 7 (A computer program for performing a method according to claim 5); No. 6,886,014 (2005. 4. 26.) Claim 8 (A program containing instructions for execution by a computer, ...); No. 8,713,073 claim 5 (A computer program for using ...).

allow program claim format because the program is not a product or a method, so it is not a subject of patent protection. In the *Allvoice v. Microsoft* case, the claim was specified only in program, not in the medium but the court held that the claim was not patentable subject matter⁶⁰). The patentee alleged that the program claim is a type of "manufacture" as defined by Article 101 of the US Patent Act because the program will be stored on a computer-readable medium anyway, and applied for an appeal to the Supreme Court. However, the Supreme Court did not accept the application⁶¹). In the United States, a computer-readable medium claim is often referred to as a Beauregard claim⁶²). This claim is considered an object or thing claim. If an electronic file containing a program is stored on a recording medium, it can be direct infringement⁶³). In *Leader Techs. v. Facebook* case⁶⁴), the plaintiff insisted that the sale of the recording medium constituted a direct infringement even without the execution of the program by the customer because claim of a recording medium was a claim of a thing. The Court also recognized direct infringement on the basis of the argument. In *Finjan v. Secure* case⁶⁵), the CAFC acknowledged direct infringement because CAFÉ regarded the recording medium as a thing. This direct infringement judiciary of the United States is based on the following argument. Storing the electronic file on the recording medium may correspond to production of the recording medium. The seller stores the program in the form of an electronic file on the recording medium of the user's computer and then transmits a copy of the electronic file. If so, the seller will produce the recording media on which the program is stored, and the production may be a direct infringement of the claims of the recording media. The seller instantly produces a copy of the original electronic file for Internet transmission.

4. Korea

Examination guideline explains that computer programs that are not stored in the medium are not allowed as it claims the program itself⁶⁶). In addition, Seoul High Court stated "a

Allvoice Developments US, LLC v. Microsoft Corp., 612 Fed.Appx. 1009 (Fed. Cir. 2015).

Allvoice Developments US, LLC v. Microsoft Corp., 136 S.Ct. 697 (2015).

Christopher E. Everett, *Software Terminology: How to Describe A Software Invention in A United States Patent Application*, 29 *Nova L. Rev.* 693, 714 (2005)

Ryan Sharp, et al., *supra*, at 33-34 ("By asserting Beauregard-style claims, the plaintiff in *Finjan* was able to secure a finding of direct infringement simply by convincing the jury that the defendant shipped software that included the capability of performing infringing functions."). Keith E. Witek, *supra*, at 323 ("Further, these software article of manufacture claims may be infringed by the mere existence or embodying of the software code on some computer or telecommunications medium. Therefore, any entity creating a copy of a program in RAM or any similar computer readable medium has the potential of infringing the software article of manufacture claims possessed by the original software owner.").

Leader Technologies, Inc. v. Facebook, Inc., 2011 WL 881862, at 5 (D. Del. 2011)

Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197 (Fed. Cir. 2010)

KIPO Computer Program Invention Examination Guidelines, computer itself, computer product etc are not

computer program is not a category of an invention under the Patent Law, and a computer program itself cannot be patented⁶⁷⁾. So, the illegal transmission of patented computer program can't be handled under current Patent system in Korea.

