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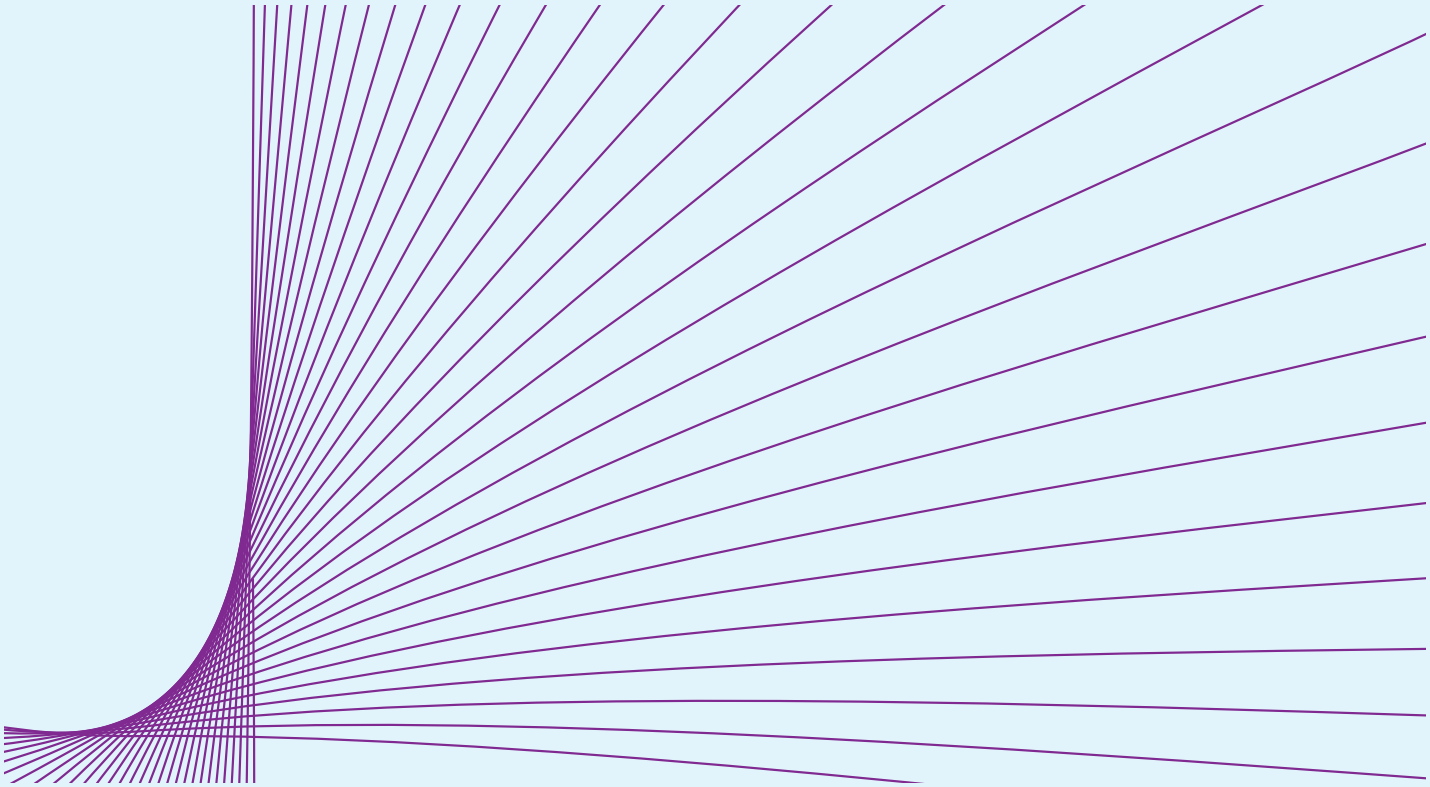

Editorial Preface

Modern intellectual property law presents an impressive web of interaction with economy, technology, creative arts and business. We live in a constant stream of impressions from all over the world and from a multitude of different sources. Still, we tend to move in familiar patterns or circles, regarding the evolving currents from a mind-set of established perspectives.

The Stockholm University Master of Laws in European Intellectual Property Law is an international hub, where each year students come together from all over the world for one year of education, each bringing with them their different backgrounds, knowledge and experiences. The students are active, eager to learn and work within the exciting field of intellectual property. It is in this creative environment that the idea of a student-led law review was born.

The Master Programme has a rich history and now when we are entering our 20th year, the programme alumni make up an extensive international network that stretches all over the world, working in law firms, companies, academia and organisations. We are grateful to see this network being tied together even further and prospering.

The production of the review is the responsibility of the programme students. They have the opportunity to engage in and learn the process of a law review, and contribute with their experiences and knowledge. It is our hope that the students will contribute to the contents of the review as well, for instance the publishing of articles based on the findings of their master theses. We also encourage publications by alumni students, young researchers and practitioners as well as of course of established authors.

The Stockholm Intellectual Property Law Review is about creating new perspectives – of law, its relation to other fields as well as its function in society. It is not only about the inner workings of the international intellectual property legal system, but as much about the interface between law and economy, business, technology, creative arts and communication. The different perspectives are captured in our growing network of students, practitioners, academics and alumni. The review is international, digital, freely available, and easy to access with a short and effective publication route for authors.

We want to capture the vast spectrum of perspectives, experiences, and ideas that exists in the current international intellectual property network. We believe that the Stockholm Intellectual Property Law Review has an important role in tying together the strings of students, alumni, practitioners and academia. In the modern world where intellectual property grows in scope and importance, we want to be the uniting hub and we wish to invite you to the opportunity of aquiring new perspectives in the field of IP.

We are grateful for having a Board of directors that reflects the character and ambitions of the law review, academics, practitioners, lawyers, economists, different perspectives but one focus, that of intellectual property law. We are also grateful for the economic support from the Stiftelsen Juridisk Fakultetslitteratur at Stockholm University.

We are very happy and proud to present this first issue.
Hope you enjoy it!

Åsa Hellstadius & Frantzeska Papadopoulou

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Åsa Hellstadius

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Welcome SIPLR – a modern student revolution!

Today, we welcome the latest addition to the flora of law reviews, the SIPLR. What is special about this law review is that SIPLR is a student initiative devoted to intellectual property (IP) law. In this respect, the SIPLR marks a major new step and is a recognition of almost 20 years of successive developments of the Master Programme in European IP law. The SIPLR is not only an expression of the students' interest in IP law, but also of them claming their rights as citizens in the world of IP. They want to make their mark on the Master Class of 2017-18 and pass the baton on to the future generations of master students. This is the new world of Facebookers, Linked Ins and You tubers where IP in many ways has redefined the limits, restrictions, exceptions and considerations, and is also the way to hang out.

This new initiative with the SIPLR reminds me of how we, a number of IP enthusiasts in the late 1990s, after years of discussions with our Nordic colleagues, finally in January 2000, launched a Master Programme in European IP Law at Stockholm University. It sounds bolder than it really was. University life was less complicated then, i.e. fewer actors and less bureaucracy. In addition, the timing was obviously right, as there were few universities offering an advanced education in European IP law in Europe or elsewhere, and there was a global demand for IP experts. Today, there is a great awareness of IP and other value-based commodities at universities as well as in companies, and there is a wide selection of IP law courses and master programmes to choose from.

Nevertheless, Sweden and Stockholm University had especially good conditions for initiating an IP master as Stockholm University has a long tradition of awareness of IP law. As early as 1910 two prominent professors at Stockholm University, Birger Ekeberg and Gösta Eberstein, together with the business community and governmental agencies, in particular the patent office, formed an alliance for the development of IP law as an important state policy and a natural motor for industrial competition. With such a tradition, it is not surprising that already by the second half of last century, IP law had become a mandatory part of the law programme at Stockholm University, and in 1994, it received the status of a separate, mandatory course, which was unique at the time.

From that perspective, an IP Master at Stockholm University is a natural development. Starting an international IP Law Review may not be as obvious, at least not until it is done. Now, in in hindsight, the SIPLR comes almost as a generic development. The SIPLR is a new branch that positions the Stockholm IP Master programme as a prominent and given element of the modern IP world in 2018 and beyond. That an IP Law Review should happen in Stockholm, Sweden is after all neither astonishing, nor fake news, the SIPLR is very genuine.

Looking back at many happy years with the Master Programme in European IP law and the many smart and engaged students over the years, I am still very impressed and proud over this year's spontaneous student initiative and its manifestation under the Programme's new team of Directors, Associate professors Åsa Hellstadius and Frantzeska Papadopoulou, who once were my students. Hence, the SIPLR prepares us well for the 2020s and for future generations in the world of IP.

Long live the SIPLR!

Marianne Levin
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Customizing Fair Use Transplants

By Peter K. Yu

ABSTRACT

In the past decade, policymakers and commentators across the world have called for the introduction of copyright reform based on the fair use model in the United States. Thus far, Israel, Liberia, Malaysia, the Philippines, Singapore, South Korea, Sri Lanka and Taiwan have adopted the fair use regime or its close variants. Other jurisdictions such as Australia, Hong Kong and Ireland have also advanced proposals to facilitate such adoption. This article examines the increasing efforts to transplant fair use into the copyright system based on the U.S. model. It begins by briefly recapturing the strengths and weaknesses of legal transplants. The article then scrutinizes the ongoing effort to transplant fair use from the United States. Specifically, it identifies eight modalities of transplantation. This article concludes with five lessons that can be drawn from studying the ongoing transplant efforts.

1. INTRODUCTION

In the past two decades, the digital environment has brought to internet users many political, social, economic, cultural, educational and career opportunities. Yet, efforts to update copyright law have lagged behind technological developments. As a result, many users not only fail to realize their full potential, but also fear that they will be caught in the copyright infringement net. As the influential *Hargreaves Review of Intellectual Property and Growth (Hargreaves Review)* lamented in the educational context:

> *Researchers want to use every technological tool available, and they want to develop new ones. However, the law can block valuable new technologies, like text and data mining, simply because those technologies were not imagined when the law was formed. In teaching, the greatly expanded scope of what is possible is often unnecessarily limited by uncertainty about what is legal. Many university academics—along with teachers elsewhere in the education sector—are uncertain what copyright permits for themselves and their students.*[1]

To make the copyright system more responsive to technological change and to accommodate the many new uses, technologies and services that have now emerged in the digital environment, policymakers and commentators across the world have called for the introduction of copyright reform based on the fair use model in the United States.[2] For instance, Recommendation 11 of the Gowers Review of Intellectual Property called for amending article 5 of the EU Information Society Directive "to allow for an exception for creative, transformative or derivative works, within the parameters of the Berne Three Step Test."[3] The later Hargreaves Review also extolled the benefits of fair use and described it as "the big once and for all fix of the UK."[4]

Although the review declined to recommend fair use in the end, it did so not because of the regime's lack of merits but because of impracticality—namely, "importing fair use wholesale was unlikely to be legally feasible in Europe."[5]

In recent years, the copyright law developments across the world have shown a growing willingness on the part of both developed and developing countries to adopt fair use or its close variants. Examples of jurisdictions that have made such adoption are Israel, Liberia, Malaysia, the Philippines, Singapore, South Korea, Sri Lanka and Taiwan.[6] Other jurisdictions such as Australia, Hong Kong and Ireland have also advanced proposals to facilitate such adoption.[7] In addition, there are remarkable similarities between the fair dealing regime in Canada and the fair use regime in the United States.[8]

As exciting as it is to see an increasing number of jurisdictions embracing fair use, one should not overlook the complexities concerning the transplant of the U.S. fair use model on to foreign soil. Focusing on fair use transplants, this article begins by briefly recapturing the strengths and weaknesses of legal transplants. It then scrutinizes the ongoing effort to transplant fair use from the United States. Specifically, it identifies eight modalities of transplanta-

1 Ian Hargreaves, Digital Opportunity: A Review of Intellectual Property and Growth, (Newport: U.K. Intellectual Property Office, 2011): 41.

2 17 U.S.C 107 § (2012).

3 Andrew Gowers, Gowers Review of Intellectual Property, (London: Stationery Office, 2006): 68.

4 Hargreaves, Digital Opportunity, 52.

5 Ibid, 5.

6 Band, Jonathan, and Jonathan Gerafi, The Fair Use/Fair Dealing Handbook, (Washington: Policybandwidth, 2013): 30, 35-38, 56, 55-57, 60-62, 64.

7 Australian Law Reform Commission, Copyright and the Digital Economy: Final Report, (Sydney: Australian Law Reform Commission, 2013): 123-60; Copyright Review Committee (Ireland), Modernising Copyright: The Report of the Copyright Review Committee, (Dublin: Copyright Review Committee, 2013): 93-94; Legislative Council (Hong Kong), Amendments to Be Moved by the Honourable CHAN Kam-Lam, SBS, JP. LC Paper No. CB(3) 219/15-16. (Hong Kong: Legislative Council, 2015): 4.

8 Michael Geist, The Copyright Pentalogy: How the Supreme Court of Canada Shook the Foundations of Canadian Copyright Law, (Ottawa: University of Ottawa Press, 2013): 176; Ariel

tion, drawing on experiences in China, Australia, Hong Kong, Ireland, Israel, Liberia, Malaysia, the Philippines, Singapore, South Korea, Sri Lanka and Taiwan. This article concludes with five lessons that can be drawn from studying these transplant efforts. It is my hope that the identification of these modalities and lessons will provide useful information to those working on digital copyright reform.

2. LEGAL TRANSPLANTS

Legal transplants are very common in the intellectual property field. Among the most controversial transplants are those induced by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) of the World Trade Organization (WTO), the 1996 Internet Treaties of the World Intellectual Property Organization (WIPO) and, most recently, the bilateral, regional and plurilateral trade agreements, such as the Anti-Counterfeiting Trade Agreement, the Trans-Pacific Partnership Agreement (now the Comprehensive and Progressive Agreement for Trans-Pacific Partnership) and the proposed Regional Economic Comprehensive Partnership Agreement.

Oftentimes, these agreements are filled with standards that are transplanted from major intellectual property-exporting countries.[9] Although developing countries fought hard to retain their sovereignty, autonomy and limited policy space, developed countries pushed aggressively for the much higher standards of protection and enforcement found in their own countries. In the end, the weaker and poorer countries are often forced to transplant laws from abroad regardless of whether those laws match their internal needs, interests, conditions or priorities.[10]

In view of these inequitable conditions, intellectual property commentators have always been wary about legal transplants. As they rightly point out, hastily transplanted laws can be both ineffective and insensitive to local conditions.[11] These transplants can also stifle local development while upsetting the existing local tradition.[12] In addition, they may bring problems from abroad, thus exacerbating the problems they seek to address.[13] They may even take away the valuable opportunities for experimentation with new regulatory and economic policies.[14]

Nevertheless, legal transplants can be quite beneficial, especially if they are carefully selected and appropriately customized. In an earlier article, I noted the following benefits of legal transplants:

> *[L]egal transplantation allows countries, especially those with limited resources, to take a free ride on the legislative efforts of other, usually more economically developed, countries. The process also provides laws that have served as time-tested solutions to similar problems, drawing on lessons learned from the experiences in the source countries—both positive and negative. Transplants may even help provide preemptory defenses to countries that face repeated and intense pressure from their more powerful trading partners, not to mention the strong likelihood that the laws in these powerful countries will eventually become international standards by virtue of the source countries' sheer economic and political might.*[15]

Katz. "Fair Use 2.0: The Rebirth of Fair Dealing in Canada," in The Copyright Pentalogy: How the Supreme Court of Canada Shook the Foundations of Canadian Copyright Law. Ed. Michael Geist. (Ottawa: University of Ottawa Press, 2013): 95.

9 Peter K. Yu, "The International Enclosure Movement," Indian Law Journal 82, (2007): 855-72.

10 Peter K. Yu, "TRIPS and Its Discontents," Marquette Intellectual Property Law Review 10 (2006): 373-75; Peter K. Yu, "The Quest for a User-Friendly Copyright Regime in Hong Kong," American University International Law Review 32, (2016): 34.

11 Peter K. Yu, "Digital Copyright Reform and Legal Transplants in Hong Kong," University of Louisville Law Review 48, (2010): 770; Peter K. Yu, "The Transplant and Transformation of Intellectual Property Laws in China" in Governance of Intellectual Property Rights in China and Europe. Ed. Nari Lee, Niklas Bruun and Li Mingde, (Cheltenham: Edward Elgar Publishing, 2016): 30, 38-39.

12 Michael, Birnhack, "Judicial Snapshots and Fair Use Theory," Queen Mary Journal of Intellectual Property 5, (2015): 264–84; Peter K. Yu, "Can the Canadian UGC Exception Be Transplanted Abroad?" Intellectual Property Journal 26 (2014): 181-82.

13 Yu, "The Transplant and Transformation," 31-32.

14 Ibid, 30-31; John F. Duffy, "Harmony and Diversity in Global Patent Law," Berkeley Technology Law Journal 17, (2002): 707-08.

15 Yu, "Digital Copyright Reform," 754-55.

In short, legal transplants have both strengths and weaknesses. Whether they will become effective and successful will depend largely on the process by which they are transplanted. Before transplant, policymakers should identify what they seek to achieve through law reform. They should not just transplant laws for the sake of transplantation, or even harmonization. Instead, they should evaluate local conditions and select a model that would best fit these conditions. They should also explore whether adaptations are needed to make the transplanted laws effective. As Watson, father of the study of legal transplants, reminded us, "a time of transplant is often a moment when reforms can be introduced."[16]

Once the laws have been adopted, policymakers should continue to scrutinize them to determine if further adjustments are needed at the implementation stage to assimilate them to local conditions. After all, "like the transplant of plants or human organs, the [legal transplantation] process requires a careful process of evaluation, selection, adaptation, and assimilation."[17] To facilitate this process, some laws come with sunset provisions that allow policymakers and legislators to determine later extension or modification.[18]

3. MODALITIES OF TRANSPLANTATION

Commentators have widely criticized the undesirable transplants induced by the U.S. Trade Representative's Section 301 process[19] and the newly negotiated bilateral, regional and plurilateral trade agreements. An oft-cited example is the anticircumvention provision of the Digital Millennium Copyright Act of 1998 (17 U.S.C. § 1201) (2012). (DMCA), which has been pushed upon developing countries through both the Section 301 process and the negotiation of TRIPS-plus agreements. Because that provision fails to take into account the drastically different local conditions of many developing countries,[20] its direct transplant on to foreign soil has serious deleterious effects.

While many policymakers and commentators in the developing world have lambasted the transplant of the DMCA, they are more willing to accept or even embrace transplants that are based on copyright limitations and exceptions found in foreign laws. After all, such transplants are conducive to increasing access to copyright works, a goal widely shared by developing country policymakers and commentators.[21] A case in point is the transplant of the U.S. fair use provision, the primary focus of this article. Instead of pushing for greater protection of copyright holders, fair use transplants seek to enlarge the freedom of users in the copyright system and to enhance their access to copyright works.

Thus far, developing countries have yet to actively transplant copyright limitations and exceptions. Their lack of action can be largely attributed to their weak bargaining positions in international trade and intellectual property negotiations and their fear that the introduction of these limitations and exceptions could reduce foreign investment, invite WTO complaints, harm diplomatic relations with powerful countries or all of the above. Countries such as the United States have also been actively discouraging the adoption of fair use in international instruments or through domestic legislation. A somewhat embarrassing example is the secret demarche issued by the U.S. State Department to encourage the removal of references to fair use in the draft text of the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled.[22]

Notwithstanding these hurdles and challenges, many developed and developing countries have now slowly introduced fair use into their copyright systems. That many countries have undertaken proactive efforts to transplant the U.S. fair use provision has given hope to those working tirelessly for digital copyright reforms to protect internet users and to maximize the opportunities and benefits provided by the digital revolution. Nevertheless, the transplant experience to date has been somewhat different from what many have anticipated.

To be sure, the strong contrast between the arguably undesirable DMCA transplants and the more desirable fair use transplants has caused one to expect fair use to be transplanted verbatim or substantially verbatim. In reali-

16 Alan Watson, Legal Transplants: An Approach to Comparative Law, 2nd ed. (Athens: University of Georgia Press, 1993): 35.

17 Yu, "Digital Copyright Reform," 755.

18 Yu, "Can the Canadian UGC," 201-02.

19 Jagdish Bhagwati, and Hugh T. Patrick, Aggressive Unilateralism: America's 301 Trade Policy and the World Trading System, (Ann Arbor: The University of Michigan Press, 1990); Joe Karaganis and Sean Flynn, "Networked Governance and the USTR," in Media Piracy in Emerging Goods ed. Joe Karaganis, (New York: Social Science Research Council, 2011); Paul C. B. Liu, "U.S. Industry's Influence on Intellectual Property Negotiations and Special 301 Actions," UCLA Pacific Basin Law Journal 13, (1994).

20 Yu, "Anticircumvention and Anti-anticircumvention," Denver University Law Review 84, (2006): 40-57.

21 Sara Bannerman, International Copyright and Access to Knowledge, (Cambridge: Cambridge University Press, 2015); Gaëlle Krikorianand Amy Kapczynski, Access to Knowledge in the Age of Intellectual Property, (New York: Zone Books, 2015).

22 Knowledge Ecology International. 2013. US Department of State Demarche against Fair Use in WIPO Treaty for Blind. Available online: https://keionline.org/node/1760 (accessed on 14 February 2018).

23 Jacques deLisle, "Lex Americana?: United States Legal Assistance, American Legal Models, and Legal Change in the Post-Communist World and Beyond," University of Pennsylvania Journal of International Economic Law 20, (1999); James A. Gardner, Legal Imperialism: American Lawyers and Foreign Aid in Latin America, (Madison: University of Wisconsin Press, 1980); John V. Orth, "Exporting the Rule of Law," North Carolina Journal of International Law and Commercial Regulation 24, (1998); Ann Seidman and Robert B. Seidman, "Drafting Legislation for Development: Lessons from a Chinese Project," American Journal of Comparative Law 44, (1996).

24 Section 2.14 of the Liberian Copyright Law provides specific arrangement concerning the copyright limitations and exceptions relating to computer programs.

25 As modified in February 2013, the language now reads, "Decompilation, which is understood here to be the reproduction of the code and translation of the forms of a computer program to achieve the interoperability of an independently created computer program with other programs may also constitute fair use under the criteria established by this section, to the extent that such decompilation is done for the purpose of obtaining the information necessary to achieve such interoperability."

ty, however, a close scrutiny of the "fair use" provisions that have been adopted or proposed reveal that the reform-minded jurisdictions did not directly transplant the U.S. fair use provision. Instead, they undertook elaborate efforts to customize that provision to local conditions.

To illustrate these customization efforts, this section identifies eight distinct modalities of transplantation that have been deployed when jurisdictions introduce fair use into their copyright systems. The discussion of these modalities reminds us of the need for customization in the legal transplantation process, a topic that has been widely explored in law and development literature.[23] Such discussion also resonates with the repeated calls for flexibilities and policy space in intellectual property law and policy. It highlights the multiple paths jurisdictions can take to develop an open system of copyright limitations and exceptions.

3.1. Introduce a Verbatim or Substantially Verbatim Transplant

The most obvious modality is verbatim transplant. Although countries rarely adopt the same statutory language, Liberia, a signatory of the original Berne Convention for the Protection of Literary and Artistic Works, provides an excellent example of a country introducing a verbatim, or at least substantially verbatim, transplant. Section 2.7 of the Copyright Law of the Republic of Liberia provides:

> *Notwithstanding the provisions of Section 2.6 [which covers the exclusive rights of copyright owners], the fair use of a copyright work, including such use by reproduction in copies or sound recordings or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use, the factors to be considered shall include:*
>
> *(a) the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes;*
> *(b) the nature of the copyright work;*
> *(c) the amount and substantially of the portion used in relation to the copyrighted work as a whole; and*
> *(d) the effect of the use upon the potential market for or value of the work.*

This section includes the four fairness factors that are identical to those found in Section 107 of the U.S. Copyright Act. Its preambular language—"for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship or research"—is also identical to the language in the U.S. fair use provision. The only difference is that the Liberian fair use provision does not apply to the reproduction of a computer program. The limitation and exception in that area, which falls outside the scope of this article, is covered by a different part of the statute.[24]

Another example is the Philippines. Adopted in June 1997, Section 185.1 of the Intellectual Property Code of the Philippines (Republic Act No. 8293) provides:

> *The fair use of a copyrighted work for criticism, comment, news reporting, teaching including multiple copies for classroom use, scholarship, research, and similar purposes is not an infringement of copyright . . . In determining whether the use made of a work in any particular case is fair use, the factors to be considered shall include:*
>
> *(a) The purpose and character of the use, including whether such use is of a commercial nature or is for non-profit education purposes;*
> *(b) The nature of the copyrighted work;*
> *(c) The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and*
> *(d) The effect of the use upon the potential market for or value of the copyrighted work.*
>
> *The fact that a work is unpublished shall not by itself bar a finding of fair use if such finding is made upon consideration of all the above factors.*

While this section was undoubtedly modeled after the U.S. fair use provision, it also includes specific language stating explicitly that the decompilation of a computer program "may also constitute fair use."[25] A third example is Malaysia. Section 13 of the Copyright Act 1987, which was amended in February 2012, provides:

> *(2) Notwithstanding subsection (1) [which covers the exclusive rights of copyright owners], the right of control under that subsection does not include the right to control*
> *(a) the doing of any of the acts referred to in subsection (1) by way of fair dealing including for purposes of research, private study, criticism, review or the reporting of news or current events: Provided that it is accompanied by an acknowledgement of the title of the work and its authorship, except that no acknowledgment is required in connection with the reporting of news or current events by means of a sound recording, film or broadcast;*
> *(2a) For the purposes of paragraph (2)(a), in determining whether a dealing constitutes a fair dealing, the factors to be considered shall include:*
> *(a) the purpose and character of the dealing, including whether such dealing is of a commercial nature or is for non-profit educational purposes;*
> *(b) the nature of the copyright work;*
> *(c) the amount and substantiality of the portion used in relation to the copyright work as a whole; and*
> *(d) the effect of the dealing upon the potential market for or value of the copyright work.*

Interestingly, this section does not use the term "fair use," despite its remarkable similarities to Section 107 of the U.S. Copyright Act. Instead, like Singapore, which will be discussed below, Malaysia has a fair dealing regime that functions like a fair use regime. Although fair dealing is generally described as a rule while fair use a standard,[26] this rule-standard distinction no longer works well because both regimes now require the case-by-case balancing of multiple fairness factors.[27] As a result, policymakers and commentators increasingly identify fair dealing by the specified purposes and the closed system of copyright limitations and exceptions. Because the word "including" precedes the purposes specified in the Malaysian fair dealing provision, it suggests a non-exhaustive list of copyright limitations and exceptions. The provision is therefore open-ended and functions like a fair use provision.

3.2. Add the Three-Step Test

The second modality is the transplant of the U.S. fair use provision with built-in language covering the three-step test used in the TRIPS Agreement and the WIPO Copyright Treaty. Article 13 of the TRIPS Agreement requires all WTO members to "confine limitations or exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holder." Similarly, article 10(1) of the WIPO Copyright Treaty provides:

> *Contracting Parties may, in their national legislation, provide for limitations of or exceptions to the rights granted to authors of literary and artistic works under this Treaty in certain special cases that do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the author.*

Although many jurisdictions have built the three-step test into their system of copyright limitations and exceptions,[28] in part to avoid WTO disputes, South Korea provides the best example of a fair use provision that includes the three-step test as a built-in constraining device. Section 35-3(1) of the Copyright Act of South Korea specifically provides, "[e]xcept as provided in Articles 23 through 35-2 and 101-3 through 101-5, where a person does not unreasonably prejudice an author's legitimate interest without conflicting with the normal exploitation of works, he/she may use such works" (translated by the Korea Copyright Commission). Because this provision requires any interpretation to pass the last two steps of the three-step test, it will never fail those steps if it is correctly interpreted.

The only remaining issue is whether the provision will pass the first step. The answer is highly likely, for three reasons. First, no country has ever challenged the U.S. fair use provision before the WTO Dispute Settlement Body.[29] Second, even though the Korean provision functions like the U.S. fair use provision, it is narrower than that provision. Third, some commentators have argued that the first step of the three-step test deserves much less focus and attention than the last two steps.[30] In short, the chance of the Korean fair use provision becoming part of a WTO dispute is minimal.

Notwithstanding the proactive efforts on the part of South Korea and other jurisdictions to inject the three-step test into their copyright laws,[31] policymakers and commentators have called for caution, if not expressed reservation.[32] Even if the incorporated three-step test language is to be liberally interpreted, such incorporation will burden those using the fair use provision with an additional layer of legal analysis, which in turn will raise administrative, enforcement or litigation costs. If the interpretation turns out to be unduly restrictive, the added language will greatly curtail the benefits provided by the new fair use provision, thereby dampening, if not negating, the success of the transplant-based reform.

3.3. Add Regulatory Authority

The third modality is the transplant of the fair use provision with added regulatory authority. Israel provides the only example of such a transplant. Pursuant to Section 19(c) of the 2007 Copyright Act, "[t]he Minister [of Justice] may make regulations prescribing conditions under which a use shall be deemed a fair use." As Elkin-Koren explained, "The purpose of establishing this authority was to reduce the uncertainty resulting from the open-ended nature of the fair use doctrine."[33] The addition of regulatory authority into a fair use provision is not ideal, considering that rigid regulations could be introduced to undermine the flexibility provided by the fair use model.

Nevertheless, no regulation has been issued in Israel so far, despite the decade-long existence of its fair use provision.[34] If regulatory authority is merely included to increase the political support for the change from a closed system of copyright limitations and exceptions to an open one, the addition can be easily justified. In fact, should no regulation be introduced in the end, the added language will have no negative impact on the flexibility of the fair use regime.

3.4. Add Deference to a Side Agreement

The fourth modality is the transplant of the fair use provision with added deference to an external agreement to be negotiated by copyright owners and users. Taiwan provides the only example of such a transplant. Article 65 of the 2016 Copyright Act of Taiwan states:

> *Where the copyright owner organization and the exploiter organization have formed an agreement on the scope of the fair use of a work, it may be taken as reference in the determination referred to in the preceding paragraph.*
>
> *In the course of forming an agreement referred to in the preceding paragraph, advice may be sought from the specialized agency in charge of copyright matters.*

The addition of this reference is similar to the incorporation of a code of practice.[35] Similar agreements or codes of practice have been adopted or proposed in other jurisdictions. Cases in point are the proposed voluntary code of practice for online service providers advanced in Hong Kong,[36] and the rather unsuccessful fair use guidelines

that have been repeatedly proposed for educators in the United States.[37] These agreements or codes of practice are particularly difficult to negotiate. As I noted in regard to the proposed voluntary code of practice in Hong Kong, "While copyright holders [could not] promise the [online service providers] a broad safe harbor because of the rapidly changing nature of digital technology, [these providers were] reluctant to abide by a code of practice without any further promise from the content industries."[38]

3.5. Mix the Transplant with Fair Dealing

The fifth modality is to mix the fair use transplant with preexisting fair dealing provisions, creating a truly hybrid model. An excellent example is Singapore. Section 35 of the Copyright Act, which ironically carries the heading "fair dealing in relation to work," tracks closely the fair use language in Section 107 of the U.S. Copyright Act. Added to the four fairness factors in the U.S. fair use provision is the last factor concerning "the possibility of obtaining the work or adaptation within a reasonable time at an ordinary commercial price." Although this factor has support in U.S. case law, such as *Harper & Row, Publishers, Inc. v. Nation Enterprises*[39] and *American Geophysical Union v. Texaco Inc.*,[40] judges, policymakers and commentators have widely criticized the factor for sparking circular reasoning.[41] Section 35 of the Singaporean Copyright Act is therefore a fair dealing provision in name but a fair use provision in effect, similar to Section 13 of the Malaysian Copyright Act.

Regardless of how Section 35 is named, its two ensuing provisions—Sections 36 and 37—retain the fair dealing model and function like traditional fair dealing exceptions. While the former focuses on "the purpose of criticism or review," the latter targets "the purpose of, or is associated with, the reporting of current events." Similar to traditional fair dealing provisions found in other Commonwealth jurisdictions, both Sections 36 and 37 also omit explicit language on the fairness factors, even though such omissions will not prevent courts from considering those factors.

Like Singapore, Sri Lanka includes a mixture of fair dealing and fair use. Section 11(3) of the Intellectual Property Act (Act No. 36 of 2003) states that "[t]he acts of fair use shall include the circumstances specified in Section 12." Section 12 then outlines the different acts of fair use, similar to what is commonly found in a traditional fair dealing regime. The structure of this provision parallels Section 13 of the Code of Intellectual Property (Act No. 52 of 1979), which has since been repealed. Interestingly, Section 13 also uses the term "fair use" even though the provision functions like a traditional close-ended, purpose-based fair dealing provision.[42] Thus, although Section 11 of the Intellectual Property Act did not introduce the term "fair use," the addition of fairness factors mixes the old fair dealing arrangements with fair use.

3.6. Require the Priority Consideration of Fair Dealing

The sixth modality is the transplant of the U.S. fair use provision with an additional requirement that courts should give priority consideration to preexisting fair dealing exceptions. The best example is Ireland. In its report providing a wholesale examination of the copyright system, the Copyright Review Committee[43] called for the introduction of a meticulously drafted fair use exception as proposed 49A of the Irish Copyright and Related Rights

[26] Australian Law Reform Commission, Copyright and the Digital Economy, 98-10; Ruth Okediji, "Toward an International Fair Use Doctrine," Columbia Journal of Transnational Law 39, (2000): 159; Yu, "The Quest," 321.

[27] Ibid, 321-27.

[28] Yu, "Can the Canadian UGC," 199.

[29] Australian Law Reform Commission, Copyright and the Digital Economy, 120; Yu, "The Quest," 309.

[30] Daniel J. Gervais, "Towards a New Core International Copyright Norm: The Reverse Three-Step Test," Marquette Intellectual Property Law Review 9, (2005): 15-16.

[31] Daniel J. Gervais," (Re)Structuring Copyright: A Comprehensive Path to International Copyright Reform, (Cheltenham: Edward Elgar Publishing, 2017): 74-84.

[32] Electronic Frontier Foundation. n.d. The Three-Step Test. Available online: https://www.eff.org/files/filenode/ three-step_test_fnl.pdf (accessed on 14 February 2018).

[33] Niva Elkin-Koren, "The New Frontiers of User Rights," American University International Law Review 32, (2016): 21-22.

[34] Ibid.

[35] Thanks to Professor Liu Kung-Chung for providing guidance and materials concerning the Taiwanese fair use provision.

[36] Yu, "Digital Copyright Reform," 736-39.

[37] Ann Bartow,, "Educational Fair Use in Copyright: Reclaiming the Right to Photocopy Freely," University of Pittsburgh Law Review 60, (1998): 159-63; Kenneth D. Crews, "The Law of Fair Use and the Illusion of Fair-Use Guidelines," Ohio State Law Journal 62, (2001).

[38] Yu, "Digital Copyright Reform," 738.

[39] 471 U.S. 539, 562 (1985).

[40] 60 F.3d 913, 930–31 (2d Cir. 1994).

[41] Australian Law Reform Commission, Copyright and the Digital Economy, 141-43; Pierre N. Leval, "Nimmer Lecture: Fair Use Rescued," UCLA Law Review 44 (1997): 1460.

[42] A contemporary counterpart is Section 72 of the Bangladesh Copyright Act 2000 (Act No. 28 of 2000), which uses the term "fair use" but functions like a close-ended, purpose-based fair dealing provision.

[43] Copyright Review Committee (Ireland), Modernising Copyright, 93-94.

Act. This provision calls on courts to consider eight non-exhaustive factors—four more than in the U.S. fair use provision.[44]

In addition, the proposed Irish provision includes the following language: "The other acts permitted by this Part shall be regarded as examples of fair use, and, in any particular case, the court shall not consider whether a use constitutes a fair use without first considering whether that use amounts to another act permitted by this Part."[45] Based on this unique language, the Copyright Review Committee, in effect, proposed a regime that allows fair use to cover unforeseen circumstances but requires courts to first consider whether the statute includes an exception that already covers the implicated use of a copyright work. As the Committee explained:

> *The Report acknowledges that fair use is a controversial topic, with powerful views expressed both for and against it. It does not recommend the introduction of . . . "the US style 'fair use' doctrine" which it considered under its terms of reference, but rather a specifically Irish version.*
>
> *It recommends the introduction of a new [Copyright and Related Rights Act] section allowing for fair use, but tying it very closely to existing exceptions and making it clear that these exceptions should be exhausted before any claim to fair use should be considered. The exceptions should be regarded as examples of fair use so as to allow workable analogies to be developed, and sets [sic] out the criteria for the court to take into account in determining whether or not a matter amounts to fair use.*[46]

3.7. Create a List of Illustrative Purposes

The seventh modality is the transplant of the U.S. fair use provision with the addition of a non-exhaustive list of illustrative purposes that is drawn from preexisting copyright limitations and exceptions. The best example is the proposal advanced by the Australian Law Reform Commission in its final report, although one could arguably include Section 12 of the Sri Lanka Intellectual Property Act discussed earlier.

The Australian Law Reform Commission's proposal, which has since earned the support of the Australian Productivity Commission,[47] called for the introduction of a fair use exception, similar to what is available in the United States.[48] Although the proposed exception includes the fairness factors that have been codified in Section 107 of the U.S. Copyright Act, such inclusion will require an alignment of existing Australian copyright law with its U.S. counterpart. For instance, Section 40 of the Australian Copyright Act, which covers fair dealing for purpose of research or study, requires courts to consider five factors, not four. Similar to Section 35 of the Singapore Copyright Act, this provision includes an extra third factor concerning "the possibility of obtaining the work or adaptation within a reasonable time at an ordinary commercial price."[49]

In addition, the Australian Law Reform Commission called for the creation of a non-exhaustive list of eleven illustrative purposes:

(a) research or study;
(b) criticism or review;
(c) parody or satire;
(d) reporting news;
(e) professional advice;
(f) quotation;
(g) non-commercial private use;
(h) incidental or technical use;
(i) library or archive use;
(j) education; and
(k) access for people with disability.[50]

As Kathy Bowrey explained, the creation of this non-exhaustive list can be quite useful as it will "document established cultural practices that might generally be indicative of fair use, where the fairness factors are also met."[51] Like Australia, the Irish Copyright Review Committee expressed preference for the existence of illustrative purposes. Instead of developing a separate non-exhaustive list, however, the Committee included language stating that "[t]he other acts permitted by this Part shall be regarded

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[44] Ibid; The four additional factors are as follows:
(a) the extent to which the use in question is analogically similar or related to the other acts permitted by this Part,
(f) the possibility of obtaining the work, or sufficient rights therein, within a reasonable time at an ordinary commercial price, such that the use in question is not necessary in all the circumstances of the case,
(g) whether the legitimate interests of the owner of the rights in the work are unreasonably prejudiced by the use in question, and
(h) whether the use in question is accompanied by a sufficient acknowledgement, unless to do so would be unreasonable or inappropriate or impossible for reasons of practicality or otherwise.

[45] Ibid, 93.

[46] Ibid, 176-177.

[47] Productivity Commission (Australia), Intellectual Property Arrangements: Productivity Commission Inquiry Report, (Canberra: Productivity Commission, 2016): 8-10, 33.

[48] Australian Law Reform Commission, Copyright and the Digital Economy, 123-125.

[49] Copyright Act 1968 s. 40(2).

[50] Australian Law Reform Commission, Copyright and the Digital Economy, 150-51.

[51] Ibid, 124.

[52] Copyright Review Committee (Ireland), Modernising Copyright, 93.

[53] Both the bill and its committee stage amendments have now lapsed following the conclusion of the legislative term in July 2016.

[54] Yu, "The Quest," 296.

[55] Yu, "Can the Canadian UGC," 184; Teresa Scassa, "Acknowledging Copyright's Illegitimate Offspring: User-Generated Content and Canadian Copyright Law," in The Copyright Pentalogy: How the Supreme Court of Canada Shook the Foundations of Canadian Copyright Law ed. Michael Geist, (Ottawa: University of Ottawa Press, 2013).

[56] Roscoe Pound, "Law in Books and Law in Action," American Law Review 44, (1910).

[57] Yu, "The Quest," 331, 335.

[58] Tarleton Gillespie, Wired Shut: Copyright and the Shape of Digital Culture, (Cambridge: MIT Press, 2007): 167-91; Ian R. Kerr, et al., "Technical Protection Measures: Tilting at Copyright's Windmill," Ottawa Law Review 34, (2002); Jessica Litman, Digital Copyright, (Amherst: Prometheus Books, 2001): 125-44; Yu, "Anticircumvention and Anti-anticircumvention."

as examples of fair use."[52] Thus, if one seeks to create a list of illustrative purposes similar to the Australian proposal, one can collect all the different permissible acts in the Irish Copyright and Related Rights Act.

3.8. Introduce Fair Use as a General Saving Clause or a Supplemental Catch-All Provision

The final modality is the transplant of fair use in the form of a general saving clause or a supplemental catch-all provision. The goal of this transplant is to address unforeseen circumstances not yet covered by preexisting copyright limitations and exceptions. The added fair use provision aims to enhance these limitations and exceptions, not replace them or disrupt their operation.

A case in point is the proposed fair use legislation advanced in Hong Kong during the consideration of the Copyright (Amendment) Bill 2014.[53] Although the Hong Kong proposal included language taken verbatim from the U.S. fair use provision, it was designed to supplement the existing fair dealing provisions.[54] At the time of the introduction of the copyright amendment bill, Hong Kong already has fair dealing provisions covering research and private study; criticism, review and news reporting; giving or receiving instruction; and public administration. The amendment bill also added new fair dealing provisions for the purposes of quotation and commenting on current events as well as for parody, satire, caricature and pastiche. Because the proposed fair use provision was introduced as a general saving clause, the provision would not have undermined the operation of all of these fair dealing provisions.

Another example is China, which does not yet have a fair use regime. In its latest draft of the Third Amendment to the Copyright Law, the proposed Article 43 calls for the addition of the phrase "other circumstances" at the end of the enumerated list of circumstances in which a copyright work may be used without authorization or remuneration. This new provision will replace Article 22 of the current statute, which includes twelve permissible circumstances, covering activities such as personal study, research or appreciation; news reporting; and classroom teaching or scientific research. The addition of the open-ended phrase "other circumstances" is highly important because it will transform the list of permissible circumstances from a closed list to an open one. Even though the proposed Article 43 is technically not a fair use provision, its open-endedness will allow it to achieve the same result of such a provision. More importantly, because China is a civil law country, the addition of this provision will pave the way for similar reforms in other civil law jurisdictions.

3.9. Summary

In sum, even if a country concludes that the transplant of the U.S. fair use provision is in its best interest, there are still many different modalities of transplantation. Because the modalities discussed in this section represent only some of the examples, there are many other ways to facilitate the development of an open system of copyright limitations and exceptions. For instance, Section 29.21 of the Canadian Copyright Modernization Act introduced a new exception for developing user-generated content in copyright law, activities that are generally allowed under a fair use regime.[55] Similarly, a jurisdiction that refuses to introduce fair use but is open to adopting a broad fair dealing exception for quotation could easily achieve many important benefits provided by the fair use provision, especially if judges are willing to liberally construe the quotation exception.

It is worth noting that this section focuses primarily on statutory language, even though a full understanding of the statute's operation will require follow-up studies on its utilization and interpretation by courts, law enforcement authorities, copyright holders and other parties. These follow-up studies will be important, as they will enable us to evaluate whether the transplanted language has been interpreted differently. They will also allow us to determine whether "law in books" is the same as "law in action."[56]

Unfortunately, the limited scope and length of this article do not allow for a more in-depth analysis. At this early stage, there are also some practical challenges. Most of the fair use transplants discussed in this article are rather new, and interpretations of the relevant provisions remain scarce and infrequent. Many of the jurisdictions mentioned in the article also have a low volume of copyright litigation, not to mention specific litigation involving the new fair use transplants.[57] In addition, questions remain over the appropriate treatment of case law in civil law jurisdictions such as South Korea and Taiwan. In short, a full analysis of the interpretation, evolution and impact of fair use transplants will have to await future studies.

4. LESSONS

The previous section has shown eight different ways to transplant the fair use provision from the United States. While cataloging these modalities can provide useful information to policymakers and commentators seeking to introduce fair use into the copyright system, one can also draw important lessons by closely analyzing the "fair use" provisions that have been adopted or proposed in the jurisdictions mentioned. This section discusses five specific lessons that will be important for future copyright reform.

First, regardless of whether a legal transplant is widely supported by the local populace or forced upon them from abroad, the transplanted law needs to be customized to local conditions if it is to be effective and if it is to receive wide public support. Commentators have repeatedly criticized the problems and unintended consequences posed by the un-customized transplant of the DMCA anti-circumvention provision.[58] Given these criticisms, one may wonder whether a more desirable transplant like fair use requires less customization. The answer is negative, however. As shown in the transplant experiences explored in the previous section, few jurisdictions have transplanted the U.S. fair use provision verbatim or substantially verbatim. Indeed, out of all the jurisdictions that have switched from a closed system of copyright limitations and exceptions to an open one, a large number of them have made a conscious choice to retain a considerable part of the status

quo, including preexisting fair dealing provisions. Thus, policymakers and commentators advocating copyright reform should avoid focusing too much on efforts to transplant fair use. Rather, they should put more time, effort, energy and resources into exploring ways to design or customize fair use.

Second, as Elkin-Koren and Fischman-Afori[59] and other commentators have rightly noted, fair dealing and fair use lie on two ends of a continuum, with both requiring the case-by-case balancing of multiple fairness factors. Because deciding what type of regime one should adopt is not a simple binary choice,[60] policymakers and commentators should retire the debate on whether a jurisdiction has fair dealing or fair use. Instead, they are much better off examining whether the system of copyright limitations and exceptions is open or closed.

Third, although there are still high hopes for fair use to be adopted in different parts of the world, the analysis in the previous section has shown that the future of global fair use will unlikely be based on the U.S. fair use model. Rather, that future will be based on a hybrid model that includes not only some transplanted elements from the U.S. fair use provision, but also part of the status quo, such as preexisting fair dealing provisions. Recognizing the growing interest in adopting a hybrid model is important because many contemporary criticisms of fair use, be they legal or empirical, have focused primarily on a potential paradigm shift from fair dealing to fair use.[61] What many reform-minded jurisdictions will end up with, however, is not a shift but an evolution. How much change this paradigm evolution will precipitate will largely depend on how much of the status quo a particular jurisdiction retains. Thus, policymakers and commentators should not have the copyright debate fixated on the paradigm shift from fair dealing to fair use. Such a shift is likely to have only limited relevance to the adopted or proposed legislation unless there is a wholesale transplant of the U.S. fair use provision.

Fourth, as shown in the previous discussion on China, South Korea and Taiwan, fair use is compatible with the civil law tradition. Japan, which has a continuous fair use debate, is also a civil law jurisdiction.[62] To be sure, continental Europe has remained persistently resistant to adopting an open system of copyright limitations and exceptions. Nevertheless, a growing number of European commentators have advanced proposals on how the existing EU copyright system can be adjusted to accommodate an open list of limitations and exceptions.[63] A case in point is the Model European Copyright Code developed by the Wittem Group, a collective of distinguished European copyright scholars. Entitling "further limitations," Article 5.5 of this model code states:

> *Any other use that is comparable to the uses enumerated... is permitted provided that the corresponding requirements of the relevant limitation are met and the use does not conflict with the normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author or right-holder, taking account of the legitimate interests of third parties.*

In light of the developments in all of these jurisdictions, policymakers and commentators in civil law jurisdictions should avoid having knee-jerk resistance to proposals for fair use legislation.

Finally, copyright law developments have remained path dependent by nature.[64] Policymakers and commentators should therefore be careful about the choices they make in the legal transplantation process, as these choices may not be easily undone. Critics have repeatedly noted that the fair use model has been adopted in only a limited number of jurisdictions. Yet, they fail to acknowledge the continued and far-reaching impact of colonization on legal rules. They also overlook the fact that, although countries have been moving from fair dealing to fair use, or from fair dealing to a hybrid regime, no country has ever moved from fair use to fair dealing.[65] Many of the jurisdictions discussed thus far in this article are former colonies. For example, Australia, Malaysia, Hong Kong, Israel (as Mandate Palestine), Singapore and Sri Lanka were all parts of the

[59] Niva Elkin-Koren and Orit Fischman-Afori, "Rulifying Fair Use," Arizona Law Review 59, (2017): 163.

[60] Ibid; Niva Elkin-Koren and Orit Fischman-Afori, Taking Users' Rights to the Next Level: A Pragmatist Approach to Fair Use. Cardozo Arts and Entertainment Law Journal 33 (2015): 5-6.

[61] Bills Committee on Copyright (Amendment) Bill 2014 (Hong Kong), "Paper for the House Committee Meeting on 13 November 2015: Report of the Bills Committee on Copyright (Amendment) Bill 2014," LC Paper No. CB(4)199/15-16, (Hong Kong: Bills Committee on Copyright (Amendment) Bill 2014, 2015): 14; PricewaterhouseCoopers, Understanding the Costs and Benefits of Introducing a "Fair Use" Exception, (Canberra: Pricewaterhouse-Coopers, 2016): 14-15.

[62] Yoshiyuki Tamura, "Rethinking the Copyright Institution for the Digital Age," WIPO Journal 1, (2009): 70; Tatsuhiro Ueno, "Rethinking the Provisions on Limitations of Rights in the Japanese Copyright Act—Toward a Japanese-Style "Fair Use" Clause, AIPPI Journal 34, (2009).

[63] Bernt Hugenholtz and Martin R. F. Senftleben, "Fair Use in Europe. In Search of Flexibilities," Institute for Information Law, University of Amsterdam, Research Paper No. 2012-33, (Amsterdam: University of Amsterdam, 2012.): 2; Marie-Christine Janssens, "The Issue of Exceptions: Reshaping the Keys to the Gates in the Territory of Literary, Musical and Artistic Creation," in Research Handbook on the Future of EU Copyright, ed. Estelle Derclaye. (Cheltenham: Edward Elgar Publishing, 2009): 337-38; Martin Senftleben, "Fair Use in the Netherlands—A Renaissance?" Tijdschrift Voor Auteurs, Media en Informatierecht 33, (2009): 7; Martin Senftleben, "The International Three-Step Test: A Model Provision for EC Fair Use Legislation, "Journal of Intellectual Property, Information Technology and Electronic Commerce 1, (2010): 76; Martin Senftleben, "The Perfect Match: Civil Law Judges and Open-Ended Fair Use Provisions," American University International Law Review 33, (2017).

[64] Bannerman, International Copyright, 2; Yu, "The Quest,"340-41.

[65] Ibid.

[66] Ruth L. Okediji, "The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System," Singapore Journal of International and Comparative Law 7, (2003): 324-25.

[67] Robert Burrell, "Reining in Copyright Law: Is Fair Use the Answer?" Intellectual Property Quarterly 4, (2001): 362.

[68] Watson, Legal Transplants, 99.

[69] Jeremy Bentham, "Of the Influence of Time and Place in Matters of Legislation." (1843): Chp. 4, Available online: https://www.laits.utexas.edu/poltheory/bentham/timeplace/index.html (accessed on 14 February 2018).

British Empire. Because of their colonial status, they had no choice but to adopt the British fair dealing model.[66] Even after these jurisdictions became independent, many of them retained strong ties to the British system as part of the Commonwealth.[67] These former colonies therefore did not explore the introduction of fair use until the past decade, when the development of digital communication technologies began to accelerate.

5. CONCLUSIONS

By focusing on the efforts to introduce fair use into the copyright system based on the U.S. model, this article documents the different ways countries have customized foreign legal transplants. Analyzing these transplant experiences provides important lessons to those working on digital copyright reform. Although much of the discussion in this article is about developments in jurisdictions into which the laws are being transplanted (the recipient jurisdictions), such discussion should be equally insightful to those in the United States (the source or donor jurisdiction). As Watson rightly reminded us in his seminal book, "the time of reception is often a time when the provision is looked at closely, hence a time when law can be reformed or made more sophisticated. It thus gives the recipient society a fine opportunity to become a donor in its turn."[68] It is for the same reason Bentham noted more than a century ago, "That a system might be devised, which, while it would be better for Bengal, would also be better even for England."[69]

The efforts to transplant fair use across the world will provide important insight to policymakers and commentators in jurisdictions seeking to introduce fair use into the copyright system. They will also be useful to those in jurisdictions that have already embraced fair use, such as the United States, as well as those that have previously rejected it. The lessons discussed in this article will be useful to not only recipient jurisdictions, but also donor jurisdictions and other members of the international community.

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IP Licence as an Investment: Insights from Bridgestone v. Panama

By Pratyush Nath Upreti

ABSTRACT

The relationship between intellectual property (IP) and investment is old, but the debates are new. Recent high profile cases in which intellectual property rights (IPRs) are being sought to be protected by means of international investment law and treaties have generated visible debate and discussion. In the light of the recent decision on expedited objections in Bridgestone Licensing v. Republic of Panama, this article will explore arguments put forwarded by both parties regarding the interaction between IP Licence Agreements and the definition of investment, as well as the Tribunal's finding on the question whether an IP Licence with a revenue sharing model qualifies as an investment.

1. INTRODUCTION

Intellectual Property (IP) grows every day and reaches into every nook and cranny of our lives. IP does not operate in the same way as it did in the early 1990s,[1] or even before this, when it featured in the 1947 General Agreement on Tariffs and Trade (GATT 1947).[2] This may be due to the expansion of international law[3]–the relationship between IP and other branches of law seems to have welded together to form part of the regulatory system and be included in trade, health and investment regulations.[4] 1995 saw a watershed moment in which trade liberalisation and a non-trade agenda[5] gave rise to the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS),[6] which commodified IP as '*tradable*' goods, and further, through TRIPS Plus agreements.[7] The very idea of 'investment' in the IP system can be seen through the lens of incentivising and rewarding innovation. In other words, IP is a reward, or a return on an 'investment' of labour.

In international investment law, 'investment' is understood purely in an economic sense, but while the notion of 'investment' may differ, the relationship between IP and international investment law is not a new phenomenon. The link between the two fields can be traced back many decades.[8] Unfortunately, this association was discussed in such a way that stronger IP regime attracts foreign direct investment, but this is debatable. It is also important to realise that a decade ago the field of international investment law was not as evolved as it is now.[9] Does this mean that scholars did not foresee that the proliferation of international investment agreements (IIAs)[10] could create new IP norm-setting? This is hard to imagine. In fact, the literature reveals that there have been several studies

1 Susy Frankel, 'It's raining carrots: the trajectory of increased intellectual property protection' in G. Ghidini, H. Ullrich & P. Drahos (eds) Kritika: Essays on Intellectual Property, (Cheltenham, UK/Northampton, USA: Edward Elgar, 2017) 159-186. (discussing increasing levels of protection and the diverse range of incentive (carrots) may backfire to the system and further point out that 20th-century opponents of the TRIPS Agreement are now supporters of TRIPS-Plus Agreement in particular BRICs.)

2 Art. XX (General Exceptions) of the General Agreement on Tariffs and Trade (GATT 1947), 30 Oct. 1947.

3 See generally, Henning Grosse Ruse-Khan, The Protection of Intellectual Property in International Law (Oxford: Oxford University Press, 2016). (discussing how intellectual property law interplays with international legal order such as WHO, UNESCO etc.)

4 See generally, Pratyush Nath Upreti, 'Philip Morris v Uruguay: A Breathing Space for Domestic IP Regulation' (2018) 40(2) European Intellectual Property Review 277-284.

5 Intellectual Property was part of the General Exceptions of GATT, 1947. Before TRIPS, intellectual property was considered as an 'acceptable obstacle' to free trade. According to Gervais; "intellectual property was basically considered in the GATT context as an "acceptable obstacle" to free trade, at least until the Tokyo Round. During that Round, held between 1973 and 1979, trade in counterfeit (trademark) goods had started to emerge as a serious issue." See Daniel Gervais, The TRIPS Agreement: Drafting History and Analysis (London: Sweet & Maxwell, 2008), para 1.09.

6 Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, in the Marrakesh Agreement Establishing the World Trade Organization, Annex 1C (1994) (hereafter, TRIPS).

7 See generally, Rochelle Dreyfuss and Susy Frankel, 'From Incentive to Commodity to Asset: How International Law is Reconceptualizing Intellectual Property' (2015) 36(4) Michigan Journal of International Law 557-601.

8 Peter K. Yu, 'The Investment-Related Aspects of Intellectual Property Rights'(2017) 66(3) American University Law Review 835, 837. Also see generally; Peter Nunnenkamp & Julius Spatz, 'Intellectual Property Rights and Foreign Direct Investment: The Role of Industry and Host-Country Characteristics' (Keil Institute for World Economics, 2003); Carlos A. Primo Braga and Carsten Fink, 'The Relationship Between Intellectual Property Rights and Foreign Direct Investment'9 (1998) Duke Journal of Comparative & International Law 163-187; Keith E. Maskus, 'The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer' (1998) 9 Duke Journal of Comparative & International Law 109-161.

9 See generally, Markus Wagner, 'Regulatory Space in International Trade Law and International Investment Law'(2014)36(1)University of Pennsylvania Journal of International Law < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2403959> accessed 5 January 2018.

10 The word International Investment Agreements (IIAs) include Bilateral Investment Agreement (BIT), Free Trade Agreement (FTA) including other trade and investment agreements.

11 See generally, Peter Drahos, 'BITS and BIPS: Bilateralism in Intellectual Property' (2001) 4(6) Journal of World Intellectual Property 791-808; P. Drahos, 'Expanding Intellectual Property's Empire: the Role of 'FTAs' < Expanding Intellectual Property's Empire: the Role of 'FTAs'> accessed 25 September 2017; Carlos M. Correa, 'Bilateralism in Intellectual Property: Defeating the WTO System for Access to Medicines' (2014)36(1) Case Western Reserve Journal of International Law 79-94; Cynthia M. Ho, 'Sovereignty Under Siege: Corporate Challenges on Domestic Intellectual Property Decisions' (2015) 30(1) Berkeley Technology Law Journal 213- 304; Brook K. Baker and Katrina Geddes, 'Corporate Power Unbound: Investor-State Arbitration of IP Monopolies on Medicines- Eli Lilly v. Canada and the Trans-Pacific Partnership Agreement' (Northeastern University School of Law Research Paper No. 242-2015); James Gathii

post-TRIPS Agreement where scholars have discussed how free trade agreements (FTAs) may be a threat to TRIPS flexibilities.[11] I will not explore these threats here. However, in recent times, this relationship has attracted attention through high profile cases such as *Philip Morris*[12] and *Eli Lilly*.[13] In these cases, protection of IPRs has been sought[14] through international investment law and treaties, generating visible debate[15] and discussion.[16] I have discussed the final awards in both cases elsewhere.[17] In this article I will begin with a brief exploration of the relationship between IP and investment, and will then move on to discuss the notion of an IP Licence as an investment, in the light of the recent decision on expedited objections in Bridgestone Licensing v. *Republic of Panama*.[18]

2. IP AND INVESTMENT: OLD RELATIONSHIP, NEW DEBATES

In our daily life, we often refer to the term investment. *'We are investing for the future'* is a common phrase we admire and adopt in our own life. We never attempt to define the term, but we consciously understand 'investment' as commercial gain, economic development, money, and power. However, underlying these synonyms, many scholars and professionals may find difficulties in defining 'investment' in an accurate manner.[19] The literature reveals two notions of investment. First, the process or transaction by which a person or legal entity makes an investment.[20] Second, the assets required as a result of investing.[21] The relevant question that arises here is whether IP rights fit in both notions of investment. The current trends in investment agreements show that definitions of investment includes an illustrative list of assets.[22] Before analysing IP in invest-

and Cynthia H, 'Regime Shifting of IP Law Making and Enforcement from the WTO to the International Investment Regime'(2017) 18(2) Minnesota Journal of Law, Science and Technology 427-525; Henning Grosse Ruse-Khan, 'Litigating Intellectual Property Rights in Investor-State Arbitration: From Plain Packaging to Patent Revocation'(Max Planck Institute for Innovation and Competition Research Paper No 14-13); Bryan Mercurio, 'Awakening the Sleeping Giant: Intellectual Property Rights in International Investment Agreements' (2012) 15(3) Journal of International Economic Law 871- 915.

12 Philip Morris Brands Sarl, Philip Morris Products S.A and Abal Hermanos S.A v. Oriental Republic of Uruguay, ICSID Case No: ARB/07. Also see Philip Morris Asia Limited v. The Commonwealth of Australia, UNCITRAL, PCA Case No. 2012-12.

13 Eli Lilly and Company v The Government of Canada, UNCITRAL, ICSID Case No. UNCT/14/2.

14 There are cases where intellectual property has been featured directly or indirectly in ISDS, such as; Apotex v. United States (ICSID Case No. ARB (AF)/12/1); Erbil Serter v. France (ICSID Case No. ARB/13/22); Joseph Charles Lemire v. Ukraine (ICSID Case No. ARB/06/18); MHS v. Malaysia (ICSID Case No. ARB/05/10); Nicaragua S.A v. The Republic of Nicaragua (ICSID Case no. ARB/06/14). See generally, Gabriele Gagliani, 'International Economic Disputes, Investment Arbitration and Intellectual Property: Common Descent and Technical Problems' (2017) 51(2) Journal of World Trade 335-355.

15 See generally, Denial J. Gervais, 'Investor-State Dispute Settlement: Human Rights and Regulatory Lessons From Lilly v Canada' (Vanderbilt Law Research Paper 17-59, 2017); Rochelle Copper Dreyfuss and Susy Frankel, 'Reconceptualizing ISDS: When is IP an Investment and How Much Can States Regulate It? (Public Law & Legal Theory Research Paper Series, Working Paper No. 19-23, 2018); Lisa Diependaele, Julian Cockbain and Sigrid Sterckx,'Eli Lilly v Canada: the uncomfortable liaison between intellectual property and international investment law' (2017) 7(3) Queen Mary Journal of Intellectual Property 283-305; Eric Leikin, 'Eli Lily v. Canada: A Patently Clear-Cut Dismissal on the Facts, but Opening the Door for Future Claimants on the Law' (2017)34 Journal of International Arbitration 889-900; Susy Frankel, 'Interpreting the Overlap of International Investment and Intellectual Property Law' (2016) 19 Journal of International Economic Law 121-143; Pratyush Nath Upreti, 'Enforcing IPRs Through Investor-State Dispute Settlement: A Paradigm Shift in Global IP Practice' (2016)19 The Journal of World Intellectual Property 53-82; Henning Grosse Ruse-Khan, 'Challenging Compliance with International Intellectual Property Norms in Investor-state Dispute Settlement' (2016)19(1) Journal of International Economic Law 241-277; Tania Voon, Andrew D. Mitchell and James Munro, 'Intellectual Property Rights in International Investment Agreements: Striving for Coherence in National and International Law' in C.L.Lim & Bryan Mercurio (eds), International Economic Law After the Crisis: A Tale of Fragmented Disciplines (Cambridge University Press, 2015) 380-405; Bryan Mercurio, 'Safeguarding Public Welfare?-Intellectual Property Rights, Health and the Evolution of Treaty Drafting in International Investment Agreements' (2015)6(2) Journal of International Dispute Settlement 252-276; Pratyush Nath Upreti, 'Litigating Intellectual Property Issues in Investor-State Dispute Settlement: A Jurisdictional Conflict' (2016) 11(7/8) Global Trade and Customs Journal 343-351.

16 Recently Novartis a pharmaceutical company has threatened to file an investor-state claim against Colombia over its decision to require a price control on Novartis leukemia drug Glivec. See 'Compulsory Licensing in Colombia: Leaked documents show aggressive lobbying by Novartis' <https://www.publiceye.ch/en/media/pressrelease/compulsory_licensing_in_colombia_leaked_documents_show_aggressive_lobbying_by_novartis/>; see leaked letters to the Ministry of Trade and Industry <https://www.publiceye.ch/fileadmin/files/images/Gesundheit/Zwangslizenzen/ISDS_Threat_Novartis_against_Colombia.pdf>accessed 25 January 2018.

17 Upreti, above n 4; Pratyush Nath Upreti, 'Eli Lilly v Canada: The Tale of Promise v Expectation'(2018) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3126159> accessed 10 March 2018.