Necessity to allow computer program format in Korea

As reviewed above, most developed countries can handle the illegal transmission under Patent Act or interpretation of statute or court decision. In Europe it is permitted by the interpretation of the law, while in the United States it is not by the interpretation of the law. In Japan, the law has been amended to allow the computer program format because it is considered the interpretation of the law to allow program format is difficult. Based on the fact that there is a claim that the US should approve the computer program format and it is allowed in Europe, such as the UK and Germany, it is necessary for Korea to be deeply concerned about whether or not to allow claims that claim the computer program itself. The reason is this imbalance causes the following problems. If Korea does not protect the scope of patent protection from a competitor, our program developers will not be protected by patents in their own country, but will be protected in foreign countries. These problems lead to the negative effects of our program developers' creative desire, the hesitation of foreign companies to invest in Korea, and the promotion of overseas migration of our developers. In this regard, there is a need to examine various methods of program invention under the Internet environment. In detail, I am going to research whether the act of transferring the electronic file stored in the program through the Internet is infringing the patent right in the current law. In addition, if it is interpreted that it does not infringe the patent right under the present law, I am going to research on how the revision of the law makes it infringed. Also, it is logically awkward to assume that the same program is protected by a patent if it is claimed in a recording media claim and not protected by itself. Based on the fact that it is not practical to separate the program from the recording medium because it is stored in the recording medium of the developer computer immediately after the program is completed, it can be considered that the claim for claiming the program itself presupposes the recording medium.

clear of category of invention

Seoul High Court 2014. 4. 10. Decision 2013na5383 sentenced

IV. How to solve online illegal transmission of computer program invention under Korean Patent Act

It is divided into two aspects to solve illegal online transmission of program invention. First, the patent claim itself is recognized, and illegal transmission is recognized as patent infringement. This approach is the way Japan did it. In order to recognize the claims of the program, the form of the patent law should be revised. There may also be arguments for copyright and duplication protection as the program itself is recognized. This overlapping protection will be briefly discussed in the scope of this study. In Korea, the Patent Act is controlled by the Patent Office and the copyright is managed by the Ministry of Culture, Sports and Tourism. In order to introduce the Japanese method, the computer program should be recognized as a legal thing. But this approach is opposed by the Ministry of Culture, Sports and Tourism. On the basis of that argument, admitting a computer program as a legal thing conflicts with the concept of a thing in Civil Act. Also, computer program is protected by copyright or trade secret. This opposition argument is not directly related to this study so it is not explained any more. From this point of view, the illegal transmission of patent infringement is examined in a way that does not recognize program claims. As it mentioned above, the United States does not recognize program claims like South Korea. However, the transmission of program files is directly infringed on the claims of recording media. After reviewing the definition and infringement provisions of the US invention, it will be examined whether it can be applied to the situation in Korea. Next, an example of viewing an electronic file storing a program as a thing is examined. Also, whether this can be applied to the Korean patent law and its arguments will be researched. Finally, through the invention of the program method, it is examined whether the online illegal transmission can be regulated as a patent infringement, and if not, what kind of law amendment is necessary is examined.

Allowing computer program format directly

1. Review of how to revise the current Patent Act

Japan considered the program as a thing through the amendment of the Patent Act in 2002. Accordingly, the legal basis for recognizing the program claims itself has been

established. The Japanese method is most effective in terms of patent protection for the computer program invention. In other words, the act of producing, transferring, etc. the program is a direct infringement so the patent protection for the invention of the program becomes clear. Naturally, selling programs on the Internet in the form of electronic files is also a direct infringement⁶⁸). However, in order to introduce this system in Korea, it is necessary to revise the patent law. Korean patent law allows only two categories of inventions. That is an invention of a thing and a process. In order to recognize a program claim, it is necessary to establish a legal basis for the program to fall into one of these categories. For this legal basis, the current definition of justice needs to be amended as follows. Revised Article 2 will be an invention of a thing(including a computer program, etc., the same shall apply hereinafter) : Manufacturing, using, selling, leasing, importing the thing or offering to sell or lease the thing (including displaying a thing for the purpose of sale or lease; hereinafter the same shall apply) The amendment of definition Article 2 provided the legal basis for the claims of the program itself. In other words, if the program was previously claimed, it was rejected because of the unclear category of the invention, but the reasons for this rejection were resolved. Next, if such a program is illegally transmitted online, legal grounds are required to discipline the patent infringement. The current system of Patent Act allows direct infringement through executing and effect of patent regulations. Therefore, it is necessary to establish a legal basis for online transmission in the regulations. The current executing Article does not provide for online transmission, so there is little ground for direct infringement. Therefore, the following amendments will be necessary. The revised Article will be “The term "executing" means any of the following activities: (a) An invention of a thing: Manufacturing, using, selling, leasing, importing the thing or offering to sell or lease the thing (including displaying a thing for the purpose of sale or lease; hereinafter the same shall apply and , in the case where the product is a computer program, etc., including providing through an electric telecommunication line). These revisions can be effective as follows. Once a good program has been developed, patent claims can only be made by means of a recording medium or method. If these programs were illegally circulated online, it was difficult for developers to respond. However, by amending the definition, the program itself can be protected by patent rights. In addition, the amendment of the regulations will allow online transmission to be controlled as a direct infringement area of patent rights.