18 Bridgestone Licensing Services, Inc. And Bridgestone Americas, Inc. v. Republic of Panama (ICSID Case No. ARB/16/34) Decision on Expedited Objections (13 December 2017). (Hereafter Bridgestone v Panama).

19 Martin Hunter and Alexei Barbuk, 'Reflections on the Definition of an 'Investment' in Gerald Aksen and Robert Briner (eds) Global Reflections on International Law, Commerce and Dispute Resolution: Liber Amicorum in honor of Robert Briner (ICC Publication, 2008) 383. (In authors view; 'Businessman, lawyers, economists, journalists, and politicians use the term 'investor' and 'investment' on a daily basis, although few would be able to provide a precise definition. It is somewhat like the terms 'sovereignty'....'public order'.)

20 Jeswald W. Salacuse, The Three Laws of International Investment: National, Contractual and International Frameworks for Foreign Capital (Oxford: Oxford University Press, 2013) 3.

21 Ibid.

22 Peter Muchlinski, Federico Ortino, and Christoph Schreuer, The Oxford Handbook of International Investment Law (Oxford: Oxford University Press, 2008); Surya P Subedi, International Investment Law: Reconciling Policy and Principle (Oxford and Portland, Oregon: Hart Publishing, 2008) 58-62.

ment agreements, I will briefly explore the relationship between IP and Foreign Direct Investment (FDI).

The existing literature generates predictions, questions, and confusion concerning the relationship between IP and FDI.[23] The impact of IP on inward investment in a country is a classic research question which has been explored even before the TRIPS Agreement. There are two schools of thought that raise two different questions. First, do stronger IP rights diminish the potential of local firms to imitate and build on the advanced technologies of foreign firms, potentially slowing economic progress?[24] Second, what role do IP rights play in encouraging foreign direct investment?[25] Mostly, literature revolves around these two questions, resulting in diverse findings. However, the lack of conclusive empirical studies has left the question open to discussion. The literature also highlights that the finding may differ amongst jurisdictions. One commentator observes that the empirical evidence based on US data shows a clear positive relationship between a stronger IP environment and investment inflow.[26] On the contrary, data from outside the US indicates that stronger patent rights have a negative effect.[27] The lack of conclusive evidence to establish a positive relationship between FDI and IP has resulted in a scenario which I prefer to term the *'investment paradox'*[28] which has kept discussions alive between the fields.

2.1 Investment: 'Everything under the sun that is made' by the investor

The first International Investment Agreement (IIAs) between Germany and Pakistan in 1959, had explicitly included 'patents and technical knowledge' in the definition of investment.[29] Similarly, modern IIAs explicitly include intellectual property within the definition of investment. For example, the Australia-India Bilateral Investment Treaty (BIT) defines investment as 'every kind of asset, including intellectual property rights invested by an investor'.[30] Some IIAs explicitly define copyright and related rights, trademarks, geographical indications, industrial designs, patents, layout, designs of integrated circuits, undisclosed information as investments.[31] The specific incorporation of intellectual property under the definition of investment means that IP could be potentially subject to the general guarantee afforded to the investor under BITs. The explicit mention of 'intellectual property rights' (not categorised as patent, design, etc.) may refer to all kinds of intellectual property, even if these are not protected in the host country, as the treaty language shows that it intended to protect current and future investment including IPRs.[32] To avoid unnecessary interpretation, one should be mindful of 'catch all provisions'.[33] There are certain agreements which have adopted an innovative approach in defining investment. For example, the draft Free Trade Area of the Americas (FTAA)[34] states;

> *"The term "investment" does not mean real estate or other property, tangible or intangible, nor acquired in the expectation or used for the purpose of economic benefit or other business purposes. The term also does not imply stock or share (portfolio investment) of companies in one Party acquired for speculative purpose and held for a short-term by nationals of the other Party".*[35]

[23] See generally; Peter Nunnenkamp & Julius Spatz, 'Intellectual Property Rights and Foreign Direct Investment: The Role of Industry and Host-Country Characteristics' (Keil Institute for World Economics, 2003); Carlos A. Primo Braga and Carsten Fink, 'The Relationship Between Intellectual Property Rights and Foreign Direct Investment (1998) 9 Duke Journal of Comparative & International Law 163-187; Keith E. Maskus, 'The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer' (1998) 9 Duke Journal of Comparative & International Law 109-161.

[24] Lee Branstetter, Ray Fisman (et al), 'Does Intellectual Property Right Reform Spur Industrial Development?' (2010) 83 Journal of International Economics 27-36.

[25] Keith E. Maskus, 'The Role of Intellectual Property Rights in Encouraging Foreign Direct' (1998) 9(109) Duke J. Comp. & Int'l L109-161.

[26] Lee Branstetter and Kamal Saggi, 'Intellectual Property Rights, Foreign Direct Investment and Industrial Development' (2011)121 The Economic Journal 1164. For more discussion, see Lee. J.Y and Mansfield, E, 'Intellectual property protection and U.S. foreign direct investment' (1996) 78(2) The Review of Economics and Statistics 181-186.

[27] Ibid, Branstetter and Saggi.

[28] The metaphor is inspired from Walter W. Powell and Kaisa Snellman 'The Knowledge Economy' (2004) 30 Annual Review of Sociology 199-220 <http://scholar.harvard.edu/files/kaisa/files/powell_snellman.pdf>accessed 4 January 2018

[29] German-Pakistan BIT, signed 25 November 1959, entered into force 28 Aril 1962-Article 8(1) (a); the term "investment" shall compromise capital brought into the territory of the other Party for investment in various forms in the shape of assets such as foreign exchange, goods, property rights, patents and technical knowledge. <https://treaties.un.org/doc/Publication/UNTS/Volume%20457/volume-457-I-6575-English.pdf>accessed 1 January 2018.

[30] Agreement Between the Government of Australia and the Government of the Republic of India on the Promotion and Protection of Investments, signed 2 February 1999, entered into force 4 May 2000, terminated 23 Mach 2017-Article 1(c). <http://investmentpolicyhub.unctad.org/Download/TreatyFile/154> accessed 24 December 2017.

[31] Energy Charter Treaty, 1994- Article 6(d). <<http://www.europarl.europa.eu/meetdocs/2014_2019/documents/itre/dv/energy_charter_/energy_charter_en.pdf> accessed 12 January 2018.> Similar definition has been incorporate in the Australia Hungary BIT, 1991- Article 1(a) (iv) < http://investmentpolicyhub.unctad.org/IIA/treaty/208> accessed 5 January 2018.

[32] Carlos M. Correa, 'Bilateral Investment Agreements: Agents of new global standards for the protection of intellectual property rights?'(GRAIN 2004) 8. Also see generally, Carlos Correa and Jorge E. Viñuales, 'Intellectual Property Rights as Protected Investments : How Open are the Gates ?' (2016) 19(1) Journal of International Economic Law 91-120.

[33] Ibid.

[34] FTAA is a proposed free trade agreement between the United States and thirty-four countries in North, Central, and South America including the Caribbean. For more discussion see; Jeffrey J. Schott, 'Does the FTAA have a future?' (2005, Institute of International Economics) < https://piie.com/publications/papers/schott1105.pdf>. Also see D. V. Eugui, 'Regional and bilateral agreements and a TRIPS-plus world: the Free Trade Area of the Americas (FTAA)'(2003) <https://www.wto.org/english/tratop_e/region_e/sem_nov03_e/vivas_eugui_paper_e.pdf> accessed 20 November 2017.

[35] Free Trade Area of the Americas (FTAA) Draft Agreement-Chapter XVII; Investment (FTAA.TNC/w/133/Rev.3 November 21, 2003) http://www.ftaa-alca.org/FTAADraft03/ChapterX-VII_e.asp>.

[36] Treaty between the United States of America and the Republic of Turkey Concerning the Reciprocal Encouragement and Protection of Investments, signed 3 December 1985, entered into force 18 May 1990. < https://2001-2009.

In general, a broad definition of intellectual property may provide an advantage to the investor. In some BITs, intellectual property is placed in other categories of definition other than investment. For example, the US-Turkey BIT[36] includes intellectual property in its definition of 'associated activities'.[37] The intention here is to further broaden the concept of investment so as to include all kinds of activities. Interestingly, few BITs define investment to include intellectual property which is not protected in their home state. For instance, the Ethiopia-Israel BIT includes geographical indications and plant-breeders rights.[38] At the time of the agreement, Ethiopia did not have a legal framework for plant-breeders rights.[39] Moreover, Ethiopia is not a member of World Trade Organization (WTO).[40] Certain BITs include "goodwill" under the definition of investment, but there has been debate whether folklore, traditional knowledge, and genetic resources are to be covered under the definition of investment.[41] Interestingly, the US-Jamaica BIT refers to 'patentable inventions'[42] rather than the common practice of including 'patent'. This suggests that all patentable inventions (and possibly patent applications) in the host country may amount to investment. Even more broadly, the United States-Mongolia BIT defines intellectual property to include 'inventions in all fields of human endeavour'.[43] Thus, the language used in BITs is so broad that it somehow conveys that *'everything under the sun that is made'*[44] by investors is an investment. To conclude, the recently released investment chapter of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) has included a limitation clause in its definition of investment. This definition includes intellectual property rights, but the insertion of a limitation clause – ' investment does not mean an order or judgment entered in a judicial or administrative action'[45] – aims to avoid litigation over judicial decisions in the home state.

The inclusion of intellectual property within the definition of investment is not enough to litigate IPRs in investor-state dispute settlement (ISDS). To bring a dispute to the International Centre for Settlement of In-

state.gov/documents/organization/43615.pdf> accessed 19 January 2018.

37 Ibid, Art. 2(g) defines 'associated activities'-include the organization, control, operation, maintenance and disposition of companies, branches, agencies, offices, factories or other facilities for the conduct of business; the making, performance and enforcement of contract; the acquisition, use, protection and disposition of property of all kinds including intellectual property rights ....."

38 Agreement between the Government of the Federal Democratic Republic of Ethiopia and the Government of the State of Israel for the Reciprocal Promotion and Protection of Investment, signed 26 November, entered into force 22 March 2004-Article 1.1(d) < http://investmentpolicyhub.unctad.org/Download/TreatyFile/1167> accessed 20 January 2018.

39 Ethiopia-Israel BIT entered into force on 22 March 2004 and the Plant Breeders' Right Proclamation No 481/2006 was effective on 27 February, 2006. <http://www.wipo.int/wipolex/en/text.jsp?file_id=234325> accessed 10 February 2018.

40 Ethiopia applied for accession to the WTO in 2003 but till date it holds an observatory status. https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm> accessed 10 February 2018.

41 Belgium-Luxembourg-India BIT entered into force on 8 January 2001< http://investmentpolicyhub.unctad.org/IIA/mappedContent/treaty/494>

42 Treaty Between the United States of America and Jamaica Concerning the Reciprocal Encouragement and Protection of Investment, signed 4 February 1994, entered into force 7 March 1997- Art. 1.1 (a) (iv) < http://investmentpolicyhub.unctad.org/Download/TreatyFile/1726> accessed 2 February 2018.

43 The Treaty between the United States of American and Mongolia Concerning the Encouragement and Reciprocal Protection of Investment, signed 6 October 1994, entered into force 4 January 1997.- Article I 1(a) (iv).

44 Adopted from Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980).

45 Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)- Art 9.1 investment < https://www.mfat.govt.nz/assets/Trans-Pacific-Partnership/Text/9.-Investment-Chapter.pdf> accessed 20 February 2018.

vestment Disputes (ICSID),[46] one has to prove that the activities that are the subject of the dispute fulfil the tribunal's criteria of investment. While the drafting history of the ICSID Convention suggests that there were discussions regarding the definition of 'investment', this term remains undefined under the Convention. The initial draft of the Convention shows an intention to put a time limit on the definition of investment. For example; the first draft defines investment as *'any contribution of money or other assets of economic value for an indefinite period*.[47] The idea of a *'time limit'* on investments may be to encourage investment for a long duration. However, such a proposal could disqualify investors investing a huge sum of money for less than five years,[48] whereas investors of lesser amounts may have an advantage. After deliberation, an open-ended definition was opted for so as to incorporate all kinds of situations. As one commentator reminds us;

> *"the term 'investment is not defined in the Convention. This omission is intentional. To give a comprehensive definition... would have been of limited interest since any such definition would have been too broad to serve a useful purpose or might have arbitrarily limited the scope of the Convention by making it impossible for the parties to refer to the Centre a dispute which would be considered by the parties as a genuine 'investment' dispute though such dispute would not be one of those included in the definition in the Convention".*[49]

The literature also reveals that the inclusion of 'intellectual property' under the definition of investment was opposed by several countries but was incorporated because of its commercial nature.[50] As a rule of thumb, the Tribunal assesses a dispute arising out of an investment based on criteria laid down by other tribunals. In general, arbitral tribunals have identified four characteristics of an investment, commonly known as the 'Salini criteria': i) commitment (ii) duration (iii) risk and (iv) contribution to economic development in host state.[51] These characteristics are not always applied simultaneous and arbitral tribunals are reluctant to term the Salini criteria as a conclusive and exhaustive list.[52] For instance, the Tribunal[53] has questioned the criterion of 'contribution to economic development' and found that:

> *"the economic development of a host State is one of the proclaimed objectives of the ICSID Convention, this objective is not in and of itself an independent criterion for the definition of an investment. The promotion and protection of investments in host States is expected to contribute to their economic development. Such development is an expected consequence, not a separate requirement, of the investment projects carried out by a number of investors in the aggregate."*[54]

A similar view is taken in Pey Casado v. Chile[55], where the Tribunal observed that the economic development of the host state 'must be seen as a consequence, not as a condition of investment by protecting investments [...] this does not mean that development of the host state becomes a constitute element of the concept of investment'.[56] It shows that the Tribunals are not willing to strictly adhere to the Salini criteria in determining whether there is an investment. In one case, the Tribunal observed that "there is no basis for a rote, or overly strict, application of Salini criteria in every case. These criteria are not fixed and mandatory as a matter of law. They do not appear in the ICSID Convention".[57] Generally, arbitral tribunals refer to the Salini criteria in determining investment, but several arbitral tribunal decisions suggest some divergence on acceptance of the criteria. However, sometimes the Tribunal directly applies the Salini criteria in determining 'investment' without reflecting the terms of the relevant BITs. The Tribunal in Philip Morris v. Uruguay found the investment under article 25(1) of the ICSID Convention must be analysed with reference to the definition of 'investment' under the BIT without going beyond the outer limit set by the Convention.[58] This outer limit refers to:

> *"the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose. The notion covers a wide range of economic operations confirming the broad scope of its application, subject to the possibility for States to restrict the jurisdiction rational material by limiting their consent either in their investment legislation or in the applicable treaty".*[59]

[46] Article 25(1) of ICSID Convention deals with jurisdiction. It states; 'The jurisdiction of the Centre shall extend to any legal dispute arising directly out of an investment, between a contracting state and a national of another contracting state, which the parties to the dispute consent in writing to submit to the Centre. . .' (emphasis added).

[47] Hunter and Barbuk, above n 19 at 384.

[48] Ibid.

[49] Ibid., at 385. Also see G.R. Delaume, 'Convention on the Settlement of Investment Disputes Between States and Nationals of Other States' (1966) 1(1) Intl Lawyer 70.

[50] In the context of Multilateral Agreement on Investment (MAI)- See generally, OECD, 'Report to the Negotiation Group on Intellectual Property', Negotiating Group on the Multilateral Agreement on Investment (MAI) 26 March1997, DAFEE/MAI (97), at no 2.

[51] Salini Costruttori S.p.A and Italstrade S.p.A. v Kingdom of Morocco, ICSID Case No ARB/00/4, Decision on Jurisdiction, 23 July 2001. Also see Fedax N.V. v. The Republic of Venezuela, ICSID Case No ARB/96/3, Decision on Jurisdiction, 11 July 1997.

[52] See generally Upreti, above n 15.

[53] Saba Fakes v. Republic of Turkey, ICSID Case No. ARB/07/20 (Award) July 14, 2010. For similar discussion see Malaysian Historical Salvors SDN BD v. The Government of Malaysia, ICSID Case No ARB/05/10, Decision on Annulment, 16 April 2009.

[54] Ibid, Saba Fakes v. Republic of Turkey at para 111.

[55] Victor Pey Casado and President Allende Foundation v. Republic of Chile, ICSID Case No. ARB/98/2 (Award) 8 May 2008.

[56] Ibid, para 232. Also cited in Malaysian Historical Salvors SDN BHD v. The Government of Malaysia, ICSID Case No. ARB/05/10, Decision on the Application for Annulment, 16 April 2009.

[57] Ibid at 312.

[58] Philip Morris Brands, above n12, para 199.

[59] Ibid.

[60] Ibid., para 201.

[61] Ambiente Ufficio S.PA. and others v. The

Further, the Tribunal did not accept that the Preamble of the ICSID Convention and the BIT make a significant contribution to the meaning and scope of the term investment.[60] There are cases where the Tribunal has found the Salini criteria to be a useful tool to assess investment.[61] Nonetheless, the jurisprudence of arbitral decisions indicates that one may consider the Salini criteria as a guideline but not a rule.[62]

To conclude, in light of the divergence of arbitral decisions and the open-ended definition of investment, it is possible to identify two approaches to interpreting investment. First, the *'jurisdictional approach' can be used* whereby the arbitral tribunal strictly applies all the criteria (such as the Salini criteria) to determine investment.[63] Second, the *'characteristic approach'* follows one of the several criteria to investigate whether given conduct qualifies as an investment.[64] The logic behind an open-ended definition may be to attract investment flow and to clarify the scope of protection regarding predictable subject matter.[65] Nonetheless, it is also convenient for an investor to bring a dispute and states, at no cost, could avoid ICSID jurisdiction. Therefore, it may be concluded that case-by-case analysis is the *de facto* rule in determining intellectual property as an investment.

3. IP LICENCE AS AN INVESTMENT: BRIDGESTONE V. PANAMA

Bridgestone Licensing v. Republic of Panama[66] is a dispute arising from the United States-Panama Trade Promotion Agreement (TPA).[67] The dispute arose after the Panamanian Supreme Court set aside a decision of the First Superior Court of the First Judicial District, held that the trademark opposition proceedings had been carried out in bad faith, and awarded Bridgestone a penalty of USD 5,000,000 in damage and USD 431,000 in attorney's fees [68] (roughly equivalent to 65% of Bridgestone's annual sale in Panama).[69] BSAM, a subsidiary company of Bridgestone Corporation, initiated arbitration proceedings on the ground that the Supreme Court decision diluted, and 'operates as a *de facto* protectionist device allowing potentially confusingly similar marks' and created difficulties in enforcing, trademarks.[70] The precise grounds for arbitration were that the Supreme Court decision was unjust and arbitrary, violated Panama's obligations under the TPA, expropriated its investment, and violated the requirement of fair and equitable treatment to BSLS's and BSAM's investments.[71] In this article, I will only deal with arguments raised by both parties on questions resulting from the interaction between intellectual property licence agreement and definition of investment. On 13 December 2017, the decision on expedited objections was out where the Tribunal clarified the question of IP Licence as an investment, but the final award is awaiting. There are other issues besides IP Licence as an investment, which is out of the scope of this article. After briefly providing the background to the case, I will analyse above question in detail.

3.1 Background to the Case

Bridgestone Corporation (BSJ), a Japanese company, owns the trademarks 'BRIDGESTONE' and "FIRESTONE", registered in several countries including Panama.[72] BSJ does not itself use and market its trademark but allows subsidiary companies owned by BSJ to use the trademark under licence or sub-licence agreements. Bridgestone Licensing Services, Inc. (BSLS) and Bridgestone American, Inc. (BSAM) are subsidiary companies of the Bridgestone Group registered in the United States.[73] The FIRESTONE trademark was assigned to BSLS. On 1 December 2001, BSLS entered into a Licence Agreement with BSAM to use the FIRESTONE trademark registered in South American countries, including Panama, in return for modest royalties paid to BSLS.[74] Based on the Licence Agreement BSAM then sub-licenced to another subsidiary, Bridgestone Costa Rica (BSCR), which manufactures tires using the FIRESTONE trademark for the Panama market. However, no sub-licence agreement was executed between BSAM and BSCR. Additionally, parent company BSR granted a licence to Bridgestone American Tire Operations, LLC (BATO) to use the 'BRIDGESTONE' trademark in relation to all tire products in the US and elsewhere. Furthermore, a sub-licence agreement was executed between BATO AND BSCR to manufacture tires with the 'BRIDGESTONE' trademark for sale in Costa Rica and worldwide.

According to the Bridgestone group policy, any trademark application with the suffix "stone" should be oppo-

Argentine Republic, ICSID Case No. ARB/08/9, Decision on Jurisdiction, 8 February 2013, para 481.

62 Emmanuel Gaillard, 'Identify or Define? Reflections on the Evolution of the Concept of Investment in ICSID Practice' in C. Binder, et al. (eds), International Investment Law for the 21st Century, Essays in Honour of Christoph Schreuer (Oxford: Oxford University Press, 2009) 412-413.

63 Lukas Vanhonnaeker, Intellectual Property Rights as Foreign Direct Investments: From Collision to Collaboration (Cheltenham, UK/ Northampton, USA: Edward Elgar Publishing -2016) 26.

64 Ibid at 27.

65 Karl. P. Sauvant and Federico. Ortino, 'Improving the International Investment Law and Policy Regime: Options for the Future' (Helsinki: Ministry of Foreign Affairs of Finland) <http://ccsi.columbia.edu/files/2014/03/Improving-The-International-Investment-Law-and-Policy-Regime-Options-for-the-Future-Sept-2013.pdf> accessed 5 November 2017.

66 Bridgestone v Panama, above n 18.

67 The United States-Panama Trade Promotion Agreement (TPA), signed 28 June 2007, entered into force on October 31, 2012) < https://ustr.gov/trade-agreements/free-trade-agreements/panama-tpa/final-text>

68 Bridgestone v Panama, above n 18, para 58.

69 Bridgestone v Panama, above n 18, Request for Arbitration (7 October 2016) para 43.

70 Bridgestone v Panama, above n 18, Request for Arbitration (7 October 2016), para 56. ('the decision of the Panamanian Supreme Court operates as a de facto protectionist device, allowing potentially confusingly similar marks to enter into the market because intellectual property rights holder are unwilling to risk significant, apparently, arbitrary, penalties for their good faith use of the legal mechanism intended to preserve those rights'.)

71 Bridgestone v Panama, above n 18, para 62.

72 Bridgestone v Panama, above n 18, para 50.

73 Bridgestone v Panama, above n 18, para 51.

74 Bridgestone v Panama, above n 18, para 52.

sed in their respective jurisdiction.[75] BSJ and BSLS opposed Muresa Intertrade S.A. (Muresa) trademark application for 'RIVERSTONE' in Panama. Later, the Eighth Civil Circuit Court of the First Judicial Circuit of Panama denied this opposition and a subsequent appeal was withdrawn by BSJ and BSLS.[76] However, a year later, Muresa, L.V. International, and Tire Group of Factories Ltd (TGFL) filed a claim seeking damages on the ground that the opposition forced them to stop selling tires for the duration of the opposition proceedings, out of fear that their inventory of Riverstone tires would be seized if the proceedings were not decided in their favour.[77] As a result, they sustained losses exceeding USD5 million. The First Instance and Appeal Court rejected the Muresa and TGFL claim on the basis of lack of evidence establishing a causal link between action and the damage caused.[78] On appeal, the Supreme Court of Panama accepted the arguments that the BSJ and BSLS acted recklessly in opposing Muresa's trademark, held that the withdrawal of trademark opposition was evidence of bad faith, and imposed a penalty of USD 5,000,000 in damage and USD 431,000 in attorney's fees.[79] BSJ and BSLS paid the penalty and BSAM initiated arbitration proceedings on the grounds that (i) the Supreme Court decision was unjust and arbitrary and violated Panama's obligations under the TPA; and (ii) the decision expropriated its investment and violated the requirement of fair and equitable treatment in regards to BSLS's and BSAM's investment.[80]

3.2 IP Licence as an Investment

This case revolved around the question: *does an IP Licence Agreement with a revenue sharing model qualify as an investment?*

Based on the TPA, Panama questioned the nature of BSAM's transactions, arguing that the Licence Agreement, with its revenue sharing model, are forms that an investment take place pursuant to the TPA rather a substance that constitutes investment,[81] and such forms of investment do not constitute investment under the definition of the TPA. According to Article 10.29(f) of the TPA, 'investment' is defined as follows:

> *"Investment means every asset that an investor owns or controls, directly or indirectly, that has the characteristics of an investment, including such characteristics as the commitment of Capital or other resources, the expectation of gain or profit, or the assumption of risk. Forms that an investment may take include.... intellectual property rights (emphasis added)".*

Panama argues that the Licence Agreement is not an investment on the ground that it is not an 'asset in Panama, rather a limited and non-exclusive 'right to use' a Panamanian trademark'[82] and, even if it is considered an asset, it is neither owned nor controlled by BSAM. Interestingly, in spite of IPRs being included in the definition of investment under the TPA, Panama questioned whether the Licence Agreement, which allowed to use FIRESTONE and BRIDGESTONE trademarks as an investment. According to Panama, the first question is whether the act comes within the definition of investment. The second question is whether IP rights are an investment.[83] This distinction was made based on the fact that the definition of investment under TPA includes other elements which need to be satisfied beforehand. To elaborate this, Panama claims that the right to use a Panamanian trademark on tires does not amount to an investment on the ground that 'if sales are not investments, the right to conduct sales is not one either'.[84] As Panama argues, the definition of investment under the TPA requires more than the mere existence of intellectual property rights. In other words, it must proved that the conduct is an asset which is owned and controlled directly or indirectly by BSAM.[85]

It is interesting to note that Panama makes a distinction between asset and intellectual property rights.[86] Panama defines an asset as:

> *"an item **of property** owned by a person or company, regarded as having value and available to meet debts, commitments or legacies".*[87]

Based on the above definition, Panama argues that BSAM's does not have a legitimate right because there is no evidence to show that it holds ownership of trade-

[75] Bridgestone v Panama, above n 18, para 55.
[76] Bridgestone v Panama, above n 18, para 26, 56.
[77] Bridgestone v Panama, above n 18, Request for Arbitration, para 29.
[78] Bridgestone v Panama, above n 18, Request for Arbitration, para 32-36.
[79] Bridgestone v Panama, above n 18, Request for Arbitration, para 41.
[80] Bridgestone v Panama, above n 18 para 62.
[81] Bridgestone v Panama, above n 18, para 125.
[82] Bridgestone v Panama, above n 18, para 127.
[83] Bridgestone v Panama, above n 18, para 131
[84] Bridgestone v Panama, above n 18, para132.
[85] Bridgestone v Panama, above n 18, para132.
[86] Bridgestone v Panama, above n 18, para 132-133.
[87] Bridgestone v Panama, above n 18, para133.
[88] Bridgestone v Panama, above n 18, para 133.
[89] Bridgestone v Panama, above n 18, Para 133.
[90] Bridgestone v Panama, above n 18, para 135.
[91] Bridgestone v Panama, above n 18, para136-137.
[92] Bridgestone v Panama, above n 18, para 138.
[93] Bridgestone v Panama, above n 18, para 138.
[94] Bridgestone v Panama, above n 18, para 142.
[95] Bridgestone v Panama, above n 18, para 143.
[96] Ibid.
[97] Ibid.
[98] Ibid.
[99] Bridgestone v Panama, above n 18, para 145.
[100] Ibid.
[101] Bridgestone v Panama, above n 18, para 148.
[102] Bridgestone v Panama, above n 18, para 149.
[103] Ibid.
[104] The United States-Panama Trade Promotion Agreement (TPA)-Art 10.29(g)- 'Investment means every assets that investor.....licenses, authorizations, permits, and similar rights conferred pursuant to domestic law'.
[105] Bridgestone v Panama, above n 18, para150.
[106] Ibid.

marks, not qualifying as property under Panamanian law.[88] Therefore, the inability of BSAM to assign the licence without the permission of licensor fails to fulfil the second elements of assets: availability to meet debts.[89]

On the other hand, BSAM contends that its core investment is its BRIDGESTONE and FIRESTONE trademarks licence, which allowed BSAM to use, manufacture, sell, and distribute.[90] Therefore, this qualifies as an investment under the TPA and Article 25(1) of the ICSID Convention. Citing previous arbitral decision, BSAM advised the Tribunal that the definition of investment under the TPA and the ICSID Convention should be understood together to give a broad meaning to the definition of investment.[91] BSAM highlighted that the right to royalty payments and trademarks fall within the ordinary meaning of Article 25.[92] BSAM concluded that their IP rights and licence with a revenue sharing model fell within the definition of an investment.[93] Further, BSAM contended that the Licence Agreement provides a right to use the marks and to 'undertake all of its activities in Panama - the sale and distribution of tire bearing the BRIDGESTONE mark'[94] which, it was argued, is enough to establish an intellectual property investment in Panama. Furthermore, BSAM clarified that the TPA does not require that the IP is subject to domestic law to qualify as an investment, rather this limitation applies to licences under Article 10.29(g) of the TPA. Therefore, these rights are assets in Panama which have the characteristics of an investment. In order to establish characteristics of investment BSAM's identified the following points.

1. BSAM's activities of hiring, monitoring sales, and marketing in Panama reflect a commitment of 'some economic value'. Similarly, a commitment to capital is obtained through IPRs and, as BSAM highlighted, the trademarks are 'the brands that BSAM is spending capital to use and market'.[95]
2. The Licence Agreement gave BSAM the right to sell tires in Panama, and to enter into a franchise agreement, reflecting an intention to earn money in Panama.[96]
3. The Supreme Court decision results in dilution of the value of the trademark, hindering sales and profit, and giving rise to 'payment risk' from customers and distributors.[97]
4. The use of the BRIDGESTONE and FIRESTONE trademarks through a Licence Agreement since 2001 is evidence of duration of investment.[98]

BSAM rejected Panama's argument that BSAM transactions were simply cross-border sales. BSAM accepted that cross-border sales per se cannot be an investment but argued that they could be part of the activities of an investor.[99] In the words of BSAM, 'cross border sales are part of the activities in Panama in which BSAM is engaged on the basis of its intellectual property investment'.[100] Similarly, BSAM asserted that the BRIDGESTONE and FIRESTONE trademark licences were assets because the licencee derives its right over Panamanian intellectual property rights from the Licence Agreement.[101] In order to assert its control over the IP investment, the BSAM drew the Tribunal's attention to the fact that the Licence Agreement gave BSAM control over the manner in which the trademark could be used, marketed, and sub-licenced, and used to exercise quality control over the product. Further, BSAM clarified that the consent of the trademark holder to transfer BSAM's right cannot be treated as a loss of control or ownership. On the question of assets, BSAM contended that the criteria to determine assets depends on whether it can be sold.[102] To illustrate this point, BSAM argued that the value of the licence allowed BSAM to generate revenue, and that the licence could be converted to cash or assigned for consideration, including through monetary transactions.[103]

It is interesting to note that Panama distinguished between intellectual property rights and the right to use the trademarks. The rationale for such distinction was made in reference to the text of TPA. According to Panama, Article 10.29(f) refers to intellectual property rights which are different from the right to use the trademark. Their argument was based on the premise that trademarks, as intellectual property rights, are investments under Article 10.29(f), and the right to use the trademark, provided by the Licence Agreement, derives from the 'licence' clause of Article 10.29(g).[104] In making this distinction, Panama asserted that the Trademark Licence Agreement fell under the category of 'licence' and should therefore be assessed as an investment, as opposed to the trademark being assessed as an intellectual property investment.

This argument was supported by showing that the Licence Agreement was not governed by US Law and that the claimant to the dispute is not the owner of the trademark. The distinction between intellectual property rights and right to use intellectual property, it was argued, establishes that the purported investment lacks the necessary characteristics of an investment. In addition, Panama argued that the claimant was not entitled to use the 'goodwill' of the brand because goodwill derives from IPRs which, in this case, the claimant did not possess.[105] BSAM clarified this point by comparing its licensing agreement with oil exploration and production licences where the licencee does not own the concession area but are entitled to explore and produce in that area in accordance with the Licence.[106]

3.2.1 When does a trademark qualify as an investment?

The question before the Tribunal was whether a licence to use the relevant trademark satisfies the definition of investment under the TPA and the ICSID Convention. In order to answer this, the Tribunal sought to establish when a trademark qualifies as an investment. First, the Tribunal analysed the functions of trademarks and acknowledged that past arbitral tribunals have not discussed this question;

> *"Nor has this Tribunal been referred to any other decision that considers the circumstances in which a trademark can constitute an investment when it is unaccompanied by other forms of investment such as the acquisition of shares in a company incorporated under the law of the host State, the acquisition of real property, or the acquisition of other assets commonly associated with the establishment of an investment".*[107]

To elaborate, two sub-questions were raised. First, does the mere registration of trademarks in a country qualify as an investment? Second, can exploitation of trademarks in a country be treated as a prerequisite to qualify as an investment?

Answering the first question, the Tribunal held that mere registration does not amount to or have the characteristics of investment because registration only gives a negative right to exclude others from use of the trademark. Therefore, it cannot be termed as an investment or have the characteristics of investment. The Tribunal writes:

> *"The effect of registration of a trademark is negative. It prevents competitors from using that trademark on their products. It confers no benefit on the country where the registration takes place, nor, of itself, does it create any expectation of profit for the owner of the trademark. No doubt for these reasons the laws of most countries, including Panama, do not permit a trademark to remain on the register indefinitely if it is not being used".*[108]

Answering the second question, the Tribunal confirmed that exploitation of a registered trademark may amount to an investment or have the characteristics of investment. According to the Tribunal, exploitation of a trademark requires manufacture, promotion, sales, marketing of goods that bear the mark, after-sale servicing, and guarantees.[109] To achieve this requires resources. Therefore, such exploitation might result in some benefit to the home states. To establish this point, the Tribunal cited the Philip Morris v. Uruguay case as an example of where 'the activities that included marketing the cigarettes under the trademark constituted a qualifying investment'.[110] The Tribunal elaborated that exploitation can be achieved by trademark owners or through franchise agreements which give 'exploitation rights' to the licencee for its own benefit.[111] The Tribunal also acknowledged the fact that, in some cases, qualified investment can be determined from interrelated activities. According to the Tribunal, 'interrelated activities' include selling products bearing the trademark. The Tribunal disagreed with Panama's argument that 'an interrelated series of activities, built round the asset of a registered trademark, that do have the characteristics of an investment does not qualify as such simply because the object of the exercise is the promotion and sale of marked goods',[112] and instead ruled that if Panama's argument was to be accepted, this would result in a preference of form over substance. Thus, the Tribunal concluded that, if the licencee can exploit the licence in the same way manner as a trademark, this would be sufficient to consider it an investment.[113]

3.2.2 IP-driven contractual rights as assets

The BSAM Trademark Licence Agreement shows that the use of the licence is subject to approval by BSLS, and that BSLS retains all rights, title and interest in respect of the trademarks and goods associated with the mark.[114] Based on these two clauses, Panama argued that the restrictive nature of the licence cannot be described as an IPR, or license, or asset, as BSAM does not own or control the rights.

The Tribunal did not accept this argument, concluding that BSAM's exclusive right to use the mark meant that the 'goodwill' remained attached to the mark, and the question regarding the title of goodwill was therefore immaterial.[115] The Tribunal identified two important points from the Licence Agreement. First, BSAM is not granted any interest in the FIRESTONE mark. Second, BSAM possesses contractual rights to use the mark.[116] However, the questions before the Tribunal were whether a contractual right can be described as an 'asset' and, if so, does a contractual right under the Licence Agreement make BSAM the owner of that asset?

In the view of the Tribunal, both questions should be analysed based on the 'effect under the law of Panama of the FIRESTONE Trademark Licence'.[117] Based on the expert witness and cross examination, the Tribunal concluded that, under Panama's trademark law, the registered trademark constitutes intellectual property and the Licensor is allowed to pass its right to use its trademark to the licencee.[118] In the Tribunal's view, this is enough to conclude that the Licence Agreement grants intellectual property rights under Panama's trademark law. The Tribunal stated as follows:

"if the owner licences the use of the trademark, the licence constitutes an intellectual property right. The owner of the trademark has to use the trademark to keep it alive, but use by the licencee counts as use by the owner. The licencee cannot take proceedings to enforce the trademark without the participation of the owner....".[119]

Regarding the question of contractual rights. The Tribunal didn't accept Panama's argument that inability to transfer or assign without the consent of licensor has hindered to treat such contractual rights as an asset. Similarly, on Panama's argument of lack of ownership and control, the Tribunal writes 'it is axiomatic that a licence must be obtained from the licensor, but that does not mean that the licencee does not own the licence'.[120] Also, the Tribunal acknowledged the fact that BSJ and BSLS as owners of BRIDGESTONE and FIRESTONE trademarks have passed their rights through the Licence Agreement to BSCR which allows exploiting rights. In the Tribunal's view, allowing the use of the trademark to BATO was an example of such exploitation. Thus, the Tribunal concludes that activities of BSCR to exploit the trademark together with the right under which they are entitled to do had the characteristic of investments.[121] In the tribunal's words:

"Where the owner of a trademark licences its use to a licencee, it is necessary to distinguish carefully between the interest of the owner and the interest of the licencee, each of which may be capable of constituting an investment. If the owner does no more than grant a licence of the trademark, in consideration of the payment of royalties by the licencee, the value of the trademark to the owner will reflect the amount of royalties received, while the value of the licence to the licencee will reflect the fruits of the exploitation of the trademark, out of which the royalties are paid". [122]

3.2.3 Article 25 of ICSID Convention: Immediate cause and effect

According to Article 25(1) of ICSID Convention;

'The Jurisdiction of the Centre shall extend to any legal dispute arising directly out of an investment, between a contracting state and a national of another contracting state, which the parties to the dispute consent in writing to submit to the Centre." (emphasis added)

The issue before the Tribunal was whether the dispute to the present case arose directly out of an investment. It is important to note that the dispute before the Tribunal was brought by BSAM, not by BSJ or BSLS who were handed a penalty by the Panamanian Supreme Court. Based on this fact and the previous tribunal decision in the case n *Metalpar*,[123] Panama argues that there is no "immediate cause and effect" or "causal link" between Panama's actions and injury to BSAM's alleged investment.[124] In establishing this, Panama raised three points. First, BSAM was not party to the Panamanian court proceedings.[125] Second, BSAM did not pay the penalty imposed by the Panamanian Supreme Court.[126] Third, BSAM did not own either trademark in question and were entitled only to the use, sale, marketing, or distribution of the trademark, activities that were unaffected by the Supreme Court decision.[127]

On the other hand, BSAM argued that the decision of the Supreme Court affected them in three ways. First, IPRs under the Trademark Licences were diluted as a result of the Supreme Court decision, and the decision 'made it much more costly for BSAM to maintain its investment in Panama and other regions'.[128] Second, BSAM argued that the decision was likely to encourage trademark applications which are similar or confusingly similar to BSAM trademark.[129] Third, BSAM argued that the decision resulted in a loss of market share, and that this may 'establish a precedent' that it is 'likely' to be followed within and outside of Panama.[130] BSAM emphasised its loss by arguing that royalties paid to the licensor were dependent on the sales, manufacture, and use of the trademark.[131] In fact, BSAM claimed that it has suffered the majority of the loss arising from 'the value of its assets' being 'directly contingent on the value of the trademarks to which those assets relate'.[132] In this way, BSAM highlighted that there was an *"immediate cause and effect"* between the actions of the host state and its effect on BSAM investment. However, BSAM did not demonstrate loss through evidence but submitted that its factual allegations were sufficient.[133]

The Tribunal observed that both owners BSLS and BSJ and licencee BSAM benefitted from the exploitation of the trademarks. The owner's interest was in royalties, whereas the licencee benefited from exploitation of the trademarks. In the tribunal's view, both licencee and licensor work mutually, the owner relies on the licencee to

[107] Bridgestone v Panama, above n 18, para 166.
[108] Bridgestone v Panama, above n 18, para 171.
[109] Bridgestone v Panama, above n 18, para 172.
[110] Ibid.
[111] Bridgestone v Panama, above n 18, para 173.
[112] Bridgestone v Panama, above n 18, para 176.
[113] Bridgestone v Panama, above n 18, para 180.
[114] Bridgestone v Panama, above n 18, para 183.
[115] Bridgestone v Panama, above n 18, para 184.
[116] Bridgestone v Panama, above n 18, para 186.
[117] Ibid.
[118] Bridgestone v Panama, above n 18, para 195.
[119] Bridgestone v Panama, above n 18, para 195.
[120] Bridgestone v Panama, above n 18, para 197.
[121] Bridgestone v Panama, above n 18, para 217.
[122] Bridgestone v Panama, above n 18, para 219.
[123] Metalpar S.A and Buen Aire S.A. v. Argentine Republic, ICSDI Case No. ARB/03/5, Decision on Jurisdiction (27 April 2006)
[124] Bridgestone v Panama, above n 18, para 223.
[125] Bridgestone v Panama, above n 18, para 225.
[126] Ibid.
[127] Ibid.
[128] Bridgestone v Panama, above n 18, para 229.
[129] Bridgestone v Panama, above n 18, para 230.
[130] Ibid.
[131] Bridgestone v Panama, above n 18, para 232.
[132] Ibid.
[133] Bridgestone v Panama, above n 18, para 233.

protect the trademark and its interest and vice versa.[134] Additionally, the Tribunal took into account expert opinions that, under the Panamanian law, the licencee could join the licensor in trademark opposition proceedings. The Tribunal was satisfied with the fact that the Supreme Court decision may have a chilling effect, making the trademark more expensive to enforce, less attractive and less valuable, resulting in diminished goodwill.[135] Therefore, the Tribunal concluded that the dispute arose out of the investment, but that there was no *'immediate cause-and effect relationship'* between the Supreme Court decision and effects of the investment outside Panama.[136]

4. CONCLUDING THOUGHTS

This case is the first instance of an IP Licence Agreement being subject to an arbitral tribunal. However, this should come as no surprise. Since the prior cases of *Philip Morris* and *Eli Lilly*, scholars have speculated on disputes concerning IP related transactions coming before an arbitral tribunal. Considering the territorial nature of IPRs, the possibility of catch 22 situations arises. For example, does the mere registration of IPRs qualify as an investment? To some extent, this case offers clarification to this question. The Tribunal has explicitly emphasized that the mere registration of a trademark in a country does not amount to or have the characteristics of an investment. To be an investment or have the characteristics of an investment, exploitation of the trademark is essential, however the Tribunal does not explicitly reveal the extent of exploitation necessary. The reference to exploitation of the trademark in relation to the economic welfare of the host country shows that exploitation should be apparent and measurable. Given the use of the term 'licence' alongside intellectual property rights in defining investments in recent IIAs, this clarification may be necessary.[137] However, the problem lies in the fact that how arbitral tribunal is willing to consider activities of parent companies in relation to the interrelated business transaction in determining investment in host state where the subsidiary companies operate.[138] It is debatable whether the arbitral tribunal should or to what extent should it consider activities of parent companies in determining the investment in the host state.

It is notable that the *Bridgestone* case is related to trademarks and, in most jurisdictions, domestic trademark law requires a mark to be in use in the market in order for protection to be sought. Additionally, investment is one of the functions of trademarks in some national jurisdiction.[139] In contrast, only a few countries have a working requirement for patents.[140] In light of the on Bridgestone v Panama case, one may argue that, in order to bring proceedings regarding a patent, the patent should first be exploited in the host country. According to the Tribunal, exploitation requires manufacture, promotion, sales, marketing, etc. Following this logic, compulsory licensing of patents based on the working requirement would not amount to expropriation[141] because it will not satisfy investment requirement. On the other hand, entities such as universities, research firms, etc. simply hold patents either through purchase or initial grant without commercializing the patent. The sources of income of such entities is mostly through royalty earned by licensing.[142] In such cases, will arbitral tribunal considers it as exploitation? These are the questions which may open the door for future potential claims. However, this debate is beyond the scope of this paper.

The final Award of the case being awaited, it will be interesting to see how the Tribunal addresses the issues of expropriation and fair and equitable treatment (FET).

[134] Bridgestone v Panama, above n 18, para 242.
[135] Bridgestone v Panama, above n 18, para 244.
[136] Bridgestone v Panama, above n 18, para 247.
[137] See Agreement Between Japan and the Republic of Indonesia for an Economic Partnership, entered into force 1 July 2008- Art 58(f) (vii) < http://www.mofa.go.jp/region/asia-paci/indonesia/epa0708/agreement.pdf> accessed 1 April 2018.
[138] Bridgestone v Panama, above n 18, para 161. ([in] principle, when considering whether an investment is owned or controlled by a claimant in a chain of companies the corporate veil is withdrawn when looking down the chain from the claimant, but the fact that all the benefits of the investment may ultimately pass up the chain to the parent is ignored. It is perfectly legitimate for a group of companies so to structure their inter-relationship as to gain the benefit of international investment treaties.....)
[139] See L'Oréal SA v. Bellure NV(C-487/07).
[140] For example, India and Brazil have working requirement provisions in Patent Laws. The working requirement in TRIPS is controversial. For more discussion on working requirement under TRIPS. See generally, Paul Champ and Amir Attaran, 'Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute' (2002) 27(2)Yale Journal of International Law 365-393; Thaddeus Manu, 'The Complexity of Using the Patent Standards Under TRIPS for the Promotion of Domestic Industrial Development in Developing Countries in the Absence of Local Working Requirements: Rethinking the Role of the World Intellectual Property Organization in Intellectual Property Standard-Setting'(2017) 51(3) Journal of World Trade 517-538; Marketa Trimble, 'Patent Working Requirements: Historical and Comparative Perspectives' (2016) 6 UC Irvine Law Review 483-508 Thomas Cottier, Shaheeza Lalani and Michelangelo Temmermanm, 'Use It or Lose It? Assessing the Compatibility of the Working Requirements in the Paris Convention & TRIPS' (Working Paper No 12/11,NCCR Trade Regulation).
[141] For discussion relating to possibilities of litigating compulsory licence in ISDS. see generally- Peter B. Rutledge, 'TRIPS and BITs: An Essay on Compulsory Licences, Expropriation, and International Arbitration' (2012) 13 North Carolina Journal of Law & Technology 149-164; Christopher Gibson, 'A Look at the Compulsory Licence in Investment Arbitration: The Case of Indirect Expropriation' (2010) 25(3) American University International Law Review 357-422.
[142] These entities are referred to as Non-Practicing Entity (NPE). For more discussion on NPE; See Jae-il Park, 'Non-practicing Entities (NPEs) and Patent Remedies for Future Infringement'(2013) <http://eprints.nottingham.ac.uk/13146/1/phd_2013_Jaeil_Park.pdf> accessed 16 May 2018. (Park defines NPE 'as a patent owner who hold patents either through initial grants to themselves or through purchase from previous owners, and enforces her patent against a manufacturing company or 'practicing entity' with a view to earning royalty revenues by licensing out rather than making a profit by commercializing the patented inventions. For instance, NPEs may include individual inventors, universities, research institutes, research firms, patent trading firms, licensing firms, and so forth'.)
[143] Eli Lilly and Company v The Government of Canada, above n 13, para 223.
[144] Mercurio, above n 11.

Like *Eli Lilly*, this case have also raised domestic court decision in the international arbitral tribunal. Although, the Tribunal in *Eli Lilly* denied to conclude that the 'denial of justice' as the only ground for judicial expropriation.[143] Therefore, it will be interesting to see how the Tribunal in the present dispute review domestic court decision in determining expropriation and FET claims. This raises a relevant question: How will the *ad hoc* international arbitral tribunal review the legality of domestic court decisions related to IPRs? What standards will arbitral tribunal apply to determine legitimacy of domestic courts? Considering the territoriality, contingent nature of IP rights and flexibilities in the application of TRIPS at the national level, the final Award on *Bridgestone v. Panama* may create jurisprudence on judicial expropriation in IP related investment disputes. To conclude, Bryan Mercurio describes recent cases of litigating IP rights in ISDS as an 'awakening [of] the sleeping giant'.[144] Indeed, this giant is slowly moving towards attracting more IP disputes in ISDS. Unlike previous cases where IP issues were related to health and regulatory matters, this case purely reflects the nature of commercial transactions. Therefore, all eyes will be on the Tribunal's final Award.

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Working Competition and Biotechnology Patent Pools

By Elizaveta Osipchuk

ABSTRACT

Patent pools have always been a subject of heated discussions due to their ambiguous position on the market as they bear both anti-competitive and pro-competitive characteristics. On the one hand, they create a common market for licensors and licensees, guarantee access to the industry standards (if any), as well as induce further innovation. They bear a certain risk of violating anti-trust laws".

Patent pools were introduced into life sciences quite recently. Biotechnology patent pools play an immensely important role in providing access to essential, up-to-date medicines for terminal diseases that affect a great number of population in certain countries. They make medicines affordable to the local generic producers in developing and least developed countries who bring the affordable new drug formulations to the market. Furthermore, since modern medicine is largely based on gene patents, pooling is suggested to resolve the patent thicket issue around genetic diagnostics. At this moment, the most successful and global example is the Medicine Patent Pool founded in 2010 by UNITAID.

Patent pools generally encompass patents that protect developed technology. However, for the pharmaceutical industry, it is of major importance that the patent pools facilitate further development of the drugs. This necessity stems from, among other factors, a) the ability of viruses to develop resistance to the treatment, b) scarcity of paediatric drug formulas, and c) the need in fixed dose drug combinations (FDCs) for the treatments requiring simultaneous consumption of several medicines such as antiretroviral drugs.

As patent pools gained more popularity, concern about their adverse impact on competition practices grew as well. Despite the recognized benefits of patent pooling, such as promotion of technical progress, dissemination of technology rights as a special type of goods allowing for an even further increase in manufacturing capacity, the technology transfer block exemption under Regulation 316/2014 is inapplicable to the pooling agreements.[1]

As a result, an examination of the relationship between current EU competition law policy towards patent pools appears to be a particularly relevant and valuable subject for discussion. By establishing whether legal safeguards of the EU anti-trust framework help to reach a healthy balance between the protection of market competition and industrial development, we could identify the place of patent pooling in the context of legal solutions for distributing the benefits of health care biotechnologies.

1. DEFINING PATENT POOLS AND THEIR RELATION TO BIOTECHNOLOGY

1.1 Development History and Closely Related Concepts

Historically, technology pools were created as a facilitating instrument for the efficient use of supplementary patented technology pertaining to a single innovative product. The first pools were created as early as in the XIX cent.: the 'Sewing Machine Combination' trust by Grover & Baker Co., Wheeler & Wilson Co. and I.M. Singer Co. and attempted to resolve endless litigation disputes and blocking patents. Even though a pooling agreement generally implies that the participation in it is voluntary, proposals of a compulsory mechanism also emerged.[2] In 1917, the Manufacturers Aircraft Association was formed under

1 Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements 2014/C 89/03 (Guidelines on technology transfer agreements (2014)) provide that Art. 101(1) of the TFEU does not apply to technology transfer agreements as long as they meet a number of enlisted criteria; each case has to be assessed individually.

2 For instance, in 2005 it was suggested to form a patent pool for AIDS (Essential Patent Pool for AIDS). The holders of patents essential to the manufacturing of antiretroviral drugs were urged to place their patent rights in the pool, or become subject to compulsory licensing, if refused to do so. Essential Patent Poll for AIDS (EPPA): Background Information (2005) [Online]. Available from: http://www.essentialinventions.org/docs/eppa/ [Accessed on 7 March 2017]. The Manufacturers Aircraft Association is another example of involuntary licensing; see para. 2.2.1 for more information.

3 Neelie Kroes European Commissioner for Competition Policy, 'Setting the standards high'. Address at Harvard Club of Belgium (15 October 2009, Brussels), SPEECH/09/475. [Online]. Available from: http://europa.eu/rapid/press-release_SPEECH-09-475_en.htm?locale=en [Accessed 3 April 2017]

4 Anderman, S. and Ezrachi, A. (eds.) (2011) Intellectual Property and Competition Law. New York: Oxford University Press, 374.

5 '... abuse of the market power gained by virtue of IPR being included in a standard constitutes an infringement of Article 102 [TFEU]'. Draft Communication from the Commission, Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements' (2010) SEC(2010) 528/2 ('Draft Horizontal Cooperation Guidelines').

6 Bhat, A. & Shaffer, E.R. (2008) Trade Related Aspects of Intellectual Property Rights (TRIPS): Protecting patents or patients? [Online] Available from: https://www.cugh.org/sites/default/files/TRIPS%20-%20Protecting%20Patents%20or%20Patients.pdf

the pressure of the US government to break the market barrier held by two dominant aircraft patent holders.

Due to the fact that the pools were treated with substantial apprehension for anticompetitive risks, very few of them were created between 1920 and 1990s. By the 1990s, the incentives for pooling changed: pools were needed to clear patent thickets on inventions lying at the foundation of a technical standard. Generally, standards aim at achieving the interoperability of companies' products on a global level, thus creating "the level playing field on which all can compete."[3] Standards proved to be successful in minimizing the risks of purchasing a technology that may become outdated in a short time, and in decreasing the consumer's expenses that occur due to the technology switching.[4] To balance licensees and licensors' interests, the FRAND (fair, reasonable and non-discriminatory) commitments were implemented as a responsibility of any company that gained its market power by contributing to a standard.[5]

Modern pool models focus mainly on the standardization of telecommunication technologies and include, for instance, GSM, MPEG-2 standard (a digital technology for video compression), Bluetooth, DVD-1, DVD-2, 3G, 4G and soon-to-be 5G. IT products are a combination of highly complicated essential software and hardware, which is why the customer is more interested in purchasing a complete patent portfolio to start the production, rather than pursuing the licensors separately without any guarantee of obtaining all the necessary rights.

By contrast, the pooling business model has been introduced to the biotechnology industry fairly recently in the face of a global challenge – public health. The international treaties on intellectual property protection, such as the agreement on 'Trade-Related Aspects of Intellectual Property Rights' (TRIPS) resulted in the increased protection of the pharmaceutical firms patents and restraints on smaller drug manufacturers and researchers.[6] Meanwhile, the issue of specificdiseases is far from being solved. Alongside numerous economic factors - including high drug prices, the absence of local production, transportation and storage facilities - the main legal stumbling block here is the patent monopoly: from being the owners of resources necessary for drug research and development, pharmaceutical companies resist sharing their scientific welfare with generic producers. Nevertheless, in recent years pooling has become more accepted by the industry, not least because of public pressure and state endorsement.[7]

A patent pool provides a mutually beneficial solution, where patent holders receive decent compensation and the licensees are receiving access to affordable patented technology for commercialization and further development. One of the most successful examples of manufacturers cooperation is the Medicine Patent Pool (MPP), created under the guidance of UNITAID.

1.2 Natute of Technology Pools

The presence of pro- and anti-competitive characteristics in technology pools depends on a number of factors, such as interdependency of the technology inside and outside of the pool. Relatively to their nature, the technologies can be divided in two groups: complementary and substitutionary, essential and non-essential.[8]

The technologies are complementary if both of them are required to produce the product or to carry out the process to which they relate. On the contrary, if just one of the two technologies is needed to produce or carry out the related product or process, these technologies are substitutable.[9] Patent pools that only include substitutes may decrease competition and demand higher royalty payments from licensees. Hence, they are treated harshly by the legislator and are explicitly declared to be in viola-

[7] See, i.e., Boseley, S. (2011) Big Pharma Shows Willingness To Pool HIV and AIDS Drug Patents. Posting on Sarah Boseley's Global Health Blog, The Guardian. Available from: https://www.theguardian.com/society/sarah-boseley-global-health/2011/feb/10/drugs-pharmaceuticals-industry [Accessed 6 March 2017]; Medicines Patent Pool (2011) G8 Encourages Drug Companies to Work with the Pool. [Online]. Available from: http://www.medicinespatentpool.org/g8-encourages-drug-companies-to-work-with-the-pool/ [Accessed 6 March 2017] (highlighting the importance of governmental endorsement of the Medicine Patent Pool initiative by the countries where most of the patent holding companies are located); GlaksoSmithKline (2013) ViiV Healthcare announces a voluntary licence agreement with the Medicines Patent Pool to increase access to HIV medicines for children [Online]. Available from: https://us.gsk.com/en-us/media/press-releases/2013/viiv-healthcare-announces-a-voluntary-licence-agreement-with-the-medicines-patent-pool-to-increase-access-to-hiv-medicines-for-children/

[8] Guidelines on technology transfer agreements (2014), para. 250, EuC.

[9] Guidelines on technology transfer agreements (2014), para. 251, EuC.

tion of Art. 101(1) of the Treaty on the Functioning of the European Union (TFEU); the requirements for exemption under Article 101(3) TFEU are not likely to be met, even where independent licensing is available to the pool members.[10] Moreover, the technologies will be deemed complementary if: the patent holders have contributed their rights to the pool on a non-exclusive basis; the pool is willing to out-license the technology separately from the package, and the overall amount of royalties for individually licensed technologies does not exceed the royalties charged by the pool for the whole package.[11] However, the distinction between complementary and substitute technologies is not always obvious.

A technology is considered essential in two cases: a) a technology cannot be replaced by another on technical or commercial grounds for producing a product or carrying out a process to which it relates; b) a technology is necessary to the standard supported by the pool and there is no substitute available (in relation to a patent – standard essential patent, SEP).[12] An irreplaceable technology remains essential as long as the technology is covered by at least one valid intellectual property right. Besides, the essential technologies are by necessity also complementary.[13] Therefore, patent pools that comprise only of essential technologies are generally unlikely to infringe Article 101(1) of the TFEU as a single entity. However, the conditions of their licensing agreements may be still at risk.
It must be borne in mind that a technology may cease being essential, if, after the pool was established, alternative technologies were introduced on the market by the third parties. This leads to the risk of anti-competitive conduct unless the technology is removed from the pool.[14] Nevertheless, once a technology is included in a standard, it is more likely that the alternative undemanded technologies will be withdrawn from the market.[15]

Whether a technology is essential or not has to be decided by an independent specialist. The involvement of independent experts in creating a pool guarantees a transparent process of patent selection, and may even improve competition between the available technical solutions.[16] However, as the decision about the pool's establishment is made long before the final product is introduced, it is difficult to conclude with certainty whether a picked piece of technology is essential. This supports the argument that favours passing up the essentiality criteria.[17]

In a market dominated by a few powerful players, the exchange of sensitive information may lead to price-fixing arrangements.[18] It is therefore important to ensure that safeguards are present, such as hiring an independent expert or a licensing body as they would make it possible to calculate and verify royalties without disclosing sensitive information to the competitors.[19]

In sum, other factors decreasing competitive risks include:
- open participation: if the pool membership at the time of its creation and operation is open to all interested parties;[20]
- involvement of independent experts in technology selection and pool's operation;[21]
- autonomous dispute resolution;[22]
- safeguarding the sensitive information exchange between parties.[23]

1.3 The Notion of a Patent Pool

The guidelines define technology pools as, "arrangements whereby two or more parties assemble a package of technology which is licensed not only to contributors but also to third parties". Unlike technology pools, there is no unified opinion on the definition of patent pool. For instance, Shapiro describes patent pools as an organization where a number of complementary patents are licensed as a single package by several patent holders simply "to anyone willing to pay the associated royalties."

The nature of pooled patents is a key factor for assessing the anti-competitive characteristics of a pool. Complementarity gives value to an individual patent that would be heavily discounted unless fitted in the licensee's portfolio. Substitute patents cover alternative technologies needed for producing one product. The two are therefore not usually in conflict with each other. Complementary patents concern different inventions that cannot compete on the same market position as substitute patents.

To reach the right conclusion, one should consider the nature of technologies from a legal standpoint. For example, from a technical perspective, two complementary patents must be used in a production process together, and it is not possible to interchange them. From the legal perspective, these patents are complementary because they are 'blocking' the functions of each other, which also

[10] Guidelines on technology transfer agreements (2014), para. 219, EuC.
[11] Id.
[12] Guidelines on technology transfer agreements (2014), para. 252, EuC. As to the standard essential patent (SEP) term, see Commission decision no. 39985 Motorola - Enforcement of GPRS standard essential patents (Motorola), (2014) slip op. para. 52.
[13] Guidelines on technology transfer agreements (2014), para. 216, EuC.
[14] Guidelines on technology transfer agreements (2014), para. 263, EuC.
[15] Motorola, slip op. para. 53.
[16] Guidelines on technology transfer agreements (2014), paras. 256-257, EuC.
[17] Greene, H. (2010) Patent Pooling Behind the Veil of Uncertainty: Antitrust, Competition Policy and the Vaccine Industry, Boston University Law Review, 90 (4), 1437. Available from: https://ssrn.com/abstract=2157277 [Accessed 6 March 2017].
[18] Guidelines on technology transfer agreements (2014), para. 259.
[19] Id.
[20] Guidelines on technology transfer agreements (2014), paras. 248-249, EuC.
[21] Guidelines on technology transfer agreements (2014), para. 248, EuC.
[22] Id.
[23] Id.
[24] WIPO Secretariat (2014) Patent Pools and Antitrust – A Comparative Analysis. [Online], 4. Available from: http://www.wipo.int/export/sites/www/ip-competition/en/studies/patent_pools_report.pdf [Accessed 20 May 2017].
[25] Charles River Associates Ltd. (2003) Report on Multiparty Licensing. [Online]. Available from: http://ec.europa.eu/competition/antitrust/legislation/multiparty_licensing.pdf [Accessed 23 January 2017].

decreases their individual value. Thus, licensing agreements are necessary to avoid patent infringement and produce the desired product.[24] While one might think that creating a pool consisting solely of complementary technologies would be the best solution against antitrust risks, in some cases substitute (competing) technologies are also needed "to produce the defined product without infringing upon a patent outside the pool."[25]

Patent pools are usually established by the initiative of their members, who, at the same time, serve as contributors of intellectual property and financial investors. As a result, the members retain significant influence on the terms of concluded licensing agreements between the patentees and licensees. The licensing model for the patentees and pool administration can work in two ways. In the first case, an agreement is concluded between the patentees represented by one assigned partner and the third parties. This model works best for pools with a small number of patent holders. In the second case, a special entity is set up to administer the pool and be an independent licensing authority.[26]

Based on their internal structure, patent pools can be differentiated in three ways:

1) **Joint licensing schemes,** which are developed by a group of licensors concerned about a common technology or a standard. One of the patent holders can act as an agent for the joint licensing contract.
2) **Patent pools with a licensing administrator,** which are initiated by an open call for essential patents from an independent body. An independent licensing administrator is responsible for: determining whether the patents are, in fact, essential; setting the royalty rate for the patent packages; collecting royalties and re-distributing them, given a pre-agreed scheme. The licensors are not supposed to know the other licensors that will be joining the pool. For instance, MPEG-2[27] and ViaLicensing[28] are good examples of organisations where an independent body is acting as a licensing administrator for more than one patent pool simultaneously covering many technical standards.
3) **Patent platforms,** which function as IP aggregators, allow dealing with multiple technologies and standards or product groups involving one or more essential patents. They aim to be flexible towards the respective agreements between licensors and licensees. The patent platform structure consists of one umbrella organisation and multiple entities, where each develops specific licensing programmes. In the bilateral world of patent markets, patent platforms also help to connect sellers and buyers. At present, several patent platforms exist, some of them in online form.

Since there are only a few examples of patent pools that have completed their business lifecycle, they are mostly studied as theoretical models. Hence, the lack of empirically collected data and limited possibility to explore the practical effects of legal provisions.