Kwan-shik Kim., Legal Implication and Issues of the Proposed Revision of the Article Two of the Korean Patent, Chungnam National University Law Research Institute, 2012

2. Arguments due to amendments

This legal amendment was at the heart of ongoing debate in Korea, and the debate has ruined legal amendments. It is the main opposition logic of the Ministry of Culture, Sports and Tourism, which deals with copyright. One of them is that this amendment conflicts with the provisions of the Civil Code. In Civil Law, "a thing" is defined as the natural force to manage liquids and electricity, etc. Since the computer program itself is an inherent property and not a manageable natural force, it cannot be regarded as a "thing". In addition, Supreme Court precedents are based on the fact that information items such as computer-stored information or computer files are not regarded as property⁶⁹). However, these amendments are not necessarily contrary to the definition of civil law. First, Patent law is a special law in relation to civil law, and patent law includes an program in the category of an article only in relation to the protection of the invention patent, and such amendment of the patent law does not affect the concept of the article of the civil law⁷⁰). Also, in the patent law, an invention subject to a patent is divided into an invention of a thing and an invention of a process in order to classify the effect of the patent. Unlike the Civil Law, goods can be regarded as a concept against the method. Therefore, in the patent law, the concept of the object of the invention does not necessarily correspond to the concept of the object in the civil law⁷¹). Next one is dual protection in copyright Act and Patent Act. However, protecting the program with patents does not have a negative double protection effect. First, both methods have different objects to protect. Copyright law protects the program from the limitations recognized as an expression. Copyright law has fundamental limitations that are still excluded from protection if it is recognized as a technical idea. In this respect, it cannot be denied that the copyright protection of a computer program is fundamentally different from the protection of a patent by a technical "idea"⁷²). Under the intellectual property law regime, there is already a regulation to coordinate mutual interdependent relations that may arise in case of overlapping protection. For example, it stipulates the relationship between industrial property rights such as patent rights, utility model rights, design rights, and trademark rights. The inventor or the copyright owner can select the right to protect his / her own creation, such as a patent, a

Supreme Court 07.07. 2002, 2002do745 sentenced

Sun-hee Yoon., A Study on the Revision of Domestic Indirect Infringement System by Comparison and Analysis of Indirect Infringement Analysis Criteria in Patent Laws of Other Countries, Korean Intellectual Property Society, 2016, p278-288

Kwan-shik Kim., A study on the legal protection scheme for the creative software companies by harmonization of patent and copyright, Han-Nam University, 2013

SAS Institute Inc. v World Programming Ltd, (ECJ May 2, 2012) ("the functionality of a computer program, which includes the programming language and the format of data files, constitutes the overarching ideas behind a program, rather than a form of expression of the program, and thus is not protected by copyright.").

utility model right, a design right, a trademark right, or a copyright right⁷³). This choice is basically a matter that the right holder can judge freely considering the characteristics of the creation and the contents of the right to be enjoyed by the intellectual property rights. In addition, the ability to receive multiple protections for a single work can provide comprehensive protection in various aspects depending on the nature of the work. Dual protection will have the advantage of protecting the rights of the creator more faithfully. As technology converges and develops, the complex protection of various intellectual property rights will increase more and more. This redundant protection is a fundamental characteristic of intellectual property rights and will be a way to more effectively protect creative products.