1.4 Biotechnnology Patent Pools

1.4.1 Overview of the Biotechnology Industry

Biotechnology can be defined as "the manipulation (as through genetic engineering) of living organisms or their components to produce useful, usually commercial products (such as pest resistant crops, new bacterial strains, or novel pharmaceuticals)."[29] From this definition, we can see that the industry can be divided into several sectors based on the application of technology: health care, agricultural and industrial biotechnology. Despite this variety, this article focuses on health care biotechnology and its operation within the patent pool model. Health care biotechnology covers medicinal or diagnostic products and vaccines that consist of, or has been produced in, living organisms and can be manufactured via recombinant technology (an artificial assembling of DNA sequences).[30]

Patenting in biotechnology has for a long time been limited by the "product of nature" doctrine that stopped inventors from claiming monopolies on natural substances, such as genes, animal species or microbes, as they are not an outcome of a human effort.[31] Since TRIPS Agreement does not oblige WTO members to make natural substances patentable within their national legal frameworks, states are able to set their own boundaries between inventions and discoveries, and some states define inventions by using even stricter terms.[32] Hence, the European Patent Convention differentiates between a discovery and an invention, where the latter is achieved by modifying or isolating an otherwise not patentable product or process.[33] A judicial interpretation that has broadened the term 'product of nature' was given by German

[26] See Shapiro, 2001; Clark, J. (2000) Patent Pools a Solution to the Problem of Access in Biotechnology Patents? [Online] in a White Paper commissioned by Q. Todd Dickinson, the Under Secretary of Commerce for Intellectual Property and Director of the US Patent and Trademark Office. Available from: https://www.uspto.gov/patents/law/patent_pools.pdf [Accessed on 18 April 2017]; Merges, R. (1998) Institutions for Intellectual Property Transactions: the case of patent pools. [Online], University of California at Berkeley. Available from: https://pdfs.semanticscholar.org/0eff/e6d273264282c6eaaf57185b9cbc71fb0f03.pdf [Accessed on 18 April 2017].

[27] See www.mpegla.com

[28] See www.vialicensing.com

[29] «Biotechnology». Merriam-Webster Dictionary. [Online]. Available from: https://www.merriam-webster.com/dictionary/biotechnology [Accessed 5 May 2017].

[30] Ernst & Young, European Association of BioIndustries (2014) Biotechnology in Europe: The tax, finance and regulatory framework and global policy comparison. [Online], 4-5. Available from: http://www.ey.com/Publication/vwLUAssets/EY-biotechnology-in-europe-cover/%24FILE/EY-biotechnology-in-europe.pdf [Accessed 5 May 2017].

[31] Krishna, R. (2008) Patents and Products of Nature Doctrine. [Online]. In: Correa, C. (ed.) A guide to pharmaceutical patents. Geneva: South Centre, 1-10. Available from: https://www.researchgate.net/publication/228171935 [Accessed 6 May 2017].

[32] Agreement on Trade-Related Aspects of Intellectual Property Rights, 1994, Art. 27.3.b.

[33] Id.

Federal Supreme Court in 1969: a patentable invention would include animal breeding methods if they were proved to use controllable natural forces to achieve a casual, perceivable result.[34] As for modern European legislation, Article 53(b) of the European Patent Convention (EPC) states that plant or animal varieties or essential biological processes are not patentable.[35] Nevertheless, technical inventions include those which use natural processes to achieve a technical result.[36] With regards to the human body and genome, under Art. 51(1) of the EU Biotechnology Directive and Rule 23e of the EPC, patents are granted if they constitute "an element isolated from the human body or otherwise produced by means of a technical process." However, if isolated and/or purified, human DNA – the process of obtaining it as well as the actual sequence - can be a part of many patent claims, for instance, a patent on human relaxin DNA.[37]

The process of patenting chemical compounds present in natural substances may be complicated by the difficulty of identifying the prior art, since the natural material can have various applications, and the derived substance occasionally has a totally new use.[38] Over the years, there has been a noticeable decline in interest from pharmaceutical companies in deriving new chemical compounds from natural materials, which became a secondary source for new drugs in R&D.[39] Therefore, it can be concluded that today, the "product of nature" doctrine's applicability is rather limited in developed countries due to technological progress, changes in law and its interpretation by the courts.[40]

1.4.2 IP-related Issued Faced by the Biotechnology Industry Today

In Europe, biotechnology occupies a large part of the market, creating new job positions and delivering countless medical products for European citizens. As any other industry that holds a great value in its IP assets, biotechnology suffers from an abundance of granted and pending patent applications, which nowadays mainly concern the DNA sequences and human genes.

The problem of blocking patents, as well as patent stacking, is common among biotech companies.[41] Hence, the Heller and Eisenberg's "tragedy of the anti-commons" applies here in addition to the IT industry. The costs and efforts dedicated to combining upstream patents to develop one product are frequently too high to maintain a balance between the public enjoyment of progressive biotechnological innovations, and the monopolistic rights of patent holder. Moreover, patent stacking raises end-product prices. The founders of the tragedy of anti-commons suggest that the upraise of utility requirements for patent grants and patent pools could be a solution to the anti-commons problem in biotech field:

> *... patent law only weakly prevents excessive fragmentation in biomedical research. Old-fashioned boundary doctrines, such as the "utility" requirement in patent law, have not kept pace with technological change. Rebecca Eisenberg and I have argued that creating property rights in isolated gene fragments seems unlikely to track socially useful bundles of property rights – a form of excessive "physical" fragmentation.*[42]

By contrast, recent findings by other researchers claim that there are no indications of a substantial patent thicket problem in the field of human genetics in particular.[43]

Despite this point of view, some characteristics of the biotech industry indicate that the appearance of anti-commons is a possible issue. For instance, the expansion of patents held by numerous parties and the sporadic tendency of companies to compile IP assets signalthe real risk of patent thickets. Contrary to the IT industry, the holder-companies on the biotech market are much more protective over their immaterial capital, which imposes certain difficulties on incentivizing their participation in cooperative organizations like patent pools.[44] Companies tend to adopt the policy of restrictive licensing or refusal to license, which causes wide disapproval due to the possible adverse effects it may have on public health.[45]

1.4.3 Biotechnology Patent Pooling and Public Health

It has been claimed by some authors that biotechnology is unlikely to succeed in pooling since the result of technological development will be aimed at one product with a limited scope of application.[46] However, it appears that these researchers primarily addressed situations where the main conflict of interest lies between biotechnology companies, thus putting the public interest in a secondary position. Indeed, it is impossible to ignore the economic and even political power of modern pharmaceutical

[34] German FSC, GRUR 1969, 677 and IIC 1970, 136 – "Rote Taube" ("Red Dove"). See, for example, Krishna, 2008.

[35] European Patent Convention of 5 October 1973, as revised by the Act revising Article 63 EPC of 17 December 1991 and the Act revising the EPC of 29 November 2000.

[36] See the EC Directive on the legal protection of biotechnological inventions 98/44/EC (EU Biotechnology Directive).

[37] See WIPO (2006) Bioethics and Patent Law: the Relaxin Case. [Online] WIPO Magazine. Available from: http://www.wipo.int/wipo_magazine/en/2006/02/article_0009.html [Accessed 6 May 2017].

[38] Krishna, 2008.

[39] Id.

[40] Conley, J. & Makowski, R. (2003) Rethinking the Product of Nature Doctrine as a Barrier to Biotechnology Patents in the USA and Perhaps Europe as well. [Online] Journal of the Patent and Trademark Office Society, 85, 301 (Part I), 371 (Part II). Available from: http://whoownsyourbody.org/conley_article.pdf [Accessed 7 May 2017].

[41] European Patent Office, Biotechnology patents at the EPO. [Online]. Available from: https://www.epo.org/news-issues/issues/biotechnology-patents.html [Accessed 9 May 2017].

[42] Heller, M. (2009) The Boundaries of Private Property. The Yale Law Journal, 108 (6), 1163-1223. Available from: http://www.jstor.org.ezp.sub.su.se/stable/797326 [Accessed 8 May 2017].

[43] See Hopkins, M.M., Mahdi, S., Thomas, S.M., Patel, P. The patenting of human DNA: global trends in public and private sector activity (The PATGEN project). Report on a European Commission's 6th Framework programme 2006. As referred to in van Overwalle, G. (2009); Huys, I. Berthels, N., Matthijs, G. & van Overwalle (2009) Legal Uncertainty in the Area of Genetic

firms; nevertheless, due to the size of their IP portfolios and production powers, these companies have a tremendous effect on the worldwide problems concerning the population's health. As a result, some international organisations and private enterprises had to take over initiative in finding a balance between public and private interest.

Public health has been one of the leading issues on the world's agenda for many years. With many terminal illnesses such as AIDS/HIV, malaria, and tuberculosis affecting a large percentage of the population in certain countries, the access to highly demanded medicine is hindered by - apart from other social, economic, and political factors - the lack of financing available for purchasing the drugs from foreign countries or the ability to produce the drugs locally. Protecting the health of people worldwide is a global issue that can only be solved by reaching a consensus between the parties with unequal bargaining power. Although it may seem that the initial problem is of economic nature, as it usually happens, business models go hand in hand with the law. In recent years, through incentives from international organizations, patent pooling has been tried as a licensing model for enabling generic producers and patients to benefit from the new health technologies. In 2006, World Health Organization (WHO) published a report by the Commission on Intellectual Property Rights, Innovation and Public Health (CIPIH) on the improvement of relationship between IP and R&D, which has been negatively affecting developing countries. In this report, the Commission called for increasing the number of partnerships and boosting funding, as well as considering alternative approaches to the current R&D system. Previous solutions have provided only temporary relief and were costly to maintain, which is why the new approaches should not be simply a new fund, such as the Global Fund to Fight Aids, Tuberculosis and Malaria.[47]

The former chairwoman of the Commission, Ruth Dreifuss, claimed that the patent system is not the main obstacle to innovation, but the lack of incentive mechanisms. However, judging by the number of commission members who joined the reservation on the report, it can be suggested that the opinion on suitability of the patent system for public health protection was doubted.

The report has also promoted the use of TRIPS flexibilities by developing countries, in particular, compulsory licensing.[48] However, these mechanisms were designed to force collaboration between technically developed, and developing countries. Their application of TRIPS flexibilities should arguably be limited to the dead-end circumstances, where all other available instruments of influence are exhausted. In the past years, prosperous pharmaceutical firms such as GSK, Bristol-Myers Squibb, Merck, Hoffman-La Roche and Boehringer Ingelheim became infamous for suing South Africa's government for implementing TRIPS flexibilities to access competing generic drugs for HIV/AIDS.[49] The health policy reform conducted in South Africa in 1977 led to the adoption of a law allowing parallel import of patented drugs – Section 15C of the South African Medicines and related Substances Control Act (MRSCA). The discontent of pharmaceutical companies, fearing the establishment of a precedent, met overwhelming opposition from government supporters and attracted wide media coverage which, at the end, pushed the companies to drop the claims. This instance tells us that, ideally, voluntary participation of the most influential drug developers and producers in collaborative schemes should be considered a primary tool for reaching mutually satisfying arrangements.

Another global health issue is the development of vaccines for epidemic outbreaks. To ensure a fast operational reaction, it is necessary to conduct extensive research on the virus in advance and have the vaccine on hand before an outbreak prevails. Developing countries affected by an epidemic are not willing to cooperate with other affected states, because they risk engaging in a one-way, non-beneficial agreement. For example, H5N1 virus samples were retained by Indonesia based on its right to fully control the management of biomaterial under Convention on Biodiversity, until the WHO intervened in the negotiations. The WHO undertook the responsibility to create "a framework for accessing influenza virus samples... in exchange for sharing the benefits resulting from the use of the samples," also called Pandemic Influenza Preparedness.[50] The investments in Pandemic Influenza Preparedness steadily grow. According to the WHO report from August 2016, Member states of the EU have contributed $56.5 million "to support the running costs of Global Influenza Surveillance and Response System (GISRS)[51]; Coalition for Epidemic Preparedness Innovations (CEPI) secured $500 million for the development of pandemic vaccines.[52] CEPI includes many pharmaceutical firms

Diagnostic Testing, Nature Biotechnology, 27, 903-909.

44 Verbeure, 2009.

45 For more information about the relationship between biotech patenting and public health, please, see para. 2.4.3 of this thesis.

46 Levang, B. (2002) Evaluating the Use of Patent Pools for Biotecnology: A Refutation to the USPTO White Paper Concerning Biotechnology Patent Pools. Santa Clara High Technology Law Journal, 19 (1), 229-251. Available from: http://digitalcommons.law.scu.edu/chtlj/vol19/iss1/6 [Accessed 5 May 2017].

47 See www.theglobalfund.org.

48 Gerhardsen, T. (2006) WHO IP Report Comprehensive, But No Calls For Major Change In IP System, [Online] Intellectual Property Watch. Available from: https://www.ip-watch.org/2006/04/03/who-ip-report-comprehensive-but-no-calls-for-major-change-in-ip-system/ [Accessed 20 April 2017].

49 See, for example Fisher, W. & Rigamonti, C. (2005) The South Africa AIDS Controversy: A Case Study in Patent Law and Policy. [Online] Harvard Law School. Available from: https://cyber.harvard.edu/people/tfisher/South%20Africa.pdf [Accessed 24 February 2017].

50 Beldiman, D. (2012) Patent Choke Points In The Influenza-Related Medicines Industry: Can Patent Pools Provide Balanced Access? Tulane Journal of Technology & intellectual Property, 15 (31). Available from: https://dx.doi.org/ [Accessed 15 May 2017].

51 WHO, PIP Framework Review Group 2016: Preliminary findings. [Online], 2. Available from: http://www.who.int/influenza/pip/2016-review/pip_review_group_prelim_findings.pdf [Accessed 15 May 2017].

52 Rathi, 2017.

such as GSK, Takeda, Pfizer, Johnson & Johnson, Merck and Sanofi.

These statistics show that the market for influenza-related drugs and technologies is growing popular among investors, including governments, national healthcare organizations, and international organizations. Meanwhile, private pharmaceutical companies are often unwilling to take the accompanying risks of R&D if the outbreak does not actually happen.[53] The partnership between private and public corporations only works when a government entices the producers to conduct R&D by providing regular funding.[54]

A pooling project in relation to vaccinations and therapeutic treatments was attempted by patent holders of genetic sequences responsible for causing severe acute respiratory syndrome coronavirus (SARS CoV). Right after 2002, when the first pneumonia outbreak occurred in China, a handful of institutions united under the WHO initiative and carried out research on the cause of the disease. Subsequently, the research organizations filed complementary patent applications for the genetic sequence of SARS CoV. Taking into consideration the traditional benefits associated with patent pooling, it may seem that in this case pooling could provide the interested parties with access to a group of fragmented IP rights on the target vaccines. Making the patents available at a standard rate would incentivize the manufacturers, and shift investors focus from upstream technologies to the development of new downstream products. The primary patent holders were identified, and the WHO affirmed the parties intentions to move forward and form a pool. However, in the midst of the pool's establishment, complications arose. Since there were no further outbreaks after 2003, it was uncertain whether the investments to set up a patent pool would have been recouped. Besides, some of the patent applications were still pending, and including them in a pool might have resulted in shielding invalid patents – one of the obstacles to competition. Nevertheless, this should not be a problem in the presence of a mechanism that would allow the exclusion of invalid technologies post factum.[55]

Unlike R&D for unpredictable virus outbreaks, investments in drug development against persistent widespread diseases such as cancer, HIV/AIDS, or diseases where the predisposition to disease is dependent on several genes and their mutations, will almost certainly be recouped. In the sphere of genetic diagnostics, the patent thicket problem seems to be particularly sharp if several patents are needed to conduct a test. However, where a gene responsible for the diagnosis has just one owner (for example, BRCA-1), a patent pool is not a suitable option. In such as case, some alternative solutions may be of greater assistance.

Alternative forms of innovative partnerships proved to function well in biotechnology. The SNP Consortium, Merck, the Institute for Genomik Research and the Human Genome Project are non-profit organizations that facilitate the pooling of research results and the development of genetic resources. For example, Consortium supplies its database to scientists free-of-charge. The database should help the pharmaceutical companies to find treatments for genetic diseases. Most importantly, members of the Consortium undertake to not to patent any SNPs (single nucleotide polymorphisms), although downstream inventions are free to patent. This form of collaboration differs from a patent pool in the sense that the former aims at putting upstream inventions into the public domain instead of creating a pool which can only be accessed by licensees.[56]

1.4.4 The Medicines Patent Pool

The Medicines Patent Pool (MPP) is an organization that was founded by UNITAID and focuses on providing public access to HIV, hepatitis C and tuberculosis treatments in low- and middle-income countries. Its new business model allows different stakeholders to predict, pri-

[53] Id. In addition, the previous participation of many pharma giants in fighting influenza breakouts, such as SARS (2003), H5N1 (2009-2010), Ebola (2014) and West Nile virus, resulted in an insignificant return. See Branswell, H. (2016) The race for a Zika vaccine is intense. But it may be missing the most important players. [Online]. Available from: https://www.statnews.com/2016/08/08/zika-vaccine-development-drug-makers-pharmaceutical/ [Accessed 15 May 2017]

[54] Branswell, 2016.

[55] See Correa, C. The SARS case: IP fragmentation and patent pools. [Online], 44-48. In: van Overwalle, 2009; Simon, J., Claassen, E., Correa, C., Osterhaus A. (2005) Managing severe acute respiratory syndrome (SARS) intellectual property rights: the possible role of patent pooling. [Online] Bulletin of the World Health Organization 2005, 83, 707-710. Available from: http://www.who.int/bulletin/volumes/83/9/707.pdf [Accessed 15 May 2017]

[56] Organization for Economic Co-operation and Development, Genetic Inventions, Intellectual Property Rights and Licensing Practices: Evidence and Policies. [Online], 68. Available from: https://www.oecd.org/sti/sci-tech/2491084.pdf [Accessed 2 May 2017]

[57] See http://www.medicinespatentpool.org/about/; report by KPMG. [Online]. Available from: http://www.medicinespatentpool.org/wp-content/uploads/MPP-Impact-Q2-2016.pdf [Accessed on 4 May 2017]

[58] MPP, Summaries of licensing agreements. [Online]. Available from: http://www.medicinespatentpool.org/summaries-of-licensing-agreements/ [Accessed 5 May 2017]

[59] Medicines Patent Pool Foundation By-Laws of 8 December 2011. [Online]. Available from: http://www.medicinespatentpool.org/wp-content/uploads/By-Laws-August-20165.pdf [Accessed 15 May 2017]

[60] Turner, J.D.C. (2015) Intellectual Property and EU Competition Law. Oxford: Oxford University Press, 78.

[61] Article 101(3) TFEU.

[62] Regulation 316/2014, rec. 7.

[63] Id.

[64] Guidelines on technology transfer agreements (2014) paras. 56, 247.

[65] Turner, 2015, 197.

[66] Guidelines on technology transfer agreements (2014) para. 261(a).

[67] Guidelines on technology transfer agreements (2014) para. 261(b). Such safeguards may be ensured by acquiring the services of an independent expert. See Guidelines on technology transfer agreements (2014) para. 256, EuC.

[68] To that extent, see section 4.5 of this thesis.

[69] Guidelines on technology transfer agreements (2014) para. 261(c), EuC.

[70] Guidelines on technology transfer agreements (2014) para. 261(d), EuC.

[71] Guidelines on technology transfer agreements (2014) para. 261(e), EuC.

[72] Guidelines on technology transfer agreements (2014) para. 261(f), EuC.

[73] Guidelines on technology transfer agreements (2014) para. 261(g), EuC.

oritize and license needed medicines. The MPP serves as a bridge between 16 generic manufacturers and developers, and 9 patent holders by licensing 15 medicines. By this day, MPP licenses have provided the access to WHO-recommended medicines in 125 countries, 79 of which were previously unable to benefit from generic competition.[57] The sales are geographically concentrated to the areas with the largest numbers of HIV-affected persons in the developing world (87-94%).

Despite certain geographical limitations, terms and conditions present in MPP licenses were recognized as providing wide access, containing great flexibilities and having the broadest geographical scope.[58] It is arguable that today, the MPP is the most successful example of patent pooling in biotechnology and life sciences in general.

The pool is governed by two main bodies: the Governance Board and the Expert Advisory Group. Every member of the Governance Board is selected among the most dedicated and competent experts for a standard term of two years - there is no cap limitation on the number of terms. Transparency and accountability are ensured by the appointed body of External Auditors, which conducts an annual audit of the pool's accounts and reports to the Board for its approval, as well as ensures the compliance with the foundation's by-laws. The Expert Advisory Group provides consultations to the Board and the Executive Director, upon request, with regards to ongoing negotiations and decisions on licencing agreements. Unlike the Board members, experts of the Group do not receive a regular salary.[59]

Any violations of the foundation's policies are investigated by the MPP Compliance Officer. The fulfilment of legal requirements is ensured by *pro bono* legal consultations by several companies.

2. EU COMPETITION LAW

2.1 Legal Framework

From the perspective of EU competition law, agreements between companies that distort or extinguish competition on the internal market as a whole or in its parts undercut the pillars of a single market. Article 101 of the TFEU regulates this issue by allowing the competition authorities (European Commission's Directorate-General for Competition) to outlaw, eliminate and penalize firms which create cartels. Art. 101 of the TFEU concerns intellectual property right when it is the subject, the means, or the result of a restrictive agreement or a concerted practice between undertakings,[60] including licensing and transfer agreements.

Art. 101 of the TFEU applies where:

1) there is an agreement between undertakings, a decision of an association of undertakings, or a concerted practice;
2) which may affect trade between Member States; and
3) which has as its object or effect the prevention, restriction, or distortion of competition within the common market.

Nevertheless, Art. 101 occasionally lifts these restrictions when a contract positively affects the production and distribution of goods and/or supports technical and economic development, and at the same time offers consumers a substantial share of the gained advantage.[61] To escape the aforementioned restrictions and comply with EU competition law, the agreements also have to reach the safe harbour of a block exemption regulation under Art. 101(3).

According to the Guidelines on technology transfer agreements, the agreements establishing technology pools do not fall under the Technology Transfer Block Exemption Regulation (TTBER).[62] The rationale of this exclusion is that the purpose of such set-up agreements is to license the pooled technologies to third parties, while the TTBER is aimed at agreements which allow the licensee and/or its sub-contractors to exploit the licensed technology rights, perform research and develop them for the *purpose of producing* goods or services.[63]

The licences granted by technology pools are also excluded from the block exemption as they generally involve more than two parties.[64] On the other hand, it is not uncommon that the licensor is represented in the agreement by the pool as a single entity rather than a group of autonomous right holders. Thus, leaving just two parties – licensor and licensee - involved in the contract. This raises the question of what should be understood as an 'undertaking' for the purpose of the Regulation. According to Art.1(2) and Art.1(2)(e)(ii), this term includes 'connected undertakings.' There is an opinion that a narrower interpretation would better fit the general concept of an undertaking in competition law, to the extent that the undertakings in question constitute a single economic unit for the purpose of the agreement.[65]

The agreements on establishment, governance, as well as on licensing pooled technology, would not be infringing Art. 101(1) of the TFEU, if the following criteria are met:

a) the pool is open to any interested party wishing to contribute its rights on a particular technology;[66]
b) sufficient safeguards are adopted to ensure that only essential (and, consequently, complementary) technologies are pooled;[67]
c) sufficient safeguards[68] are adopted to ensure that the exchange of sensitive information (such as pricing and output data) is restricted to what is necessary for the creation and operation of the pool;[69]
d) the pooled technologies are licensed into the pool on a non-exclusive basis;[70]
e) the pooled technologies are available to all potential licensees on FRAND terms;[71]
f) the parties contributing technology to the pool and the licensees retain the right to challenge the validity and essentiality of the pooled technologies;[72] and
g) have the right to develop competing products and technology.[73]

2.2 Pro- and Anti-Competitive Effects of Technology Pools

By creating a combined product consisting of complementary technologies, patent pools promote competition by decreasing transaction costs and royalty stacking.[74] This effect is especially valuable in the industry where intellectual property rights are fragmented. Fragmentation, in turn, is intrinsic to (among others) the biotechnology industry.

The biggest beneficial effects to be mentioned are the elimination of patent thickets, royalty stacking, and increased efficiency of R&D.

The formation of a patent pool usually involves an exchange of technical information that does not form part of the patent claims, as well as the know-how data needed for the further facilitation of innovation and efficient use of the resources. Competition regulations also impose a restriction on the information allowed for sharing: it has to be of a technical character only and should not extend to an exchange of business information between competing enterprises, as such behaviour risks resulting in a cartel formation.[75]

Another pro-competitive effect of patent pools is the minimization of litigation and transaction costs. A pooling agreement curtails potential disputes between its members, although decreasing litigation costs is no longer the primary objective of such agreements.[76] Instead of negotiating with multiple patent holders and risking exclusion without one of the essential patents, a licensee only needs to make a single arrangement with the pooling organization. Apart from that, pooling prevents price gouging on the patents whose individual value is much less than in combination with the others. The final amount that would have to be paid for the whole bundle of patent licenses is often unbearable for an average licensee and, consequentially, makes the downstream product less affordable, too.[77]

Despite the many positive ways in which patent pools affect competition, there are several factors that may diminish this influence and expose the pool to prosecution by a competition authority. Among the possible negative factors is the pooling of competing patents. Patent pools involving substitute technologies aim at softening the price competition among its members rather than benefitting social welfare.[78] Such organization may amount to the creation of a price-fixing cartel.[79] In the case of a pooling agreement between competitors, it is suggested that the absence of actual exploitation of the licensed technology indicates an underlying anti-competitive rationale.[80]

Some governing provisions of pools, such as grant-back clauses, are relevant to the assessment of the potentially harmful effects that a pool can have on the market. Grant backs oblige pool members to offer the future patents to the pool royalty-free, if the pool considers them relevant for its purposes.[81] From the pool's perspective, this ensures the common benefit from individual innovation. From the member's point of view, it erases the incentive to invest in further development of the product. Hence, the outcomes of the grant-back provisions are also harmful to the public benefit. In the context of international law, grant-backs are explicitly listed as potentially anti-competitive in Article 40 of the TRIPS Agreement. According to Art. 40, Member States may on a voluntary basis interfere with licensing agreements and address anti-competitive practices by defining them as illegal per se or allowing for a rule of reason review.[82]

If members of the pool are not allowed to independently licence their contributed technology in the absence of alternative products, the pool may charge a price above the competitive rate. It is not in the legislator's interest to allow the pool prices of be higher than the total sum of independently charged royalties. Therefore, the presence of independent licensing in the pool's government policy decreases the possibility of price-fixing. In return, independent licensing does not collide with the pools of complementary patents, because the value of its separate components is much lower or the licensing takes place in a non-competing market.[83] Moreover, independent licensing facilitates searching for alternative uses of patented inventions and prevents pseudo-innovations that are produced for perspective blackmailing of the pool members and prosecution of a buyout strategy.[84]

Furthermore, pooling organizations may facilitate potential collusion amongst the competitors by creating a setting for the exchange of sensitive information on pricing, marketing strategies, or R&D information between the members.[85]

Other competitive risks include situations where a pool creates an industry standard and may preclude other

[74] Guidelines on technology transfer agreements (2014) paras. 247, 253, EuC.

[75] Verbeure, 2009.

[76] See para. 2.2.1 on the history of the patent pools.

[77] Lin, L. (2011) Licensing Strategies in the Presence of Patent Thickets. [Online] Journal of Product Innovation Management, 28 (5), 698-725, Business Source Premier. Available from: https://doi.org/10.1111/j.1540-5885.2011.00835.x [Accessed 1 April 2017].

[78] World Intellectual Property Report (2011) The Changing Face of Innovation, Ch. 3, 123. [Online]. Available from: http://www.wipo.int/edocs/pubdocs/en/intproperty/944/wipo_pub_944_2011.pdf [Accessed 3 April 2017]

[79] Guidelines on technology transfer agreements (2014) para. 246, EuC.

[80] Guidelines on technology transfer agreements (2014) para. 59, EuC.

[81] See Layne-Farrar, A. & Lerner, J. (2011) To Join or Not to Join: Examining Patent Pool Participation and Rent Sharing Rules. [Online] International Journal of Industrial Organization, 29 (2), 294-303. Available from: https://doi.org/10.1016/j.ijindorg.2010.08.006 [Accessed 4 April 2017]..

[82] Pires de Carvalho, N. (2008) The TRIPS Regime of Antitrust and Undisclosed Information. Kluwer Law International, 161 et seq. As referred to in World Trade Organization Secretariat's Report (2014) Patent Pools and Antitrust – a Comparative Analysis. [Online]. Available from: http://www.wipo.int/export/sites/www/ip-competition/en/studies/patent_pools_report.pdf [Accessed 3 April 2017].

[83] See Lerner, J. & Tirole, J. (2004). Effcient Patent Pools. The American Economic Review, 94(3), 691-711; Lerner, J. & Tirole, J. (2008) Public Policy toward Patent Pools. [Online]. In: Jaffe, A., Lerner, J., Stern, S. (eds.) Innovation Policy and the Economy. University of Chicago Press, 8, 157-186. Available from: http://papers.nber.org/books/jaff08-1 [Accessed 4 April 2017].

technologies from successful commercialization and exploitation, notwithstanding their quality.[86]

3. BIOTECHNOLOGY PATENT POOLS

3.1 Pooling Against Patent Thickets in Biotechnology

The presence of dispersed patent rights in certain technology fields requires the licensee to simultaneously bargain for many agreements. It inevitably increases the number of payed royalties (royalty stacking) and prevents easy access to the technology needed for innovative research. Patent thickets lead to a situation which is described in literature as anti-commons effect.[87] A patent pool can be a suitable way to avoid these difficulties and widen access for a bigger audience. The model, which has initially been designed to fit the requirements of machine industry, is nowadays applied in the field of biotechnology, which also bears the characteristic of a field with multiplied patents. Several of its subdivisions, such as gene-based technology and vaccination programs, have tried out or are suggested to try the patent pooling scheme as a possible solution.

Patent pools are deemed by some authors, due to the nature of biotechnology industry, to be unsuitable for resolving its intellectual property problems. Apart from the inherent advantages and disadvantages of the pooling system, the unique characteristics of biotechnology sector contributes with some specific concerns.[88]

3.2 Application of Patent Pools to Biotechnology

The problem of restricted access to genetic resources and data was addressed in a United States Patent and Trademark Office's (USPTO) paper. The USPTO offered patent pools as an answer to challenges associated with the patent system in biotechnology industry.[89] Four advantages of patent pooling were suggested. First, the application of pooling model may decrease the number of blocking and stacking patents in the biotech industry.[90] Since this sector has many patent applications covering genes, ESTs and DNA sequences, combining these patents into a single pool will reduce the blocking and stacking issues faced by the downstream product manufacturers. After being established, these patent pools will also indirectly benefit from encouraging further innovation and easing the burden of collecting patents required for a certain project.[91] Second, patent pools help to reduce the licensing transaction costs.[92] Companies are less likely to initiate legal suits against each other, because it will be in their best interest to protect their patents from invalidation. Third, pooling should be attractive to biotechnology businesses for the purpose of reimbursement of the high R&D costs. The companies can at least recoup expenses, if not profit, from licensing their inventions to a greater number of interested parties. Thus, biotechnology businesses can distribute the risks and provide wider access to related technology.[93] The last benefit is connected to the intensified sharing process of undisclosed technical information between the pool members. The USPTO points out the increased trust amongst the companies will save valuable resources and help avoid the duplication of each other's work.[94]

However, if one looks carefully at the advantages outlined by the USPTO, one will find that precisely the same benefits can be found in any patent pool without relation to a particular industry. Although for other types of businesses patent pooling proved to be advantageous, for the biotechnology sector, the downsides and obstacles associated with pooling outweigh the possible benefits.[95] Therefore, these specific obstacles need to be examined.

The biggest concern is that the biotechnology industry is critically different from the other industries. One of the main benefits of pooling is the dissolution of the blocking patents problem. The number of filed patent applications for the biotechnological inventions is, indeed, tremendous and keeps growing: from 5539 EPO filings in 2012 to 5744 biotech applications in 2016.[96] Patents on pharmaceutical products take 55% of all patent in biotechnology industry in Europe. Nevertheless, not all patent applications receive approval from the patent authorities. In 2016, EPO granted only 3108.[97] As previously mentioned, most innovative and interest-bearing drugs in modern biotech industry are based on genetic discoveries, and sometimes on the experiments involving human embryonic stem cells. Obtaining a patent on human embryonic stem cells is complicated because of its collisions with ethical considerations. Patent offices around the world tend to apply stricter utility requirements to patent filings on genes and inventions involving human embryos, which inevitably decreases the number of granted patents.[98] The

[84] World Intellectual Property Report (2011), The Changing Face of Innovation. Ch. 3, 124. [Online]. Available from: http://www.wipo.int/edocs/pubdocs/en/intproperty/944/wipo_pub_944_2011.pdf [Accessed 3 April 2017].

[85] Pires de Carvalho, 2008, 67.

[86] Guidelines on technology transfer agreements (2014) para. 246, EuC.

[87] The anti-commons effect is further elaborated in section 3.2 of this thesis.