Indirect method without recognition of program claim format

1. A method of viewing an electronic file storing a program as a thing

This method simply means that the electronic file storing the program is regarded as the same as the recording medium storing the program. That is, the program itself is not regarded as a thing, but an electronic file that stores the program is regarded as a thing. Even though the claim of recording media is still protected by the claim of goods, if the electronic file is recognized as the same thing as the recording medium, selling the CD in which the program is stored infringes the patent right. This method is able to circumvent the resistance to regard the program itself as a thing, and (2) because the copyright law should regard the electronic file as a thing the patent law corresponds to the copyright law. In addition, the patent law is a special law in relation to the civil law, and the patent law includes the electronic file in the category of the object only in relation to the protection of the patent of the invention, so the amendment of the patent law does not affect the concept of the thing in the civil law⁷⁴). The concrete revision plan is as follows. The definition of the thing is to include the electronic file. Article 2 will be an invention of a thing(including an electronic file, the same shall apply hereinafter). This revision makes it

Robert W. Gomulkiewicz, Legal Protection for Software: Still A Work in Progress, 8 Tex. Wesleyan L. Rev. 445(2002)(“Over the past twenty-five years, legislatures and courts have concluded that copyright, patent, trade secret, trademark, and contract law all can be used to protect software. Yet, the debate about how much protection the law should provide is as vigorous today as ever.”).

Sun-hee Yoon., A Study on the Revision of Domestic Indirect Infringement System by Comparison and Analysis of Indirect Infringement Analysis Criteria in Patent Laws of Other Countries, Korean Intellectual Property Society, 2016, p255

possible to solve the online transfer problem of the program invention without greatly impairing the concept of the thing in relation to other laws.

If so, there may be a debate as to why the program can view the stored files as a thing. It has been reviewed by the Court of Justice of the EU(CJEU) to determine whether electronic files should be distinguished from the CD where the program is stored⁷⁵). CJEU concluded that it is economically feasible to sell the program in the form of a disk such as a CD and to transmit it online. CJEU has provided another basis for viewing electronic files the same as things. The European Software Directive (2009/24/EC) Article 4 (2)⁷⁶) sets out the right to a copy of the program. If the copy is to be limited to tangible media, the copyright owner can continue to control the sale of the electronic file, even after selling the electronic file, the intangible medium. Such control is in conflict with the principle of copyright exhaustion, and therefore, in order to prevent conflict, CJEU interpreted the electronic file as an independent copy to be included in the copy. In the United States, there are many examples of electronic files containing computer programs as a thing. In the well-known Microsoft case⁷⁷), Microsoft sold the Internet Explorer program to a Windows-powered program running a PC, which the Federal District Court of Appeals in the United States saw as a tie-in of "goods". In common sense, electronic files containing computer programs should be regarded as a thing. For example, an electronic file containing instructions on how to operate a computer should be viewed as an object, just as a cookbook with a cooking method should be viewed as an object. As a paper book is a thing, an e-book should also be seen as a thing of course. The principle of right exhaustion should also apply to the sale of e-books. An e-book is sold in the form of a file containing the contents of a book, which is an e-book itself and a thing.

2. Resolve through the process claim of computer program invention

Korean patent Act does not have direct infringement regulations. Direct infringement shall be defined through the definition of executing and the provision of effect of patent. Article 94(effect of patent) defines a patentee shall have the exclusive right to commercially and industrially execute his/her patented invention: Provided, That the foregoing shall not apply

UsedSoft GmbH v Oracle International Corp [2012] ECDR 19 CJEU, para. 61.

Software Directive Article 4(2) ("The first sale in the Community of a copy of a program by the rightholder or with his consent shall exhaust the distribution right within the Community of that copy, with the exception of the right to control further rental of the program or a copy thereof.").

United States v. Microsoft Corporation 253 F.3d 34 (D.C. Cir. 2001).

where an exclusive license of the patent has been granted so that the exclusive licensee can have the exclusive right to execute⁷⁸⁾ the patented invention under Article 100 (2). If a person carries out all the components of the patented invention, a direct infringement of the program method invention is established. That is, all steps of the method specified in the claims should be performed. When a method invention is executed through a program, the execution of the program corresponds to the use of the method invention. The act of uploading, transmitting or downloading a file containing the program to the information communication network does not constitute a direct infringement since it does not directly execute the invention of the program method. Also Korean Patent Act has an indirect infringement Article⁷⁹⁾. Article 127 (2) defines if the patent is for the invention of a process: Producing, selling, leasing, or importing a thing used exclusively for executing the process or offering to sell or lease such thing will be indirect infringement. In order for this rule to apply, the electronic file containing the program must be a product. According to our current jurisprudence⁸⁰⁾, program claim format is not allowed. Then the program itself is not a thing. The production, transfer, etc. of the diskette constitutes an indirect infringement, since the execution of the program causes the method to be performed and the diskette in which the program is stored corresponds to a thing that is used only for the implementation of the method. Similarly, the production and transfer of stored electronic files should also be controlled through indirect infringement. If the electronic file is not regarded as an object, there is a large gap in protection of the patent right because the act of uploading, transmitting or downloading the file containing the program that can execute the patent method invention is not indirect infringement. And as mentioned above, it is hard to imagine that electronic files are not likely to be considered as a thing. In order to resolve this uncertainty, it is necessary to revise Article 127 (2) of the Patent Act to include electronic files. Revised Article 127(2) will be if the patent is for the invention of

Article 2 (Definitions)

3. The term "executing" means any of the following activities:

(a) An invention of a thing: Manufacturing, using, selling, leasing, importing the thing or offering to sell or lease the thing (including displaying a thing for the purpose of sale or lease; hereinafter the same shall apply); (b) An invention of a process: Using the process; (c) An invention of a process of manufacturing a thing: Using, selling, leasing, or importing a thing manufactured by the process or offering to sell or lease such thing, other than the activities specified in item (b)

Article 127 (Conduct Deemed Infringement)

Conducting either of the following activities commercially or industrially shall be deemed infringement of a patent or an exclusive license:

1. If the patent is for the invention of a thing: Producing, selling, leasing, or importing a thing used exclusively for producing such thing or offering to sell or lease such thing;
2. If the patent is for the invention of a process: Producing, selling, leasing, or importing a thing used exclusively for executing the process or offering to sell or lease such thing.

Seoul High Court 2014. 4. 10. Sentence 2013do 5383 ("And the computer program is not a category of invention under the Patent Law, and the computer program itself cannot be patented on the claim").

a process: Producing, selling, leasing, or importing a thing used exclusively for executing the process or offering to sell or lease such thing(including an electronic file, the same shall apply hereinafter).

V. Conclusion

In the era of the Fourth Industrial Revolution⁸¹⁾, the importance of the computer program invention will be emphasized more and more⁸²⁾. Therefore, the computer program invention should be appropriately protected with patents to promote the development of related technologies and industrial development. In order to protect the invention of the program most effectively, it must be able to claim the program itself. There may be criticism that such an attempt is contrary to limiting the scope of recognition of the global trend of software inventions. It is a worldwide trend to limit the scope of patentable subject matter of computer program inventions(software invention) and to prevent indiscriminate patents from being registered and thereby increasing litigation. Recognizing a program claim or introducing a corresponding method is based on a different logic from this trend to protect a good quality patent invention from online transmission. The global trend is a limitation on the entry stage of computer program inventions. However, recognizing a patent claim as a patent claim is a high protection of the invention of the program at the infringement stage. Therefore, this approach cannot be opposed to the global trend. Also, the world's major nations such as Japan, Germany, USA etc. are strengthening the protection of program inventions in this way. The basic way to protect a program with patent law is to include the program in the definition of the thing, such as Japan, and introduce the online concept into the executing regulation. There are various controversies in these revisions. First, it is a criticism that confusion about the concept of goods can come. The concept of a product under the Patent Law is divided into the invention of a thing and the invention of a method in order to distinguish the effect of the patented invention. These definitions do not necessarily conflict with civil law objects. In addition, the protection of the program itself by the patent law may cause problems of copyright law and double protection. It is