[88] See Levang, 2002.

[89] United States Patent and Trademark Office (2000) Patent Pools: A Solution to the Problem of Access in Biotechnology Patents? [Online], 2. Available from: http://www.uspto.gov/web/offices/pac/dapp/opla/patentpool.pdf [Accessed 8 May 2017]

[90] Id. 8.

[91] Clark, 2000, 8.

[92] Id.

[93] Clark, 2000, 8.

[94] Id. 10.

[95] Levang, 2002, 241.

[96] EPO, European Patent Applications 2007-2016 per field of technology. [Online] Available from: https://www.epo.org/about-us/annual-reports-statistics/statistics.html [Accessed 9 May 2017]

[97] EPO, Granted Patents 2007-2016 per Field of Technology. [Online] Available from: https://www.epo.org/about-us/annual-reports-statistics/statistics.html [Accessed 9 May 2017]

[98] USPTO implemented new guidelines for granting patents on expressed sequence tags (ESTs) in 2001. See Levang, 2002, 241. From the EPO's point of view, ESTs are most likely not to be patentable at all; European law allows protection of gene sequences if the claims a) reveals the technical effect (Guidelines C-IV, 2.3), b) their structure and function are specified (Guidelines C-IV, 4.6), c) their industrial application must be disclosed (EPC, Rule 23(c)(3); Decision of the Board of Appeal T-0870/04 (BDP1)). Also see Correa, C. The SARS case: IP fragmentation and patent pools. [Online]. In: van Overwalle, 2009.

EPO, however, followed the more liberating opinion of the European Court of Justice (ECJ) given in decision C-364/13, where the ECJ held that parthenotes[99] are not classified as embryos.[100] After this case, the EPO allowed the patenting of human embryonic stem cells that were generated by morally acceptable means, starting from 5 June 2003.

Despite a reasonable decrease in granted genetic patents, biotechnology will still face the problem of blocking patents. The industry, though, keeps using 'traditional uses cross-licensing' as a solution instead of patent pooling.[101] Although the costs of obtaining a patent are high, the costs of infringement litigation with another competitor are even higher. This explains the companies' preference to play it by ear and continue producing new formulas, ignoring the actual or potential infringement risks. Taking into consideration the falling numbers of granted genetic patents and the availability of alternative methods, patent pools are not the only, nor a common, solution to the issue of blocking patents.[102]

The second suggested benefit of patent pooling - reduction of litigation costs – should allow businesses to receive an economic gain. However, to present a more accurate and fuller picture, the costs of establishing and maintaining a patent pool should be considered, too. Upon the initiation of a pooling enterprise, the participants stake on the demand in a product produced on the basis of pooled patents, which would generate big profits and therefore substantiate the financial and material expenses needed to form a pool.[103] Unlike IT technologies utilized for the production of consumer devices, biotechnologies may have a limited audience and a restricted field of application. Consequently, it is likely that the high costs of the pool set-up may exceed the possible litigation costs with competitors in the absence of a pool, thus making it unprofitable for biotech businesses to establish patent pools.[104]

Lastly, the biotechnology industry normally derives the last mentioned benefit – risk distribution and information exchange – by applying its traditional methods, including licensing and royalty plans. These methods allow participants to access the most important methods of research and development that are used by any modern biotech business without resorting to patent pooling. Traditional schemes help companies save up on doubling the research efforts put in by the patentees, and the royalty fees for licenses usually incorporate the costs of development, thereby gaining profits.[105]

3.3 Biotechnology Patent and Antitrust Concerns

Similar to patent pools in other industries, biotechnology patent pools are subject to antitrust policies. Biotechnology patent pools have also often been discouraged because of their predisposition towards antitrust violations, ability to raise production prices, and spark collusions.[106] Apart from the traditional antitrust concerns faced by all patent pools, biotechnology pools have to navigate through the distinguishing issues of the industry.

3.3.1 Traditional Antitrust Concens and Biotechnology Pools

When companies decide to combine their anti-competitive technologies, it may result in collusion. A prominent example of this are the Summit/ VISX and MPEG-2 patent pools, which were established within the same time frame. The Summit/ VISX patent pool was a solution to a litigation conflict between two holders of the blocking patents on technology for photorefractive keratectomy (vision-correcting eye surgery). The pool allowed its parties to share the revenue for licensed technology, which came from a set price of $250 for every single use of the patented laser technology in an eye surgery. Elimination of a patent thicket for accessing the market was the main reason for establishing both patent pools. However, only Summit/ VISX was found to be a cartel, since it consisted only of two members and imposed restrictions on third party licensing rights, while, in MPEG-2, there were several licensors independent from the party that set up the pool and it allowed any third-party licensing from the pool. The American Federal trade commission was convinced that both technologies were able to compete within a single market, and any patent blocking occurred because of the collision with an invalid patent held by VISX. Hence, the parties should generally be advised to, firstly, calculate the number of competing technologies, and, secondly, determine the presence of a patent thicket.[107] Additionally, the patent pool had to be dissolved because it facilitated the raise, fixation, and stabilization of the price that physicians must pay to perform laser eye surgery procedures.[108]

[99] An organism produced from an unfertilized ovum, which is incapable of developing beyond the early embryonic stages. Oxford Dictionary. [Online] Available from: https://en.oxforddictionaries.com/definition/parthenote [Accessed 20 February 2018]

[100] CJEU, C-364/13 International Stem Cell Corporation v Comptroller General of Patents, Designs and Trade Marks, [2014] ECLI:EU:C:2014:2451, para. 38.

[101] Shapiro, 2001, 12.

[102] Levang, 2002, 242.

[103] Shapiro, 2001, 17.

[104] Levang, 2002, 242.

[105] Id. 243.

[106] Levang, 2002, 244.

[107] Lundqvist, B. (2014) Standardization under EU competition rules and US Antitrust Laws: The Rise and Limits of Self-Regulation. Cheltenham: Edward Elgar Publishing Ltd, 291.

[108] Levang, 2002, 244.

[109] Id. 246.

[110] For more information on the history of patent pools, please see para. 2.2.1 of this thesis.

[111] For more information on SNP Consortium, see section 2.4.3 of this thesis.

[112] Levang, 2002, 248-249.

[113] Id. 250.

[114] Horn, L. (2009) MPEG LA® Licensing Model: what problem does it solve in biopharma and genetics? [Online]. In: Geertrui van Overwalle (ed.) Gene Patents and Collaborative Licensing Models: Patent Pools, Clearinghouses, Open Source Models and Liability Regimes. Cambridge University Press, 33-41. Available from: https://doi.org/10.1017/CBO9780511581182.004 [Accessed 28 April 2017]

[115] Horn, 2009, 33-41.

[116] Id.

Another issue that commonly accompanies the creation of a patent pool is the preservation of potentially invalid patents. When a company is sued by a competitor and is concerned about its patent's validity, a patent pool may be proposed as a settlement measure to protect patent rights and the income from royalties for the holder of the challenged patent. At present, large numbers of biotechnology companies use litigation as a method for resolving invalidity and other intellectual property issues. There is a risk that patent pools will encourage businesses to settle for royalties from a patent pool instead of wasting money on extensive litigation procedures and ending up with an invalidated patent.[109]

3.3.2 Pooling Concerns Based on the Peculiarities of the Biotechnology Industry

Historically, patent pools have emerged only after long and exhaustive disputes, sometimes with the encouragement from the government.[110] Therefore, pooling was considered to be the last resort for dead-end situations where continuance of litigation was causing more harm than profit to both parties. It follows that the independent manufacturing and/or development of a new product is still preferred by the most companies. This tendency equally applies to biotechnology companies, which stick to obtaining required technologies and placing their products on the market through licensing or extensive litigation, as opposed to collaboration. In regards to government involvement, it has been minimal within the biotechnology industry and has delivered some results only in the placement of several DNA fragments in the public domain,[111] which, strictly speaking, cannot be classified as a patent pool, since these genes are not privately owned nor licensed to the pool by the patent holders.

From an economic perspective, companies that operate within a same or similar field and have a long history of mutual cooperation enjoy a greater chance of successfully forming a patent pool. Biotechnology companies for the most part do not meet the requirements of homogeneity and relationship duration, consequently decreasing the number of chances for forming a profitable pooling organization. In addition to this, participants of the biotechnology industry differ in size and overall perspective on the best ways to utilize their patents. The mismatched concepts of patent value and appropriate licensing fees will hinder parties from reaching a consensus. For instance, a university may be interested in making its invention accessible to as many parties as possible to support new research programs, thus sacrificing the high royalties. In contrast, a pharmaceutical company will usually aim to commercialise the patent and maximize the profits. As a result, the chances of such entities forming a pool on mutually beneficial terms are low.[112]

Furthermore, even if there are enough parties interested in forming a pool, another obstacle appears: the difficulty of patent evaluation at the moment of contribution. Many technologies do not possess an extensive history of research and applications, so their full potential is not revealed yet. The speculations about their usefulness to other member's goals decreases a patent's value. However, after a patent is incorporated and undergoes the testing in combination with other pooled methods and inventions, its valuation would surely increase. In biotechnology, companies quite often apply for the patents on genes and DNA sequences without full knowledge about their utility and function. Two extreme situations are likely to take place: either a company will not be able to receive a fair price for a contributed patent, or it will artificially inflate the price of its patents because the main economic asset of many biotechnological companies is their intellectual property portfolio. If, nevertheless, a gene is known to be responsible for the creation of a highly successful product, it would seem natural for its patentee to resist joining a patent pool where it will become accessible to the company's competitors.[113]

Overall, it could be concluded that the main characteristics of the biotechnology sector that hinder patent pooling are the disparate goals of its members and the difficulty of determining a patent's value at the moment of contribution to the pool. Due to the high costs of establishing a pool, a potential licensee often prefers to work around the issue of patent stacking, look for alternative solutions, such as public databases, or simply wait for the patent to expire.[114]

A juxtaposition of a currently existing pool governance system and a licensing model for a new biotech product may give a good understanding of the industry's ability to fit into the created business-legal environment for cooperation. To exemplify this, the MPEG LA Licensing Model which is worshiped as the most successful solution to patent thicket problem, is used. MPEG LA holds the rights to multiple essential intellectual property objects on a basis of non-exclusive sub-licence. An independent licensing administrator is responsible for: offering the licensees a licensing package on fair, reasonable, non-discriminatory terms; collecting and distributing royalties for the profit of the essential patent owners, and receiving an administrative fee out of collected royalties.[115] The status of an independent licensing administrator implies that MPEG LA is not affiliated with any standard agency or patent owner, and does not own any patent rights under a licensing agreement. It acts as a buffer between multiple IPR holders and customers, thus responding to the needs of the "many-to-many" licensing model: multiple patent rights that are demanded by multiple interested parties.[116] The presence of buyers and sellers for a technology is the ground for its marketability. A few other factors play a role in its success: a) a pool's licence should be favoured over

the bilateral agreements, b) royalty products should be identifiable, and c) the licensing fee should reflect a balance of royalty, revenue, administrative fee and other material stimulants that ensure a reasonable return to patent providers, reasonable access for licensees, reasonable profit for an administrator, and legal compliance.[117]

Moreover, MPEG LA employs all legal safeguards ensuring the pool's credibility, such as providing the license on equal terms to any interested party and hiring independent experts to evaluate the essentiality of technology covered by the patent claims. Both licensors and licensees are free to license their technologies outside the pool.

Having the expertise in biopharma and genetics, MPEG LA conducted research in which it identified the problems that its licensing model can solve and tried to encourage industry representatives to apply it. In accordance with this research, biopharma and genetics differ from telecommunications, consumer electronics, computers and similar industries, in ways that may affect the feasibility of one-stop technology platform licensing and they should be accounted for as such.[118]

First, it is not common to form standards in biotech and genetics industry, as they are not usually the main spurring power for further development. Second, interoperability and non-exclusivity can be expedient in these industries for the early-stage research technology (upstream development) that is currently available, and for certain diagnostic applications. However, the value of upstream development is restricted by the research exemption,[119] troublesome tracking of infringements and the minimal number of reach-through patent claims[120] that limit the patent value.[121] The value of a company is closely connected to its IP portfolio that fosters a "bunker mentality" to protect the exclusivity of the end-product; unlike IT, branding does not play a significant role in promoting the product on the market.

Moreover, vertically integrated pharmaceutical companies may not be interested in joining a pool since they usually possess all the necessary resources to take the product from the research to the market.[122] To ensure its feasibility, a patent pool has to be an economically attractive undertaking. The holders of required technologies must thus be encouraged to commit to sharing their rights for creating wholesome patent packages. The attractiveness is, *inter alia*, related to the schemes of distribution of the pool's revenue. There are several theoretical models used in recent works for the problems of pool participation. Aioki and Nagaoka's theoretical model suggests that the income from licensing a pooled technology should not be distributed evenly among members. Three types of possible participants are identified: manufacturing-only firms, R&D-only firms, and vertically integrated firms that perform both the research and the production of the downstream goods. Accordingly, the motivation to contribute depends on the corporate structure and functional diapason of a member. A company with a primary focus on R&D lives off the licensing fees and mostly benefits from the circumstances where the charged royalties are not too high. Such firm will always be interested in deviating from a patent pool, but independent licensing also can make its financial position worse. A vertically integrated or manufacturing-only company, in contrast, are interested in lowering royalty rates to their minimum so they can minimize their own production costs. Therefore, the authors conclude that the equal treatment of all pool members would be detrimental to the pool.[123]

Thirdly, a voluntary collaboration of the patent holders is always better than a forceful governmental intervention because it drives the market of innovative products. Nevertheless, it also has a drawback in a form of a holdout, when a patent owner purposefully remains outside the pool in hope to yield more from direct licensing with the third parties. Such actions can hinder the pool's formation, and there is little that other parties can do to ensure the pool's creation. The acute interdependency of the patent holders in consumer electronics in creating a market for their products decreases the chances of holdout behaviour. For biotech businesses it is more common to run in parallel rather than a team, since their culture is not, to the same extent as consumer electronics, dependent on forming a common market.[124]

Finally, patent pools should be formed where the presence of a proactive intermediary – the administrator – is necessary to solve the problem in question. Therefore, biotechnology pools around a specific target surrounded by multiple of patent thickets are most likely to succeed.[125] Whether it be a molecule, a specific type of drug or even a disease, a pooling model similar to MPEG-LA may be helpful in resolving the access issue.

3.4 The Medicines Patent Pool and EU Competition Law Requirements

Under a closer look at its structure, governance and licensing model, it can be deciphered that the MPP fulfils all requirements of the EU competition law Guidelines:

a) reduces the licensing transaction costs. Interested companies and institutions can license patents for no charge or as little as 5% of the net sales of the final product;

b) clears patent thickets by creating a one-stop-shop for

licences;

c) Facilitates dissemination of technology and stimulates innovation. Through the MPP, generic manufacturers and research institutes gain access to technology that is necessary to develop acutely needed paediatric formulas of AIDS/HIV drugs. The manufacturers deliver the latest versions of drugs with higher effectiveness to the patients who cannot otherwise receive the treatment. In addition, terms of the licence allow a licensee to export a product manufactured with the aid of the licensed technology to other countries. However, the geographical application is still limited to certain states or only states where a compulsory licence has been issued;
d) Includes only essential and complementary patent technology. The Expert Advisory Group of the MPP consists of independent experts with various specializations. Their work in several focus groups supports a high standard of expertise. As for their autonomy from other governing bodies, it can be argued that the election method and the absence of regular salary apart from the compensation of work expenses such as travelling costs,[126] guarantees the experts' impartiality;
e) Does not shield any invalid patents. The validity of all patents contributed to the pool their validity has not been challenged at the moment of licensing or afterwards.

Despite the overall compliance with the law and the needs of the market, the MPP has been subject to criticism. One of the arguments pointed out the incoherence of the pool's aim to provide equal access to all of the pooled patents with the absence of a standardized licensing agreement. Various proposals for the license were claimed to be available for any interested party to get acquainted with and express its opinion.[127] The second point of criticism was the ambiguous status of the object of the sub-licence provided by the MPP and its first contributor - Gilead Sciences - to an Indian producer in 2011: at the moment of taking on the obligations, the patent on tenofovir disoproxil fumarate (TDF) compound has not been granted by the Indian patent office.[128]

3.5 Reflection of the MPP's Success on the Private Biotechnology Sector

Following the success and public support of the MPP model, several companies are already willing to employ a new system of IP protection for certain biotechnologies, allowing wider access to innovative medicines around the world. In its recent press release, GSK announced its next-level graduated approach to filing and enforcing patents so that IP protection reflects a country's economic maturity. Besides adopting a tiered pricing system and data-sharing practices, the company acknowledged that even reduced costs do not solve the problem for the countries with lowest income rates. Thus, abandoning property rights may be the only acceptable solution.

> *"For the Least Developed Countries (LDCs) and Low Income Countries (LICs), GSK will not file patents for its medicines, so as to give clarity and confidence to generic companies seeking to manufacture and supply generic versions of GSK medicines in those countries."* [129]

[117] Id. 35.
[118] Horn, 2009, 38.
[119] Research exemption allows generic manufacturers to start drug testing before patents expire, which allows to put the product on the market as soon as possible after the expiry date. In the EU law, research exemption is provided by Directive 2001/82/EC (as amended by Directive 2004/28/EC) and Directive 2004/27/EC (Art. 10(6)).
[120] «In certain technical areas (e.g. biotechnology, pharmacy) cases occur where:
(i) one of the following and its use in a screening method have been defined as the only contribution to the art: a polypeptide, a protein, a receptor, an enzyme, etc., or
(ii) a new mechanism of action of such molecule has been defined.
It may happen that such applications contain so-called "reach-through" claims, i.e. claims directed to a chemical compound (or the use of that compound) defined only in functional terms with regard to the technical effect it exerts on one of the above molecules». See EPO Guidelines for Examination, Ch. III, para. 9. [Online]. Available from: https://www.epo.org/law-practice/legal-texts/html/guidelines/e/f_iii_9.htm [Accessed 2 May 2017].
[121] Horn, 2009, 38-39.
[122] Genetic Inventions, Intellectual Property Rights and Licensing Practices: Evidence and Policies. [Online] Organization for Economic Co-operation and Development. Available from: https://www.oecd.org/sti/sci-tech/2491084.pdf [Accessed 2 May 2017]
[123] Aoki R. & Nagaoka S. (2004) The Consortium Standard and Patent Pools. [Online]. Available from: http://hi-stat.ier.hit-u.ac.jp/research/discussion/2004/pdf/D04-32.pdf [Accessed 04 May 2017].
[124] See Goldstein, J. (2009) Critical analysis of patent pools. [Online] In: van Overwalle, G. 2009. Available from: https://doi.org/10.1017/CBO9780511581182.006 [Accessed 28 April 2017].
[125] Horn, 2009, 40.
[126] Medicines Patent Pool Foundation By-Laws of 8 December 2011.
[127] Love, J. (2011) KEI comments on the ITPC Letter to the Medicines Patent Pool Foundation and UNITAID. [Online]. Available from: http://www.keionline.org/node/1294 [Accessed 15 May 2017].
[128] Tripathy, S. Bio-patent Pooling and Policy on Health and health Technologies that Treat HIV/AIDS: A Need for Meeting of [Open] Minds. [Online] In Perry, M. (ed.) Global Governance of Intellectual Property in the 21st Century, Switzerland: Springer International Publishing, 29-50. Available from: https://doi.org/10.1007/978-3-319-31177-7 [Accessed 15 May 2017].
[129] GSK expands graduated approach to patents and intellectual property to widen access to medicines in the world's poorest countries. (2016) [Online]. Available from: http://www.gsk.com/en-gb/media/press-releases/gsk-expands-graduated-approach-to-patents-and-intellectual-property-to-widen-access-to-medicines-in-the-world-s-poorest-countries/ [Accessed 2 May 2017].

GSK has also decided on licensing its patents on oncology drugs to the MPP. Despite being a great forum for innovative partnership, MPP licenses are limited to a number of countries and do not address all of the important access challenges. This is why it is crucial that the MPP licenses allow medicines produced on their terms to be marketed outside of the licensed territory, where the patent is not protected or where compulsory licenses have been issued. GSK's access-to-medicine strategy has set a good example for other pharmaceutical companies to engage in expanding the access to their patented medicines, besides HIV and HCV drugs.[130] Gilead and Bristol-Myers Squibb have answered the roll call by becoming the first companies to deploy non-exclusive voluntary licensing of the new effective products for curing hepatitis C, which were added on the WHO Essential Medicines List.[131]

As a public stimulant for the companies' activity and an informative source on their responsiveness, every two years the Access to Medicine Foundation[132] researches drug companies behaviour when it comes to making certain medicines more accessible to populations in need. The leading companies are appraised for being needs-oriented and ready to invest in urgently needed, although not blockbuster, drugs. The Access to Medicine Index[133] ranks the top 20 largest pharmaceutical companies, based on seven areas of behaviour connected to access: strategy, governance, R&D, pricing, licensing, capacity building and donations. According to the last report in 2016, GSK leads the industry for the fifth year in a row by focusing primarily on R&D, improving the pricing, manufacturing and distribution policy (a quarter of its sales is in emerging markets), and, as verified above, patent and licensing strategy. Despite indisputable leadership on the most grounds, GSK recedes in compliance with some national regulations on corruption and unethical marketing; however, the compliance index appears to be quite low for any company in the ranking.

4. CONCLUSIONS

4.1 What Conditions are to be Satisfied by Patent Pools to Avoid Incompliance with Art. 101 of the TFEU?

According to the current European antitrust regulation, patent pools are completely excluded from the scope of block exemption. To be found pro-competitive, these agreements need to be in conformity with Art. 101(3) of the TFEU. The EU Commission Guidelines on technology transfer agreements provide information on the assessment methods within the legal framework of market competition.

To avoid falling under Art. 101(1), by the rule of Art. 219 of the Guidelines, patent pools should not include substitute patents. This general rule prompts that patent pools should consist solely of essential patents. It further imposes the obligation on parties to seek independent expertise on the matter of essentiality when considering to add a new technology to the pool. Autonomous examination of essentiality prevents the pools from unequal representation of complementary technologies on the market or of retaining a non-essential technology and, consequently, violating the competition regulation. Finally, the Guidelines on technology transfer agreements (2014) suggest a list of criteria, which can help a pool comply with the antitrust regulation.[134]

4.2 What Effect does EU Competition Law on the Innovating Function of a Patent Pool?

The basis of patent pools innovating function is the guaranteed access to knowledge vested in IP. This access requires a consensus between the interested parties. In a case where two or more complementary technologies are needed for production or research, and the lack of access to one of the technologies makes others useless for this purpose, from the licensee's and licensor's point of view, cartel pricing is more beneficial as it removes royalty stacking and increases profits. This seemingly positive interest, indeed, contradicts the EU competition law, which forbids the formation of cartel agreements because of their negative effects on the competition practices.

In case of several competing and non-infringing patents and no patent pool, harsh competition between the technologies will yield little profit. Licensing from a pool for a smaller fee decreases the attractiveness of litigation; a pool becomes a conglomerate of monopolistic power and decreases competition among the patent holders. Such pools should be prohibited.

Moreover, the Guidelines tell us that patent pools should include only complementary patents. However, as it previously demonstrated, the patent's nature is dynamic, and what is deemed to be complementary today may become a substitute tomorrow. A flexible licensing package that allows to choose from a list of non-strictly essential technologies opens up new opportunities to the licensees, giving them a choice between similar tools to achieve the same functionality.

As it can be seen, competition law does not always match the interests of patent pool participants, although

[130] Love, J. (2016) KEI statement on GSK's announcement of policies to expand access to patented medicines. [Online]. Knowledge Ecology International, 31 March. Available from: http://keionline.org/node/2452 [Accessed on 2 May 2017]

[131] Non-exclusive voluntary licensing outside of HIV/AIDS. [Online]. Available from: https://accesstomedicineindex.org/best-and-innovative-practices/non-exclusive-voluntary-licensing-outside-of-hivaids/ [Accessed 2 May 2017]

[132] See www.accesstomedicinefoundation.org

[133] Access to Medicine Index 2016. [Online]. Available from: https://accesstomedicineindex.org [Accessed 2 May 2017]

[134] See para. 2.1.

[135] Id.

the imposed precautions can hardly be called unreasonable. It has been argued that existence of a pool may create a false increase in the number of innovations which bear no social benefits and are solely made to be bought out by the pool to avoid competition.[135] Therefore, a pool where the parties retain the right to license their technologies independently outside the pool provide greater welfare. Supposedly, it is for this purpose that the EU Commission included independent licensing in the current list of safeguards in the Guidelines on technology transfer agreements (2014), while historically this condition did not accompany the pools' formation.

In conclusion, patent pools can stimulate innovation, if they contain the following characteristics:

1) fair, reasonable, and non-discriminatory terms of access for all interested parties;
2) licensing terms that are publicly available for ensuring their transparency;
3) flexible licensing packages including essential and complementary technologies;
4) licensees which have a freedom to use the resulting products;
5) licensees which are be able to conduct further research on the licensed technology.

Thus, as long as the antitrust regulations create a welcoming environment for the prospective participants of a pool, the industrial development and social welfare can be increased by means of this licensing mechanism.

4.3 What Factors Hinder Biotechnology Businesses from Pooling their Technologies in the Context of Modern EU Competition Law?

Patent pooling has for a long time been a popular model of collaboration between the companies in the consumer electronics industry, where a great number of patents are united to create industrial standards and ensure the product compatibility of various producers within a new common market. Due to the rise in demand of biotechnology and pharmaceuticals on a global level and the acute shortage of affordable medicines for lethal diseases in countries of the developing world, patent pooling became a seemingly suitable solution to satisfy the demand. Biotechnology patent pooling is believed to be a new answer to the public health issues, including the access to HIV/AIDS, tuberculosis and hepatitis treatments, and to facilitate the development of urgently needed paediatric formulas and fixed dose combinations.

However, there are some peculiar characteristics that may hinder the success of the pooling model. Some experts in the field mention the following qualities:

a) The tradition of using litigation and licensing to resolve patent thickets. In the presence of a patent pool, the claimant may prefer to settle for the pool royalty fee instead of pursuing a patent's invalidation in a costly procedure. This creates a risk of shielding the invalid patents inside the pool;
b) That, generally, biotechnology corporations do not need to ensure the interoperability of products within a common market;
c) That the exclusivity and protectiveness of the biotech companies' over their IP portfolios are necessary for commercial success but contradict the open licensing goal;
d) If the pool founders comply with the antitrust requirement of an open membership, biotech businesses with different goals may not reach a consensus on the appropriate size of the royalty fees;
e) Insufficient knowledge about a patent's potential value for the pool is another value-decreasing factor leading to disagreements between the patent holders. If, however, the patent is known to yield high profits, the company is likely to retain the technology to itself.

The Medicines Patent Pool is a living example of international success, and is one of the first examples of pooling in life sciences. However, its activity covers a limited number of countries in need and it issues licenses only for a certain scope of diseases. Patent pooling in the biotechnology industry appears to be advantageous where the target is well-defined and has a potential for creating substantial demand on the product. From this observation, it follows that pooling might not be as fruitful when it concerns the development of vaccines for epidemics. Nevertheless, patent pooling appears to be a promising formula for genetic diagnostics – the future technology of the medical industry with the most acute problem of patent thickets.

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The Business of Intellectual Property
A Literature Peview of IP Management Research

By Marcus Holgersson and Sarah van Santen

ABSTRACT

Today intellectual property (IP) is comprises an increasing share of firms' resources and IP rights (IPRs) are important sources of competitiveness. Consequently, there is an increasing interest in how to properly manage IP. IP lawyers need to better understand business decisions and business managers need to better understand IP law. These needs are addressed by a growing area of research on IP management in the intersection between IP law and management. This article presents a literature review of the broad field of IP management research, with the aim to provide IP law practitioners, managers, and academics with an overview of what we know about IP management, to guide readers in how/where to learn more, and how to move forward in both research and practice. A general conclusion is that the research is rich and quickly growing, but has too little focus and data on strategic IP management issues. Both research and practice need to adopt a more holistic perspective on IP, including different rights and integrating with strategic decision-making.

1. INTRODUCTION

Intellectual property (IP) constitutes an increasing part of firms' resources. As such, it is also becoming increasingly important for firms to properly manage their IP and IP rights (IPRs). IPRs and the management of IP impact how a firm organizes its business, how it profits, and how it competes. Thus, the practice of IP not only requires legal competence, but also management competence.

Just as there is a need for business managers to better understand IPRs, there is a need for IP law practitioners of various kinds to better understand business and management. But what do we know about this intersection between IPRs and management, from here on called IP management, and what do we need to learn more about? In fact, there is already a rich research literature on IP management. Much can be learned from this literature, but much still also needs to be better understood.

This article presents a review of the research on IP management. The aim is multifaceted. The first aim is to provide IP law practitioners, managers, and academics with a broad overview of what we know about IP management. The second aim is to provide guidance in how and where to learn more about various parts of the broad field of IP management for further studies. The third aim is to give directions for future actions, for practitioners as well as for academics.

The article continues by briefly describing the method. This is followed with a chapter presenting the results from the different parts of the literature review. Finally, the conclusions and directions for research and practice are presented.

2. METHOD

The review includes three substudies. The first substudy covers previous literature reviews of the field of IP management. The reviews were identified with a Google Scholar search for [review intellectual property management] and a Web of Science search for [review AND literature AND intellectual propert* AND manag*].[1] The 100 first search results were studied, leading to the identification of twelve literature reviews, covering hundreds of research publications.

The second substudy covers special issues in various journals, special issues that are explicitly focused on management of IP. A search of Thomson Reuters Web of Science was used to ensure that no central special issues were missed. In total seven special issues were identified, including a total of 79 articles.

The third substudy of previous research was carried out as a systematic search for articles in Thomson Reuters Web of Science (which includes research published in quality journals). A search was made of central concepts in titles, keywords, and abstracts. The central concepts include broad concepts such as 'intellectual property' and 'management', but also narrower concepts such as 'patent' and 'trademark', see Table 3.[2] The search was limited to journals within the research area Business Economics, which is a way to limit search results to studies focused on management and strategy aspects, rather than for ex-

ample purely legal aspects. A search was also made on Google Scholar to cover particularly well-cited research not included in Web of Science.

The search in the third substudy was carried out twice. Once in 2016, covering all literature historically up until 2016, and once in 2018, covering literature between 2016 and 2018. This design allows for identifying recent trends in research. In total the first search provided 607 publications, which were then scanned on title level to exclude obviously irrelevant publications, leading to a final set of 265 publications included in the systematic review. The second search provided 145 publications, including 100 relevant ones after the first scan of relevance. Compared to the amount of relevant publications identified in prior years, this number indicates that intellectual property management as a research field is still growing rapidly, with each year seeing an increased interest in research on the topic. Figure 1 illustrates the number of publications included in the different substudies.

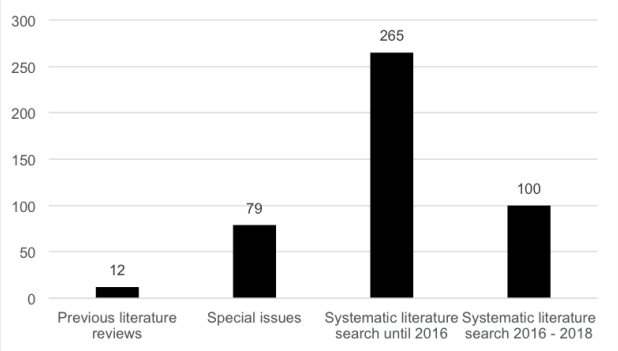

FIGURE 1 NUMBER OF PUBLICATIONS INCLUDED IN DIFFERENT SUBSTUDIES

3. LITERATURE REVIEW

This chapter is structured according to the different substudies. It starts with an overview of previous literature reviews in section 3.1. After that, a review of special issues is presented in section 3.2. Finally, the structured literature review is presented in 3.3.

3.1 Previous Literature Reviews

Previous literature reviews have either been broadly focused on IP management, like this one, or more narrowly focused on specific subfields. In total, 12 reviews were identified and they are here briefly summarized. This section focuses first on reviews of IP management in broad terms, then on reviews of technology commercialization and transfer, and finally on reviews of other related issues.