The Fourth Industrial Revolution is a fusion of digital, biology and physics with manufacturing through a new industrial revolution following the first industrial revolution (power), the second industrial revolution (automation) and the third industrial revolution(digital), Kim, Won Joon., Institute for legal studies Chonnam National University, 2016.9, 491-522 (32 pages)

In the IT sector, the SW division occupies 32% and the hardware division occupies 21%, KIPO, NPE Patent Dispute Trend Report, 2015, page 3

argued that it is unnecessary to double protect the computer program by patent and copyright because it protects it by duplication. However, there is a fundamental difference between patent and copyright protection. Intellectual property law system has already considered the conflict of rights due to overlapping protection by intellectual property rights. Therefore, it is hard to argue that it is unreasonable to merely double-protect. Also, the copyrighted program must be protected by the copyright law and the patented program must be protected against the inventive program. It is not realistic to look at the value of a program solely as a copyright work. It should be acknowledged that the industrial value of the program is often in the invention under patent system. Despite rational arguments for the introduction of such program claims, this problem is still not resolved in Korea. Therefore, it is necessary to examine various measures in addition to these direct measures. The first thing that can be examined is the US direct infringement law. Like the United States, Korea acknowledges media claims. Therefore, storing the electronic file on the recording medium as in the United States is regarded as the production of the recording medium. However, it is unclear how to define the electronic file in two categories in Korean Patent Act⁸³). It can be solved by including the electronic file in the thing. So how electronic files are included in definition Article to protect program inventions was examined. Also, indirect infringement regulations including electronic files were also examined. This amendment has led to a way to deal with online illegal transmission without acknowledging the controversial computer program claim itself. In reality, it is the most reasonable improvement measure in that it does not conflict with the definition of a thing in Civil Act. So far, there is no problem in online transmission because it does not recognize the program invention in Korea. However, major countries in the world are using patent laws to protect program inventions more importantly. In Korea, it is time to select the most reasonable method based on the global trend and to protect the invention of the program with patent rights.

As mentioned above, there are only two categories in Patent Act, invention of a thing and a process.

IV. 훈련 참가 소감 및 총평

1. 관찰 및 평가

- 다양한 국가에서 선발된 WIPO 기금 장학생, 현지 공무원, 변호사 및 엔지니어 등 여러 문화 및 분야에서 종사하는 전문가 들이 지적재산권 석사 과정에 참여
- 각 국가의 지적재산권 환경 및 문화를 이해할 수 있는 계기가 되었고, 이를 기반으로 한 토론수업을 통하여 지적재산권 제도 및 법률을 다양한 측면으로 이해할 수 있는 수업이 진행되었음
- 강사진들도 호주 QUT 대학 교수진은 물론 현직 변호사, 국제기구 종사자 등으로 구성하여 기본적인 지적재산권 이론 학습과 이러한 이론이 실제 적용되는 실무례를 동시에 학습할 수 있도록 수업이 진행되었음
- 각 커리큘럼 별로 개인이 선정한 다양한 주제를 영어 프리젠테이션 하도록 함으로써, 지적재산권 관련 관심 분야에 대한 자발적인 학습을 유도하고 영어 발표능력을 향상시키는 계기가 되었음
- 지도교수(Kamal Puri)는 다년간의 과정운영을 통하여 참가 학생들의 적극적인 수업 참여를 유도하여 교육성과를 극대화하려고 노력하였음

2. 시사점 및 향후 계획

- 본 과정을 통하여 해외의 지적재산권 제도에 대한 개괄적 이해와 다양한 국가에서 참여한 학생들과의 토론을 통하여 지적재산권 제도를 폭 넓게 이해할 수 있는 계기가 되었음
- 다양한 분야 및 여러 국가에서 참여한 전문가들과의 인적 네트워크를 통하여 향후 지적재산권 분야 협력 체제를 구축할 수 있는 기반 마련
- 이러한 과정 참여 경험과 지식을 통하여 심사제도 개선 및 국제 업무 협력을 활용할 계획임