Previous reviews of IP management

Seven reviews explicitly focusing on research covering the topic of IP management are presented here. Granstrand (1999) makes an early review of the research landscape relating to IP.[3] Grandstand notices that IP had already at the end of the 1990s had a long, but tiny research tradition. This tradition was at the time fragmented in terms of different types of IPRs (patents, trademarks, copyrights, etc.) and disciplines (economics, law, management, etc.). Granstrand identifies several previous reviews of the literature, ranging all the way back to the 1950s. These are typically not related to the management of IP, but mostly concern economics and more specifically the economics of the patent system.[4]

[1] These searches were performed on May 12, 2016.

[2] The structured literature review is based on a search for management [manag*] in the "topic" of articles (includes searches for management in title, abstract, and keywords) and different key concepts in the title of articles. The key concepts include patents [patent*], intellectual property [intellectual propert*], licenses [licens*], secrecy [secre*], design rights or design patents [design right* OR design patent*], trademarks [trademark*], and copyrights [copyright*]. * indicates that the ending of the concepts can have different forms, for example license or licensing. The first search was done in Thomson Reuters Web of Science on July 11, 2016, and included everything published before that. The follow-up search was done on May 16, 2018, and included publications between 2016 and 2018.

[3] Ove Granstrand, The Economics and Management of Intellectual Property: Towards Intellectual Capitalism (Cheltenham: Edward Elgar Publishing, 1999).

[4] See, e.g., E.g., William D. Nordhaus, Invention, Growth, and Welfare: A Theoretical Treatment of Technological Change (Cambridge, MA: MIT Press, 1969).

Hanel (2006) is the first identified review explicitly focused on management of IP. In line with the work of Granstrand[5], Hanel identifies the growing importance of IP management and the growing interest in the scholarly field, partly as a result of the creation of the 'Court of Appeals for the Federal Circuit' (CAFC) in the US in the 1980s.[6] This led to a now well established growth in patenting, in turn leading to an increasingly complex landscape of IP and IPRs, and an increasing number of litigations. Research has shown that litigated patents in general have more patent claims and more citations per claim, inventions that are part of complex by inventions that are part of complex multi-invention technologies are more likely to be part of litigation.[7] Moreover, patents that have been enforced and proven valid are then more valuable than patents that have not been tested in court.[8] Apart from this literature, Hanel also reviews areas in need of more research, such as the growing fields of IP valuation and securitization.[9] Finally, Hanel identifies a number of differences in the management of IP among firms in different industries and of different sizes.[10]

Holgersson (2013) makes a review of three different but related research streams in patent management (i.e., a subfield of IP management), namely of patent propensity, appropriation strategies, and motives to patent.[11] These different fields of studies have each been covered by multiple research studies. The first research stream, on patent propensity, in general shows that the propensity to patent a patentable invention varies widely across industries.[12] For example, the propensity to patent is very high within the pharmaceutical industry while considerably lower in the electronics industry. At the same time, the patent output per R&D spending may be significantly higher in the latter industry, depending on the generally larger quantity of patentable inventions in complex and multi-invention industries.[13] Differences in patent output across industries are thus more related to technological characteristics than to strategy differences. Several studies also indicate that the patent propensity is significantly higher in large than in small firms.[14] This, however, does in fact seem to depend on strategy differences between large and small firms, in turn depending on the relatively limited resources of small firms.[15] The second research stream shows that patenting is of relatively limited importance for innovation appropriation, i.e. for capturing value from innovation investments, as compared to other studied means of appropriation such as speed to market and secrecy.[16] A common conclusion has been that patents are of low importance for firms. A problem with this conclusion is that it is based on a wide range of firms, not necessarily all being technology-based. A recent empirical study shows that the importance of patenting for appropriation is skewed among firms, where a large group of firms in fact rate patenting very important.[17] In addition, appropriation is only one of several motives for firms to patent, which relates to the third research stream reviewed by Holgersson. Even though the most important motive is to limit imitation, other motives are to avoid trials, to improve bargaining power, to block others, and to improve the corporate image among outside actors.[18] The latter is especially important for small firms, including in their relations with venture capitalists and other providers of external capital.[19]

Another review focusing specifically on patent management is published by Somaya (2012).[20] Based on an extensive review of patent strategy this review divides strategies

5 Granstrand, The Economics and Management of Intellectual Property: Towards Intellectual Capitalism.

6 Petr Hanel, "Intellectual Property Rights Business Management Practices: A Survey of the Literature," Technovation 26, no. 8 (2006).

7 Jean O Lanjouw and Mark Schankerman, "Stylized Facts of Patent Litigation: Value, Scope and Ownership," (National Bureau of Economic Research, 1997).

8 Edward F. Sherry and David J. Teece, "Royalties, Evolving Patent Rights, and the Value of Innovation," Research Policy 33, no. 2 (2004).

9 For some references on IP vaulation, see e.g., A. Damodaran, Investment Valuation: Tools and Techniques for Determining the Value of Any Asset, 2 ed. (New York: John Wiley & Sons, 2002); J.O. Lanjouw, A. Pakes, and J. Putnam, "How to Count Patents and Value Intellectual Property," in NBER Working Paper No. 5741 (1996); Richard Razgaitis, Valuation and Dealmaking of Technology-Based Intellectual Property: Principles, Methods and Tools (John Wiley & Sons, 2009); Gordon V Smith and Russell L Parr, Valuation of Intellectual Property and Intangible Assets, vol. 13 (Wiley, 2000).

10 This is explicated in another review, see Marcus Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives," R&D Management 43, no. 1 (2013).

11 Ibid.

12 See pioneering studies by F. M. Scherer, "The Propensity to Patent," International Journal of Industrial Organization 1, no. 1 (1983); Edwin Mansfield, "Patents and Innovation: An Empirical Study," Management Science 32, no. 2 (1986).

13 "Patents and Innovation: An Empirical Study."

14 Ibid.; Anthony Arundel and Isabelle Kabla, "What Percentage of Innovations Are Patented? Empirical Estimates for European Firms," Research Policy 27, no. 2 (1998); Erik Brouwer and Alfred Kleinknecht, "Innovative Output, and a Firm's Propensity to Patent.: An Exploration of Cis Micro Data," Research Policy 28, no. 6 (1999); Norhène Chabchoub and Jorge Niosi, "Explaining the Propensity to Patent Computer Software," Technovation 25, no. 9 (2005).

15 Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives."

16 Richard C. Levin et al., "Appropriating the Returns from Industrial Research and Development," Brookings Papers on Economic Activity 14, no. 3 (1987); Najib Harabi, "Appropriability of Technical Innovations an Empirical Analysis," Research Policy 24, no. 6 (1995); John Kitching and Robert Blackburn, "Intellectual Property Management in the Small and Medium Enterprise (Sme)," Journal of Small Business and Enterprise Development 5, no. 4 (1998); Brouwer and Kleinknecht, "Innovative Output, and a Firm's Propensity to Patent.: An Exploration of Cis Micro Data."; Wesley M. Cohen, Richard R. Nelson, and John P. Walsh, "Protecting Their Intellectual Assets: Appropriability Conditions and Why Us Manufacturing Firms Patent (or Not)," in NBER Working Paper 7552 (2000).

17 Marcus Holgersson and Ove Granstrand, "The Importance of Patents for Innovation Appropriation and Open Financing - a New View," in R&D Management Conference (Cambridge, UK2016).

18 Anthony Arundel, "The Relative Effectiveness of Patents and Secrecy for Appropriation," Research Policy 30, no. 4 (2001); Emmanuel Duguet and Isabelle Kabla, "Appropriation Strategy and the Motivations to Use the Patent System: An Econometric Analysis at the Firm Level in French Manufacturing," Annals of Economics and Statistics / Annales d'Économie et de Statistique, no. 49/50 (1998); Granstrand, The Economics and Management of Intellectual Property: Towards Intellectual Capitalism; Cohen, Nelson, and Walsh, "Protecting Their Intellectual Assets: Appropriabili-

found in literature into different generic strategies. The first generic strategy is the proprietary strategy, focusing on how firms can protect and defend their competitive advantage from imitation. The second generic strategy is the defensive strategy, focusing on how firms defend themselves against the patents of others. The third generic strategy is the leveraging strategy, focusing on how firms can use patents to enable improved profit opportunities, either directly or indirectly.

An example of how patents can be used for indirect profit opportunities is through the enablement of R&D collaborations. The IP management in such situations is reviewed by Bader (2006). Bader summarizes different questions relating to IP strategy, stating that an "intellectual property strategy generally aims to improve the economic outcomes of investments made through innovations. The strategy should therefore address various key decisions such as: make or buy decisions, organizational association or isolation, innovation or adaptation of new technology, protection or exploitation of knowledge, public or private research funding, safeguarding or sharing of intellectual property, and pioneering advantages or disadvantages".[21]

Candelin-Palmqvist, et al. (2012) make a systematic review of literature on IPRs in the major management and innovation journals between 1970 and 2009. The authors conclude that IPRs are increasingly covered in the literature on innovation management. The authors also note that this literature predominantly focus on patents and use secondary data. They finally argue that more research is needed where IPRs are in focus, rather than as indicators of other things (such as innovation), that future research needs to connect IP to other company functions and performance, and that more research is needed with data on firm level, and especially with qualitative data as opposed to the large stream of studies using quantitative patent data.[22]

Finally, Holgersson (2012) identifies 2 483 articles in a broad search of the research field, in order to subsequently identify the main references used in those articles. The 20 most cited references are presented in Table 1, and these could be described as foundational to the research field. For example, the articles by Levin, et al., Teece, and Mansfield have been instrumental to form the field of innovation appropriation[23], and the article by Griliches is a key reference in studies using patents as indicators.[24]

ty Conditions and Why Us Manufacturing Firms Patent (or Not)."; Nikolaus Thumm, "Motives for Patenting Biotechnological Inventions: An Empirical Investigation in Switzerland," International Journal of Technology, Policy and Management 4, no. 3 (2004); Knut Blind et al., "Motives to Patent: Empirical Evidence from Germany," Research Policy 35, no. 5 (2006); Paola Giuri et al., "Inventors and Invention Processes in Europe: Results from the Patval-Eu Survey," Research Policy 36, no. 8 (2007); Marcus M. Keupp et al., Sme-Ip 2nd Report: Economic Focus Study on Smes and Intellectual Property in Switzerland (Publication No 5 (06.09), Swiss Federal Institute of Intellectual Property, 2009); Gaétan de Rassenfosse, "How Smes Exploit Their Intellectual Property Assets: Evidence from Survey Data," Small Business Economics 39, no. 2 (2012).

19 Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives."; de Rassenfosse, "How Smes Exploit Their Intellectual Property Assets: Evidence from Survey Data."

20 Deepak Somaya, "Patent Strategy and Management," Journal of Management 38, no. 4 (2012).

21 Martin A. Bader, Intellectual Property Management in R&D Collaborations: The Case of the Service Industry Sector (Heidelberg: Physica-Verlag, 2006), p. 25.

22 Hanni Candelin-Palmqvist, Birgitta Sandberg, and Ulla-Maija Mylly, "Intellectual Property Rights in Innovation Management Research: A Review," Technovation 32, no. 9–10 (2012).

23 Levin et al., "Appropriating the Returns from Industrial Research and Development."; David J. Teece, "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy," Research Policy 15, no. 6 (1986); Mansfield, "Patents and Innovation: An Empirical Study."

24 Zvi Griliches, "Patent Statistics as Economic Indicators - a Survey," Journal of Economic Literature 28, no. 4 (1990). See also Adam B. Jaffe, Manuel Trajtenberg, and Rebecca Henderson, "Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations," Quarterly Journal of Economics 108, no. 3 (1993); Jerry A. Hausman, Bronwyn H. Hall, and Zvi Griliches, "Econometric Models for Count Data with an Application to the Patents-R&D Relationship," Econometrica 52, no. 4 (1984).

TABLE 1 MOST CITED PUBLICATIONS BY THE RESEARCH FIELD [25]

Author (Year)	Journal	Title	#
1 Griliches (1990)	Journal of Economic Literature	Patent statistics as economic indicators - A survey	258
2 Levin, et al. (1987)	Brookings Papers on Economic Activity	Appropriating the returns from industrial research and development	209
3 Cohen and Levinthal (1990)	Administrative Science Quarterly	Absorptive capacity: A new perspective on learning and innovation	205
4 Teece (1986)	Research Policy	Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy	178
5 Jaffe, et al. (1993)	Quarterly Journal of Economics	Geographic localization of knowledge spillovers as evidenced by patent citations	177
6 Nelson and Winter (1982)	- (book)	An Evolutionary Theory of Economic Change	168
7 Hall and Ziedonis (2001)	The RAND Journal of Economics	The patent paradox revisited: An empirical study of patenting in the U.S. semiconductor industry	126
8 Hausman, et al. (1984)	Econometrica	Econometric models for count data with an application to the patents-R&D relationship	116
9 Barney (1991)	Journal of Management	Firm resources and sustained competitive advantage	109
10 Teece, et al. (1997)	Strategic Management Journal	Dynamic capabilities and strategic management	106
11 Jaffe (1986)	American Economic Review	Technological opportunity and spillovers of R&D: Evidence from firms' patents, profits and market value	101
12 Cohen and Levinthal (1989)	The Economic Journal	Innovation and learning: The two faces of R&D	97
13 Mansfield (1986)	Management Science	Patents and innovation: An empirical study	96
14 Trajtenberg (1990)	The RAND Journal of Economics	A penny for your quotes: Patent citations and the value of innovations	94
15 Heller and Eisenberg (1998)	Science	Can patents deter innovation? The anticommons in biomedical research	88
16 Kogut and Zander (1992)	Organization Science	Knowledge of the firm, combinative capabilities, and the replication of technology	88
17 March (1991)	Organization Science	Exploration and exploitation in organizational learning	87
18 Arrow (1962)	NBER	Economic welfare and the allocation of resources for invention	84
19 Mansfield, et al. (1981)	The Economic Journal	Imitation costs and patents: An empirical study	83
20 Merges and Nelson (1990)	Columbia Law Review	On the complex economics of patent scope	83

Note: # = Number of citing publications among the 2 483 identified publications, as of July 2016

[25] As identified by Marcus Holgersson, "Innovation and Intellectual Property: Strategic Ip Management and Economics of Technology" (Chalmers University of Technology, 2012).

[26] Ulrich Lichtenthaler, "External Commercialization of Knowledge: Review and Research Agenda," International Journal of Management Reviews 7, no. 4 (2005).

[27] Lise Aaboen and Marcus Holgersson, "Technology Transfer Offices, Incubators, and Intellectual Property Management," in Academy of Management Conference (Anaheim, USA2016).

[28] Barry Bozeman, "Technology Transfer and Public Policy: A Review of Research and Theory," Research Policy 29, no. 4–5 (2000).

[29] M. S. Meyer and P. Tang, "Exploring the "Value" of Academic Patents: Ip Management Practices in Uk Universities and Their Implications for Third-Stream Indicators," Scientometrics 70, no. 2 (2007).

[30] Dietmar Harhoff et al., "Citation Frequency and the Value of Patented Inventions," Review of Economics and Statistics 81, no. 3 (1999).

[31] Jean O. Lanjouw, Ariel Pakes, and Jonathan Putnam, "How to Count Patents and Value Intellectual Property: The Uses of Patent Renewal and Application Data," The Journal of Industrial Economics 46, no. 4 (1998).

[32] D. Harhoff, F.M. Scherer, and K. Vopel, "Exploring the Tail of Patented Invention Value Distributions," in Economics, Law and Intellectual Property, ed. Ove Granstrand (Dordrecht: Kluwer Academic Publishers, 2003).

[33] M. Manhart and S. Thalmann, "Protecting Organizational Knowledge: A Structured Literature Review," Journal of Knowledge Management 19, no. 2 (2015).

[34] Richard A. Jensen, Jerry G. Thursby, and Marie C. Thursby, "Disclosure and Licensing of University Inventions: 'The Best We Can Do with the S**T We Get to Work With'," International Journal of Industrial Organization 21, no. 9 (2003).

[35] Andreas Panagopoulos, "Understanding When Universities and Firms Form Rjvs: The Importance of Intellectual Property Protection," International Journal of Industrial Organization 21, no. 9 (2003).

Previous Reviews of Technology Commercialization and Transfer

A related area of research relates to technology commercialization and technology transfer. Lichtenthaler (2005) reviews the literature on knowledge and technology commercialization through external channels, such as licensing.[26] One of his main contributions is his agenda for future research, where he concludes that external knowledge commercialization is an increasingly strategic activity, but few research studies capture the strategic dimensions of it. Lichtenthaler argues that licensing studies typically focus on purely monetary effects while more strategic aspects are missing, such as freedom to operate, gaining access to external knowledge through cross-licensing, etc.

Similar concerns are raised by Aaboen and Holgersson (2016), in the context of university commercialization and technology transfer offices (TTOs). Their analysis concludes that the TTO literature has a too simplified view of IP management.[27] The literature focuses almost only on patents, typically with the implicit assumption that all valuable inventions should be patented. The review also shows that the number of patents and the number of patent licenses are used as measures of how well the TTOs function, which is too simplified considering the broad range of IP strategies available. The latter goes in line with the results from a review by Bozeman (2000), who argues that too much research emphasis is put on technology transfer evaluation, rather than processes and activities that can improve technology transfer.[28]

Reviews on Related Issues

As described above, a common focus in on patents as measures of innovation, but also on measures of patent values. Meyer and Tang (2007) review the literature on the latter. A number of previously used measures of patent values are identified, including patent family size, length of renewals, number of patent clauses, number of backward and forward citations, and whether or not patents have been subject to litigation.[29] The arguments are that a patent that is well-cited on average is more valuable than one that is not well-cited[30], and that patents covering relatively many countries and are being renewed for relatively many years are more valuable than others[31]. An important finding in this stream of literature is that patent values are very skew, with a few patents being very valuable, but most patents having hardly any value at all.[32] This may be part of the explanation behind the relatively limited importance for appropriation, as identified above.

Finally, given the increasing interest for data, an interesting stream of research is covering information and knowledge management, which is reviewed by Manhart and Thalmann (2015). They analyze 48 articles with a different focus to what has been covered above. Their review especially focuses on the use of IT systems, and how IT systems can be designed not only to diffuse and spread knowledge, but also to protect it. The review also identifies a need for increasing research on the management of tacit knowledge, in addition to the research on explicit and codified knowledge.[33] This relates to the systematic review of research on management of trade secrets, which is presented in section 3.3.

3.2 Special Issues

Special issues are specific journal issues focused on a particular area of research. Several journals have published special issues on IP management during the last 15 years, and especially during the last five years, and these provide a good introduction to different aspects of IP management, see Table 2. Some of the most important findings in these issues are summarized here, but interested readers are encouraged to dive deeper into the different findings and areas of research by reading the issues and the included articles.

International Journal of Industrial Organization (2003): The Economics of Intellectual Property at Universities

This special issue is mainly relating to economic and policy aspects of IP rather than management, with a few exceptions. Patenting and licensing are (at least implicitly) seen as the main strategies for universities, in a process involving invention disclosure by researchers to TTOs, invention evaluation by TTOs, patenting decision, and finally licensing to external actors.[34] Another article in the special issue focuses on research collaborations between universities and firms, and shows that universities are more likely to collaborate with firms working with new technologies than with those improving their existing technologies.[35] This is explained by the argument that firms working with existing technologies have more to lose (e.g., through knowledge spillovers) than those developing completely new ones.

TABLE 2 SPECIAL ISSUES RELATED TO IP MANAGEMENT

Special issue	Journal	Year, volume, issue	Number of articles
The Economics of Intellectual Property at Universities	International Journal of Industrial Organization	2003, Vol. 21, No. 9	10
Intellectual Property Management	California Management Review	2013, Vol. 55, No. 4	11
Innovation, Intellectual Property and Strategic Management	Strategic Management Society 'virtual special issue'	2014	26 (not fixed)
Industry Standards, Intellectual Property, and Innovation	International Journal of Industrial Organization	2014, Vol. 36	8
Intellectual Property Approaches for a New Era	Research-Technology Management	2014, Vol. 57, No. 5	5
Patent Use	Research Policy	2016, Vol. 45, No. 7	6
Intellectual Property Management	Management Decision	2017, Vol. 55, No. 6	13

California Management Review (2013): Intellectual Property Management

The special issue i California Management Review is the first identified special issue with an explicit focus on IP management. The issue focuses on case studies, and illustrates the breadth of strategies available within IP management.[36]

The issue points at a number of important aspects for future research and practice of IP management. One is the importance of IP management to cross all different IPRs, not only patents.[37] For example, one article focuses on how patenting can be complemented with defensive publishing / strategic disclosures.[38] A second aspect is how to involve different disciplines and functions in IP management[39], for example by establishing a common language of communication across functions[40] and by integrating IP management in the R&D activities and increasing IP awareness[41]. Finally, several articles in the special issue point at the need of integrating IP management with business model design and strategy work.[42]

An important question and field of study in the special issue is IP management in R&D collaborations and in different forms of open innovation. For example, one article focuses on how to manage patent pools to deal with complex technical platforms with dispersed patent rights.[43] Another one describes a case of an innovation ecosystem and how IP management is used to manage this ecosystem.[44] A third one points at the opportunities for pharmaceutical firms to license out compounds that are not used internally.[45]

In complex technologies building upon several related inventions, firms can benefit from technical modularity combined with different levels of IP modularity.[46] Firms can then combine proprietary innovation strategies with more open innovation strategies. Finally, corporate transactions, i.e., M&As and divestments, involving such complex technologies may become very complex due to the technical overlaps between different firms, divisions, and products. In such situations, managers have to deal with the so called IP disassembly problem, i.e., the problem to disassemble all interdependent technologies and IP rights. One article in the special issue provides a managerial framework to solve such problems.[47]

Strategic Management Society 'virtual special issue' (2014): Innovation, Intellectual Property and Strategic Management

This so called virtual special issue collects articles related to IP management that are published in journals related to 'Strategic Management Society' (SMS), including articles form Strategic Management Journal (SMJ), Strategic Entrepreneurship Journal (SEJ), and Global Strategy Journal (GSJ). This virtual special issue collects previously published articles, but may also include future publications, relating to IP management. Many of the articles included here are not specifically focused on IP management, but rather strategy or management more generally.[48]

The articles that do however focus on IP management cover a few different areas. One such area is innovation and R&D collaborations, just as in the issue in California Management Review described above. One study shows that IPRs protect against opportunism in contract relations, while a certain amount of IPR sharing may be necessary for efficient collaboration.[49] Another study shows that service providers who get to keep the control of their IPRs are more innovative than those losing the control to their clients.[50] Thus, in contract R&D the clients' need to control the results must be balanced against the contractors' incentives and willingness to innovate.

[36] Alberto Di Minin and Dries Faems, "Building Appropriation Advantage," California Management Review 55, no. 4 (2013).

[37] Abdulrahman Al-Aali and David J. Teece, "Towards the (Strategic) Management of Intellectual Property: Retrospective and Prospective," California Management Review 55, no. 4 (2013).

[38] Tilo Peters, Jana Thiel, and Christopher L. Tucci, "Protecting Growth Options in Dynamic Markets: The Role of Strategic Disclosure in Integrated Intellectual Property Strategies," California Management Review 55, no. 4 (2013).

[39] James G Conley, Peter M Bican, and Holger Ernst, "Value Articulation," California Management Review 55, no. 4 (2013).

[40] William W Fisher III and Felix Oberholzer-Gee, "Strategic Management of Intellectual Property: An Integrated Approach," California management review 55, no. 4 (2013).

[41] Fabrizio Cesaroni and Andrea Piccaluga, "Operational Challenges and St's Proposed Solutions to Improve Collaboration between Ip and R&D in Innovation Processes," California Management Review 55, no. 4 (2013).

[42] Al-Aali and Teece, "Towards the (Strategic) Management of Intellectual Property: Retrospective and Prospective."; Cesaroni and Piccaluga, "Operational Challenges and St's Proposed Solutions to Improve Collaboration between Ip and R&D in Innovation Processes."; Ove Granstrand and Marcus Holgersson, "Managing the Intellectual Property Disassembly Problem," California Management Review 55, no. 4 (2013).

[43] Simon den Uijl, Rudi Bekkers, and Henk J de Vries, "Managing Intellectual Property Using Patent Pools," California Management Review 55, no. 4 (2013).

[44] Bart Leten et al., "Ip Models to Orchestrate Innovation Ecosystems," California management review 55, no. 4 (2013).

[45] Henry W Chesbrough and Eric L Chen, "Recovering Abandoned Compounds through Expanded External Ip Licensing," California Management Review 55, no. 4 (2013). See also see also Marcus Holgersson, Tai Phan, and Thomas Hedner, "Entrepreneurial Patent Management in Pharmaceutical Startups," Drug Discovery Today 21, no. 7 (2016).

[46] Joachim Henkel, Carliss Y. Baldwin, and Willy Shih, "Ip Modularity: Profiting from Innovation by Aligning Product Architecture with Intellectual Property," California Management Review 55, no. 4 (2013).

[47] Granstrand and Holgersson, "Managing the Intellectual Property Disassembly Problem."

[48] E.g., e.g., Margaret A. Peteraf, "The Cornerstones of Competitive Advantage: A Resource-Based View," Strategic Management Journal 14, no. 3 (1993); Birger Wernerfelt, "A Resource-Based View of the Firm," Strategic Management Journal 5, no. 2 (1984); David J. Teece, Gary Pisano, and Amy Shuen, "Dynamic Capabilities and Strategic Management," Strategic Management Journal 18, no. 7 (1997); Oliver E. Williamson, "Strategy Research: Governance and Competence Perspectives," Strategic Management Journal 20, no. 12 (1999).

[49] Stephen J. Carson and George John, "A Theoretical and Empirical Investigation of Property Rights Sharing in Outsourced Research, Development, and Engineering Relationships," Strategic Management Journal 34, no. 9 (2013).

[50] Aija Leiponen, "Control of Intellectual Assets in Client Relationships: Implications for Innovation," Strategic Management Journal 29, no. 13 (2008).

[51] Rajshree Agarwal, Martin Ganco, and Rosemarie H. Ziedonis, "Reputations for Toughness in Patent Enforcement: Implications for Knowledge Spillovers Via Inventor Mobility," Strategic Management Journal 30, no. 13 (2009).

Another interesting area of research in this virtual special issue is related to information spillovers in connection to employee movement. A couple of articles show that firms can decrease spillovers when employees are hired-over by others by acting deterrent in patent enforcement.[51] This behavior moreover decreases the propensity to leave the firm among employees.[52]

A final interesting area is that of the relation between patenting and profitability. One study shows that a patent increases the returns from an invention with 40-50%.[53] A related study shows that holding patents increases prices of companies being acquired.[54] The argument is that the patents help protecting the new combinations of technologies being created in the interplay between the buyer and the acquired firm. Finally, research in this virtual special issue identifies a positive impact of patents in acquiring external capital (including various forms of venture capital).[55]

International Journal of Industrial Organization (2014): Industry standards, intellectual property, and innovation

This special issue does not have a management focus, and many articles in the issue just use IPRs and patents as measures of other things (such as innovations). There are however a couple of more management-related findings. One, based on modelling rather than empirical data, is that the establishment of a single technical standard may lead to free-rider problems, and eventually under-investments in R&D. Two separate and competing standards may therefore in some cases be needed to combine resource efficiency with interoperability and investment incentives.[56] Another finding is that value-based pricing models in FRAND ('Fair, Reasonable, And Non-Discriminatory') licensing is difficult to apply in reality where the value concept is multi-dimensional.[57]

Research-Technology Management (2014): Intellectual property approaches for a new era

This special issue is introduced by pointing at the increasingly wide distribution and dispersion of IP across firm boundaries due to increasing innovation collaborations and the digital revolution in both design and manufacturing, creating new questions for IP management.[58] The articles in the issue deal with these trends in different ways.

One article focuses on 'additive manufacturing', as part of the digital revolution, and how that puts pressure on IP policy changes. When this type of manufacturing increases, there is a need to adapt the IPR system(s) to better accommodate such manufacturing strategies.[59] Another article instead focuses on how IP policy changes put pressure on IP management. For example, the changes in 'America Invents Act' impact R&D managers' work, especially in terms of how they need to evaluate the commercial potential of inventions earlier and the increasing importance of temporary secrecy strategies due to the shift to a 'first-to-file' system in the US.[60]

The issue also includes research contributing to the growing research on how to manage IP in open innovation.[61] When R&D collaborations are ended, or in other terms when open innovation is closed, IP-related problems may arise that need to be mitigated through IP ownership provisions and/or licensing contracts.[62] Firms that master this can build a strong IP portfolio through several sequential R&D collaborations.[63]

[52] Martin Ganco, Rosemarie H. Ziedonis, and Rajshree Agarwal, "More Stars Stay, but the Brightest Ones Still Leave: Job Hopping in the Shadow of Patent Enforcement," Strategic Management Journal 36, no. 5 (2015).

[53] Paul H. Jensen, Russell Thomson, and Jongsay Yong, "Estimating the Patent Premium: Evidence from the Australian Inventor Survey," Strategic Management Journal 32, no. 10 (2011).

[54] Christoph Grimpe and Katrin Hussinger, "Resource Complementarity and Value Capture in Firm Acquisitions: The Role of Intellectual Property Rights," Strategic Management Journal 35, no. 12 (2014).

[55] Edward Levitas and M. Ann McFadyen, "Managing Liquidity in Research-Intensive Firms: Signaling and Cash Flow Effects of Patents and Alliance Activities," Strategic Management Journal 30, no. 6 (2009); David H. Hsu and Rosemarie H. Ziedonis, "Resources as Dual Sources of Advantage: Implications for Valuing Entrepreneurial-Firm Patents," Strategic Management Journal 34, no. 7 (2013).

[56] Luís Cabral and David Salant, "Evolving Technologies and Standards Regulation," International Journal of Industrial Organization 36 (2014).

[57] Anne Layne-Farrar and Gerard Llobet, "Moving Beyond Simple Examples: Assessing the Incremental Value Rule within Standards," International Journal of Industrial Organization 36 (2014).

[58] Irene Petrick, Thierry Rayna, and Ludmila Striukova, "The Challenges of Intellectual Property," Research-Technology Management 57, no. 5.

[59] Thomas Kurfess and William J Cass, "Rethinking Additive Manufacturing and Intellectual Property Protection," Research-Technology Management 57, no. 5.

[60] W Austin Spivey, J Michael Munson, and Bernd Wurth, "Implications of the America Invents Act for R&D Managers: Connecting the Patent Life Cycle with the Technology Development Process," Research-Technology Management 57, no. 5.

[61] E.g., Oliver Alexy, Paola Criscuolo, and Ammon Salter, "Does Ip Strategy Have to Cripple Open Innovation?," MIT Sloan Management Review 51, no. 1 (2009); Marcel Bogers, "The Open Innovation Paradox: Knowledge Sharing and Protection in R&D Collaborations," European Journal of Innovation Management 14, no. 1 (2011); Henry W. Chesbrough, "The Logic of Open Innovation: Managing Intellectual Property," California Management Review 45, no. 3 (2003); Henkel, Baldwin, and Shih, "Ip Modularity: Profiting from Innovation by Aligning Product Architecture with Intellectual Property."; Raffaella Manzini and Valentina Lazzarotti, "Intellectual Property Protection Mechanisms in Collaborative New Product Development," R&D Management 46, no. S2 (2016).

[62] Ove Granstrand and Marcus Holgersson, "The Challenge of Closing Open Innovation: The Intellectual Property Disassembly Problem," Research-Technology Management 57, no. 5.

[63] Ibid.

Finally, the theme of IP management in TTOs is covered. According to that research, the standard model for IP management among TTOs and universities is not generally applicable, and limits commercialization opportunities and leaves useful technologies on the shelf.[64] TTOs often have limited resources and the ambition to make them profitable is unlikely to be realized, and many TTOs might instead be more useful if using a more open strategy with less focus on proprietary licensing and more focus on building long-term and flexible relationships with industry to make better use of research results.[65]

Research Policy (2016): Patent Use

The special issue in Research Policy focuses on how patents are used related to three different areas; the role of appropriation and information disclosure on technology markets, the role of appropriation with IPRs within innovation collaborations, and the factors behind use/non-use of patents Arora and Athreye. This special issue is mostly based on quantitative primary data.

Patents have been assumed to function in two different ways in technology trade, having both an appropriation effect and an information effect. The former relates to patents' function of protecting inventions from imitation, and thereby improving the value of the technology for buyers. The latter relates to patents' function as information carriers on technology markets. Based on data from 860 technology trade negotiations a study finds support for the former function but not the latter.[66]

Related results on innovation collaboration rather than technology trade show that firms involved in innovation collaboration rate formal appropriation mechanisms such as patents more important than other firms. Furthermore, the results show that technologically leading firms tend to patent more than followers when involved in open innovation, since they have more to loose from information spillovers than followers.[67]

One of the key questions in the special issue is how large the share of all patents is that are actually being used. Two different studies come to similar results, that 40-45% of patents are never used.[68] The most common reasons are that commercialization opportunities are still explored, and that the invention was patented to block others and to stop invent-arounds, rather than to protect own products, services, and processes.[69] As much as 67% or patent applications are made to block other patents.[70] Thus, it turns out that the motives of not using patents, and of patenting inventions that will not be used internally, are strategic, and non-use of patents is not mainly a question of undirected or aimless behavior.

Management Decision (2017): Intellectual Property Management

The most recent special issue on IP management is published in Management Decision. Some of the articles mainly use patent data as measures of innovations, but there are a number of articles focusing on the management of IP. For example, a couple of articles focus on how to organize invention evaluation and patent prosecution, both internal organization[71] and external organization, including the use of external patent attorneys.[72]

Even though many articles in the issue focus only on patents, a number of articles take the broader view incre-

64 Jeremy Hall et al., "Commercializing University Research in Diverse Settings: Moving Beyond Standardized Intellectual Property Management," Research-Technology Management 57, no. 5.

65 Ibid.

66 Gaétan de Rassenfosse, Alfons Palangkaraya, and Elizabeth Webster, "Why Do Patents Facilitate Trade in Technology? Testing the Disclosure and Appropriation Effects," Research Policy 45, no. 7 (2016).

67 Marcela Miozzo et al., "Innovation Collaboration and Appropriability by Knowledge-Intensive Business Services Firms," Research Policy 45, no. 7 (2016); Ashish Arora, Suma Athreye, and Can Huang, "The Paradox of Openness Revisited: Collaborative Innovation and Patenting by Uk Innovators," Research Policy 45, no. 7 (2016).

68 John P. Walsh, You-Na Lee, and Taehyun Jung, "Win, Lose or Draw? The Fate of Patented Inventions," Research Policy 45, no. 7 (2016); Salvatore Torrisi et al., "Used, Blocking and Sleeping Patents: Empirical Evidence from a Large-Scale Inventor Survey," Research Policy 45, no. 7 (2016).

69 Walsh, Lee, and Jung, "Win, Lose or Draw? The Fate of Patented Inventions."

70 Torrisi et al., "Used, Blocking and Sleeping Patents: Empirical Evidence from a Large-Scale Inventor Survey."

71 Benedetta Soranzo, Anna Nosella, and Roberto Filippini, "Redesigning Patent Management Process: An Action Research Study," Management Decision 55, no. 6 (2017).

72 Sevim Süzeroglu-Melchiors, Oliver Gassmann, and Maximilian Palmié, "Friend or Foe? The Effects of Patent Attorney Use on Filing Strategy Vis-a-Vis the Effects of Firm Experience," Management Decision 55, no. 6 (2017).

73 Alexander Brem, Petra A. Nylund, and Emma L. Hitchen, "Open Innovation and Intellectual Property Rights: How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?," Management Decision 55, no. 6 (2017).

74 Marcus Holgersson and Martin W. Wallin, "The Patent Management Trichotomy: Patenting, Publishing, and Secrecy," Management Decision (2017).

75 Ibid., p. 1092

76 Marcus Holgersson and O Granstrand, "Patenting Motives, Technology Strategies, and Open Innovation," Management Decision (2017).

77 Davide Aloini et al., "Ip, Openness, and Innovation Performance: An Empirical Study," Management Decision 55, no. 6 (2017).

78 Paola Belingheri and Maria Isabella Leone, "Walking into the Room with Ip: Exploring Start-Ups' Ip Licensing Strategy," Management Decision 55, no. 6 (2017).

asingly asked for in much previous research, including different IPRs such as patents, industrial designs, trademarks, and copyrights.[73] For example, the choice between patenting, defensive publishing, and secrecy for new inventions, is conceptually analyzed.[74] The choice can be analyzed along the dimensions of appropriation advantage and freedom to operate (FTO), leading to new distinctions along these dimensions. First, there is a distinction between direct and indirect appropriation advantage, where the former is advantage directly impacting sales and margins, while the latter is indirect benefits such as bargaining power, blocking others, attracting customers, etc. Patents provide both direct and indirect appropriation advantages while secrecy only provides direct appropriation advantages. Defensive publishing, on the other hand, does not provide any appropriation advantage. Second, there is a distinction between static and dynamic FTO. It is used "to denote on the one hand the freedom for business to operate based on current technologies (static freedom to operate) and on the other hand the freedom for business to operate based on future developments and improvements of current technologies (dynamic freedom to operate)".[75] Patents provide static FTO and some dynamic FTO, thanks to the bargaining power and cross-licensing opportunities related to patents, while defensive publishing only provides static FTO. Secrecy, on the other hand, does not provide any FTO. Needless to say, there are also possibilities to combine different strategies over time and across inventions.

Finally, the now common theme of IP management in innovation collaborations and open innovation is covered in a number of publications. For example, the issue includes results showing that open innovation is related to stronger rather than weaker motives to patent as compared to closed innovation[76], and that IP protection is related to more openness, which is in turn related to better innovativeness.[77] Moreover, one article shows that technology in-licensing, as a specific form of open innovation, is not limited to established firms, but is common also among startups.[78]

3.3 Structured Literature Review

Based on the structured search of research until 2016, 265 relevant publications were identified. These are the basis for this section, and the three most cited publications in each area of research are presented in Table 4. This is complemented with results from a structured search of research between 2016 and 2018, where 100 relevant publications were identified. Thus, in total this section builds on 365 publications. The majority of the identified publications relate to patents, intellectual property, and licensing, see Table 3.

A couple of notes are needed. First, the structured literature review covers part of what has been covered in literature reviews and special issues included above, meaning that there is some overlaps. Second, this review cannot fully account for all the results in the 365 publications, but focuses on giving a broad overview of the most important themes of research and results. Third, each section here focuses both on past research, covered in the search of literature until 2016, and current research trends, covered in the search of literature between 2016 and 2018.

TABLE 3 NUMBER OF ARTICLES IN DIFFERENT AREAS COVERED BY THE SYSTEMATIC SEARCHES

Area	Total number of identified publications until 2016	Number of identified relevant publications until 2016	Total number of identified publications 2016 - 2018	Number of identified relevant publications 2016 - 2018
Patent	253	96	68	46
Intellectual property	124	72	26	26
License	84	50	24	15
Secrecy	82	17	29	6
Design	28	11	2	1
Trademark	15	10	3	3
Copyright	21	9	2	2
Total	607	265	145	100

TABLE 4 THE MOST CITED PUBLICATIONS IN DIFFERENT FIELDS OF IP MANAGEMENT, AS IDENTIFIED IN STRUCTURED LITERATURE REVIEW

	Author (year)	Journal	Title	GCS
Patent	1 Ernst (1999)	Journal of Engineering and Technology Management	Patent portfolios for strategic R&D planning	85
	2 Reitzig (2004)	Research Policy	Improving patent valuations for management purposes validating new indicators by analyzing application rationales	81
	3 Fabrizio och Di Minin (2008)	Research Policy	Commercializing the laboratory: Faculty patenting and the open science environment	75
Intellectual property	1 Chesbrough (2003)	California Management Review	The logic of open innovation: Managing intellectual property	104
	2 Rivette och Kline (2000)	Harvard Business Review	Discovering new value in intellectual property	96
	3 Anton och Yao (2004)	Rand Journal of Economics	Little patents and big secrets: Managing intellectual property	88
License	1 Grindley och Teece (1997)	California Management Review	Managing intellectual capital: Licensing and crosslicensing in semiconductors and electronics	230
	2 Bray och Lee (2000)	Journal of Business Venturing	University revenues from technology transfer: Licensing fees vs. equity positions	73
	3 Pitkethly (2001)	Research Policy	Intellectual property strategy in Japanese and UK companies: patent licensing decisions and learning opportunities	62
Secrecy	1 Anton och Yao (2004)	RAND Journal of Economics	Little patents and big secrets: Managing intellectual property	88
	2 Hannah (2005)	Organization Science	Should I keep a secret? The effects of trade secret protection procedures on employees' obligations to protect trade secrets	40
	3 Wu, Melnyk och Flynn (2010)	Decision Sciences	Operational Capabilities: The Secret Ingredient	32
Design	1 Bhattacharyya och Singh (1999)	Journal of Financial Economics	The resolution of bankruptcy by auction: allocating the residual right of design	11
	2 Chen och Chen (2007)	EMJ Engineering Management Journal	Design patent map: An innovative measure for corporative design strategies	10
	3 Tryzyna (1987)	Journal of the Patent and Trademark Office Society	Are plants protectable under the design patent act	1
Trademark	1 Gillespie, Krishna och Jarvis (2002)	Journal of International Marketing	Protecting global brands: Toward a global norm	10
	2 Chaudhry et al (2009)	Business Horizons	Preserving intellectual property rights: Managerial insight into the escalating counterfeit market quandary	8
	3 Berger, Blind och Cuntz (2012)	Research Policy	Risk factors and mechanisms of technology and insignia copying - A first empirical approach	6
Copyright	1 Dickson och Coles (2000)	Technovation	Textile design protection: Copyright, CAD and competition	21
	2 Cotter (2008)	Iowa Law Review	Fair use and copyright overenforcement	11
	3 Garcia och Gil (2004)	International Journal of Electronic Commerce	A web ontology for copyright contract management	2

Note: GCS = Global Citation Score (total number of citations from publications included in Web of Science) as of July 2016

[79] E.g., Federico Munari and Laura Toschi, "Running Ahead in the Nanotechnology Gold Rush. Strategic Patenting in Emerging Technologies," Technological Forecasting and Social Change 83 (2014); Sebastian Hoenen et al., "The Diminishing Signaling Value of Patents between Early Rounds of Venture Capital Financing," Research Policy 43, no. 6 (2014); Jinyoung Kim, "Patent Portfolio Management of Sequential Inventions: Evidence from Us Patent Renewal Data," Review of Industrial Organization 47, no. 2 (2015).

[80] Petra Andries and Dries Faems, "Patenting Activities and Firm Performance: Does Firm Size Matter?," Journal of Product Innovation Management 30, no. 6 (2013).

[81] Jensen, Thomson, and Yong, "Estimating the Patent Premium: Evidence from the Australian Inventor Survey."

[82] Hoenen et al., "The Diminishing Signaling Value of Patents between Early Rounds of Venture Capital Financing."

[83] Deepak Somaya, Ian O. Williamson, and Xiaomeng Zhang, "Combining Patent Law Expertise with R&D for Patenting Performance," Organization Science 18, no. 6 (2007).

[84] William W. Keep, Glenn S. Omura, and Roger J. Calantone, "What Managers Should Know About Their Competitors' Patented Technologies," Industrial Marketing Management 23, no. 3 (1994); Leonard Berkowitz, "Getting the Most from Your Patents," Research-Technology Management 36, no. 2 (1993).

[85] Klaus K. Brockhoff, "Instruments for Patent Data Analyses in Business Firms," Technovation 12, no. 1 (1992); Ove Granstrand, Pari Patel, and Keith Pavitt, "Multi-Technology Corporations: Why They Have 'Distributed' Rather Than 'Distinctive Core' Competences," California Management Review 39, no. 4 (1997); Shann-Bin Chang, "Using Patent Analysis to Establish Technological Position: Two Different Strategic Approaches," Technological Forecasting and Social Change 79, no. 1 (2012); Holger Ernst, "Patent Portfolios for Strategic R&D Planning," Journal of Engineering and Technology Management 15, no. 4 (1998).

Patent Management

The field of patent management is the largest one in the systematic literature review. Typically the research is based on quantitative secondary data.[79] Some of the largest areas of research are presented here, as well as some more specific results.

Relatively recent research shows that patents contribute to improved profit margins for both small and large firms.[80] This goes in line with some of the results discussed above, that patents provide a 40-50% premium on returns from inventions[81] and that patents are positively related to venture capital financing.[82] This leads to the question how firms can receive these benefits, is it enough just to increase patenting? No, it has to be the right type of patenting. Two factors that explain a company's patenting performance is the internal legal patenting expertise and previous patenting experience in the top management, both of these contribute positively.[83]

A large research stream within patent management is that of patent analytics and how patent information can be used for technology forecasting, patent mapping, etc. This research stream utilizes the rich data available in patent documents and in aggregated patent information, and uses this as basis for decision making tools.[84] This literature started growing in the early 1990s. A common approach is to relate a company's patent portfolio to an industry or to other companies.[85] Similar approaches can be used in international comparisons of different countries.[86] Other publications focus on patents-based evaluation tools of new technologies[87], patent roadmaps to better plan future patenting[88], models for evaluation of patent infringement risks based on text analysis of patent documents.[89]

Another stream of research is that of patent tactics. This relates to what firms should patent[90], how to build portfolios of related patents, such as patent fences[91], and how to protect inventions in countries with weak IP regimes.[92] A related stream of research, part of which is described above, is showing differences in patent tactics and patenting across different actors, industries, or nations.[93]

University and academic patenting is a field that has grown since the 1980s[94], as already noted above. One question is whether academics' efforts to patent compete with their publishing activities. A couple of publications show that professors who patent perform better in publishing[95] than others, and that professors' scientific quality is correlated with the quality of their patents.[96] This points at a complementary rather than competing relationship between patenting and publishing in academia.

A final area of past research is focused on non-practicing entities, patent assertion entities, and patent trolls. For example, the prevalence of patent trolls, how they profit, and how other companies and policy actors should act to deal with them have been studied.[97]

Turning to the more recent publications, the research in this category is still diverse, focusing on such topics as front-end patenting decisions[98], litigation[99], management of patent portfolios[100], as well as the organization of the patent function in a firm[101].

[86] Ove Granstrand and Marcus Holgersson, "Multinational Technology and Intellectual Property Management – Is There Global Convergence and/or Specialisation?," International Journal of Technology Management 64, no. 2 (2014).

[87] Mary Ellen Mogee and Richard G. Kolar, "International Patent Analysis as a Tool for Corporate Technology Analysis and Planning," Technology Analysis & Strategic Management 6, no. 4 (1994).

[88] Yujin Jeong and Byungun Yoon, "Development of Patent Roadmap Based on Technology Roadmap by Analyzing Patterns of Patent Development," Technovation 39–40 (2015); Changyong Lee, Bokyoung Kang, and Juneseuk Shin, "Novelty-Focused Patent Mapping for Technology Opportunity Analysis," Technological Forecasting and Social Change 90, Part B (2015).

[89] Isumo Bergmann et al., "Evaluating the Risk of Patent Infringement by Means of Semantic Patent Analysis: The Case of DNA Chips," R&D Management 38, no. 5 (2008).

[90] Praveen Kumar and Stuart M. Turnbull, "Optimal Patenting and Licensing of Financial Innovations," Management Science 54, no. 12 (2008).

[91] Christian Sternitzke, "An Exploratory Analysis of Patent Fencing in Pharmaceuticals: The Case of Pde5 Inhibitors," Research Policy 42, no. 2 (2013).

[92] Marcus Matthias Keupp, Sascha Friesike, and Maximilian von Zedtwitz, "How Do Foreign Firms Patent in Emerging Economies with Weak Appropriability Regimes? Archetypes and Motives," Research Policy 41, no. 8 (2012); Marcus M. Keupp, Angela Beckenbauer, and Oliver Gassmann, "Enforcing Intellectual Property Rights in Weak Appropriability Regimes," Management International Review 50, no. 1 (2010); Marcus Matthias Keupp, Angela Beckenbauer, and Oliver Gassmann, "How Managers Protect Intellectual Property Rights in China Using De Facto Strategies," R&D Management 39, no. 2 (2009).

[93] Robert H. Pitkethly, "Intellectual Property Strategy in Japanese and Uk Companies: Patent Licensing Decisions and Learning Opportunities," Research Policy 30, no. 3 (2001); Henrique M. Barros, "Exploring the Use of Patents in a Weak Institutional Environment: The Effects of Innovation Partnerships, Firm Ownership, and New Management Practices," Technovation 45–46 (2015); Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives."

[94] Bhaven N Sampat and Richard R Nelson, "The Evolution of University Patenting and Licensing Procedures: An Empirical Study of Institutional Change," Advances in Strategic Management 19 (2002).

[95] Stefano Breschi, Francesco Lissoni, and Fabio Montobbio, "University Patenting and Scientific Productivity: A Quantitative Study of Italian Academic Inventors," European Management Review 5, no. 2 (2008).

[96] Valerio Sterzi, "Patent Quality and Ownership: An Analysis of Uk Faculty Patenting," Research Policy 42, no. 2 (2013).

[97] Markus Reitzig, Joachim Henkel, and Christopher Heath, "On Sharks, Trolls, and Their Patent Prey—Unrealistic Damage Awards and Firms' Strategies of "Being Infringed"," Research Policy 36, no. 1 (2007); H. Kevin Steensma, Mukund Chari, and Ralph Heidl, "A Comparative Analysis of Patent Assertion Entities in Markets for Intellectual Property Rights," Organization Science 27, no. 1 (2016).

[98] N. Abdelkafi et al., "To Standardise or to Patent? Development of a Decision Making Tool and Recommendations for Young Companies," International Journal of Innovation Management 20, no. 8 (2016).

[99] Y. M. Chen et al., "A Preemptive Power to Offensive Patent Litigation Strategy: Value Creation, Transaction Costs and Organizational Slack," Journal of Business Research 69, no. 5 (2016).

[100] M. Grimaldi, L. Cricelli, and F. Rogo, "Auditing Patent Portfolio for Strategic Exploitation: A Decision Support Framework for Intellectual Property Managers," Journal of Intellectual Capital 19, no. 2 (2018).

[101] P. Choudhury and M. R. Haas, "Scope Versus Speed: Team Diversity, Leader Experience, and Patenting Outcomes for Firms," Strategic Management Journal 39, no. 4 (2018).

Not unlike previous years, a number of articles focuses on mapping and predicting technological development using patent data and various methods for patent analysis. Methods used include network analysis to map the emergence and disappearance of patent classes and the related evolution of technology[102], text matching to detect technological similarities between patents[103], machine learning to forecast developments[104] and patent analysis to identify lead user patents in a B2B environment.[105] Recent research also focuses on identifying new technological directions in the form of promising technology and technological opportunities using patent clustering[106] and outlier ranking.[107] Hence research effort has been exerted to map the path of technological evolution and develop methodologies for predicting its course, thereby revealing new opportunities for advancement.

A familiar category is also formed by research focusing on the front-end of patent management, the patenting decision in specific. Research in this group describes patenting motives, the outcomes of various patenting decisions, and the management of patenting activity. While patenting motives of established firms are still a relevant topic of study[108], recent years see an increase in attention for patenting decisions as made by SMEs and startups both in a descriptive[109], as well as in a prescriptive sense.[110] This increased attention for the patent management of new and/or small firms is interesting in light of previous research that established the difficulty of IP management for these firms due to their limited resources and IP management capability.[111] This makes the study of startups and SMEs an especially interesting topic that research efforts are increasingly being focused on. Likewise, a notable development in this area is the explicit incorporation of human and organizational factors in patent decisions and patent management, for example by incorporating employee skills as a predictor of patent propensity[112], by explicitly studying the organization of a firm's patenting activity in terms of team diversity and leader experience[113] and by using an action research methodology to study patent application and evaluation processes.[114]

Another interesting development is the increased incorporation of various forms and measures of boundary spanning innovation and IP management practices in the study of patent management. Many papers for example incorporate either some measure of open innovation[115] or explicitly focus on the relationship between patenting and open innovation in firms.[116] Others look at the use of external sources of knowledge[117], absorptive capacity[118], technology acquisition strategies[119], the use of external patent attorneys[120], and more. All this implies a growing awareness of the ever-increasing connectivity of the organizational landscape and the increasing porousness of organizational boundaries as a result, which has enduring implications for firms' IP management.

Lastly, while much attention is and has traditionally been paid to patenting decisions, litigation strategies, and macro-level effects, recent years have seen an increase in papers focused on the strategic, managerial dimension of patent management at the firm-level. This includes the earlier mentioned incorporation of human and organizational factors in studying front-end patent management, but also includes strategic considerations in the management of patents in and beyond the front-end. For example, one study focuses on how patent management can be used in managing ecosystem stability.[121] Others focus on strategic portfolio management by developing portfolio typologies[122] and strategic decision-making tools for evaluating patent portfolios.[123]

In short, while many trends in the field of patent management are continuous over time, recent years have seen new and promising developments like an increased focus on startups and SMEs, an increasing incorporation of various types of openness and connectivity, and a strategic perspective on patent management that includes a concern for human and organizational factors.

[102] S. Arunagiri and M. Mathew, "Exploring Technology Evolution Using Patent Classification: A Case of Cochlear Implant Technology Patents," International Journal of Innovation and Technology Management 14, no. 1 (2017).

[103] S. Arts, B. Cassiman, and J. C. Gomez, "Text Matching to Measure Patent Similarity," Strategic Management Journal 39, no. 1 (2018).

[104] A. Suominen, H. Toivanen, and M. Seppanen, "Firms' Knowledge Profiles: Mapping Patent Data with Unsupervised Learning," Technological Forecasting and Social Change 115 (2017).

[105] M. G. Moehrle, I. Pfennig, and J. M. Gerken, "Identifying Lead Users in a B2b Environment Based on Patent Analysis - the Case of the Crane Industry," International Journal of Innovation Management 21, no. 6 (2017).

[106] G. Kim and J. Bae, "A Novel Approach to Forecast Promising Technology through Patent Analysis," Technological Forecasting and Social Change 117 (2017).

[107] A. Rodriguez et al., "Patent Clustering and Outlier Ranking Methodologies for Attributed Patent Citation Networks for Technology Opportunity Discovery," Ieee Transactions on Engineering Management 63, no. 4 (2016).

[108] M. Holgersson and O. Granstrand, "Patenting Motives, Technology Strategies, and Open Innovation," Management Decision 55, no. 6 (2017).

[109] L. Agostini and A. Nosella, "A Dual Knowledge Perspective on the Determinants of Sme Patenting Results of an Empirical Investigation," Management Decision 55, no. 6 (2017); G. De Vries et al., "Trademark or Patent? The Effects of Market Concentration, Customer Type and Venture Capital Financing on Start-Ups' Initial Ip Applications," Industry and Innovation 24, no. 4 (2017).

[110] Abdelkafi et al., "To Standardise or to Patent? Development of a Decision Making Tool and Recommendations for Young Companies."

[111] Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives."

[112] Agostini and Nosella, "A Dual Knowledge Perspective on the Determinants of Sme Patenting Results of an Empirical Investigation."

[113] Choudhury and Haas, "Scope Versus Speed: Team Diversity, Leader Experience, and Patenting Outcomes for Firms."

[114] Soranzo, Nosella, and Filippini, "Redesigning Patent Management Process: An Action Research Study."

[115] Holgersson and Granstrand, "Patenting Motives, Technology Strategies, and Open Innovation."

[116] A. Brem, P. A. Nylund, and E. L. Hitchen, "Open Innovation and Intellectual Property Rights How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?," Management Decision 55, no. 6 (2017).

[117] A. Cammarano et al., "Accumulated Stock of Knowledge and Current Search Practices: The Impact on Patent Quality," Technological Forecasting and Social Change 120 (2017).

[118] F. E. Garcia-Muina and R. Gonzalez-Sanchez, "Absorptive Routines and International Patent Performance," Brq-Business Research Quarterly 20, no. 2 (2017).

IP Management

Just as for patent management, the systematic search for IP management literature resulted in the identification of many publications. This is the area in the review with most connections to and integration with general management and strategy. It is also the area with more in-depth studies of management, for example through case studies, as compared to quantitative studies across large numbers of firms. However, even though IP is a broad concept, the identified literature often implicitly focuses on single IPR types, typically patents.[124]

The strategic importance of IP is lifted in several articles.[125] When IP stands for an increasingly large share, now often a majority, of company values, the management of IP must be lifted to top management level due to IP's importance for creating and sustaining competitive advantage.[126] Specific patent strategies should therefore be linked to corporate strategy to improve competitiveness[127], and IP management should be integrated with general management and business strategy.[128] One of the main questions in strategy is that of integration and disintegration, and here IP management has an important role to play as an enabler of both integration and disintegration.[129]

A large theme of IP management research, which has been identified above as well, is how to manage IP in collaboration R&D and open innovation. Chesbrough started to discuss this already in his original publication on open innovation[130], and since then several publications have shown the role that patents and IPRs can play to enable innovation contracting[131], and that the protective function of patents may be especially needed for firms who collaborate with others to limit opportunism.[132]

[119] F. Caviggioli et al., "Corporate Strategies for Technology Acquisition: Evidence from Patent Transactions," Management Decision 55, no. 6 (2017).

[120] S. Suzeroglu-Melchiors, O. Gassmann, and M. Palmie, "Friend or Foe? The Effects of Patent Attorney Use on Filing Strategy Vis-a-Vis the Effects of Firm Experience," Management Decision 55, no. 6 (2017).

[121] J. E. Azzam, C. Ayerbe, and R. Dang, "Using Patents to Orchestrate Ecosystem Stability: The Case of a French Aerospace Company," International Journal of Technology Management 75, no. 1-4 (2017).

[122] Q. Yang and M. C. Minutolo, "The Strategic Approaches for a New Typology of Firm Patent Portfolios," International Journal of Innovation and Technology Management 13, no. 2 (2016).

[123] Grimaldi, Cricelli, and Rogo, "Auditing Patent Portfolio for Strategic Exploitation: A Decision Support Framework for Intellectual Property Managers."

[124] Kevin Rivette and D. Klein, "Discovering New Value in Intellectual Property," Harvard Business Review 78, no. 1 (2000); Deepak Somaya, David J. Teece, and Simon Wakeman, "Innovation in Multi-Invention Contexts: Mapping Solutions to Technological and Intellectual Property Complexity," California Management Review 53, no. 4 (2011).

[125] E.g., Gary P. Pisano and David J. Teece, "How to Capture Value from Innovation: Shaping Intellectual Property and Industry Architecture," California Management Review 50, no. 1 (2007).

[126] Markus Reitzig, "Strategic Management of Intellectual Property," MIT Sloan Management Review 45, no. 3 (2004).

[127] Rivette and Klein, "Discovering New Value in Intellectual Property."

[128] Ove Granstrand, "Corporate Management of Intellectual Property in Japan," International Journal of Technology Management 19, no. 1-2 (2000).

[129] Granstrand and Holgersson, "Managing the Intellectual Property Disassembly Problem."; Carliss Y. Baldwin and Joachim Henkel, "Modularity and Intellectual Property Protection," Strategic Management Journal 36, no. 11 (2015).

[130] Henry W. Chesbrough, Open Innovation: The New Imperative for Creating and Profiting from Technology (Boston, MA: Harvard Business School Press).

[131] Granstrand and Holgersson, "The Challenge of Closing Open Innovation: The Intellectual Property Disassembly Problem."; John Hagedoorn and Ann-Kristin Zobel, "The Role of Contracts and Intellectual Property Rights in Open Innovation," Technology Analysis & Strategic Management 27, no. 9 (2015).

[132] Martin A. Bader, "Managing Intellectual Property in Inter-Firm R&D Collaborations in Knowledge-Intensive Industries," International Journal of Technology Management 41, no. 3-4 (2008).

Turning to more recent publications on IP management, many of the articles still discuss the role of IP management in a context of boundary spanning innovation, either by explicit reference to the role of IP in open innovation practices[133], by studying online communities[134], crowdsourcing[135], outsourcing[136], research alliances[137], and innovation ecosystems.[138] Research efforts have zoomed in on the phenomenon to determine how IP can be used to facilitate instead of hinder open innovation efforts, and how risks of open innovation in terms of, for example, knowledge spill-over or loss of control over IP can be mitigated. While this trend is not new, research on IP and open innovation is getting increasingly nuanced, studying, for example, the use of different types of IP rights in open innovation[139], as well as differential use of IP rights in different phases of open innovation efforts.[140]

Still prevalent is research on the relationship between IP (management) and various kinds of innovation outputs. Recent studies find for example that protection of IP can facilitate innovative performance in an organizational learning culture[141] and that firms with a higher degree of internationalization have more use for IP protection with regard to technological innovation.[142] On the other hand, IP protection was noted to be an insufficient condition for attracting foreign direct investment.[143]

In summary, while a lot of work on IP management focuses on patent management and therefore either ends up in the first category or ends up taking patents as an indication or operationalization of IP, some works take a broader perspective to include all types of IP. This research is continuously concerned with the relationship between IP and innovation output and increasingly concerned with the role of open innovation while some initial efforts can be seen to incorporate knowledge management into the discussion on IP management and vice versa.[144]

License Management

Licensing plays an important role in IP management[145] and in corporate strategy[146], which is reflected in a relatively large amount of research on licensing. The review indicates that research on licensing is dominated by formal modelling and quantitative data analysis.[147]

One question that has been addressed by several studies is what the determinants of in- and out-licensing decisions are. For example, it has been found that in-licensing decisions are impacted by organization structure[148], and by previous licensing experience, cost and value benefits of licensing, awareness of licensing opportunities, and the licensees' R&D capabilities.[149] The latter is related to absorptive capacity[150], meaning that internal technological competence is needed to successfully benefit from external technologies. The primary driver of in-licensing decisions is however a need to quickly create a competitive advantage, while costs and loss of autonomy are important downsides.[151] These different determinants may not only impact the decision of whether or not to license, but also what type of license to use.[152]

[133] P. M. Bican, C. C. Guderian, and A. Ringbeck, "Managing Knowledge in Open Innovation Processes: An Intellectual Property Perspective," Journal of Knowledge Management 21, no. 6 (2017); Brem, Nylund, and Hitchen, "Open Innovation and Intellectual Property Rights How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?."; A. Cammarano et al., "Open Innovation and Intellectual Property: A Knowledge-Based Approach," Management Decision 55, no. 6 (2017); A. Toma, G. Secundo, and G. Passiante, "Open Innovation and Intellectual Property Strategies: Empirical Evidence from a Bio-Pharmaceutical Case Study," Business Process Management Journal 24, no. 2 (2018).

[134] J. Bauer, N. Franke, and P. Tuertscher, "Intellectual Property Norms in Online Communities: How User-Organized Intellectual Property Regulation Supports Innovation," Information Systems Research 27, no. 4 (2016).

[135] J. de Beer et al., "Click Here to Agree: Managing Intellectual Property When Crowdsourcing Solutions," Business Horizons 60, no. 2 (2017).

[136] R. Sen Gupta, "Risk Management and Intellectual Property Protection in Outsourcing," Global Business Review 19, no. 2 (2018).

[137] L. Staphorst et al., "Impact of Intellectual Property Rights on the Governance Mode Decisions of Engineering Managers During the Establishment of Research Alliances with Publicly Funded Entities," Engineering Management Journal 29, no. 1 (2017).

[138] Marcus Holgersson, Ove Granstrand, and Marcel Bogers, "The Evolution of Intellectual Property Strategy in Innovation Ecosystems: Uncovering Complementary and Substitute Appropriability Regimes," Long Range Planning 51, no. 2 (2018).

[139] Brem, Nylund, and Hitchen, "Open Innovation and Intellectual Property Rights How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?."

[140] Bican, Guderian, and Ringbeck, "Managing Knowledge in Open Innovation Processes: An Intellectual Property Perspective."

[141] S. Hussain and M. Terziovski, "Intellectual Property Appropriation Strategy and Its Impact on Innovation Performance," International Journal of Innovation Management 20, no. 2 (2016).

[142] S. H. Cho and H. G. Kim, "Intellectual Property Rights Protection and Technological Innovation the Moderating Effect of Internationalization," Multinational Business Review 25, no. 4 (2017).

[143] P. Saiz and R. Castro, "Foreign Direct Investment and Intellectual Property Rights: International Intangible Assets in Spain over the Long Term," Enterprise & Society 18, no. 4 (2017).

[144] M. Henao-Calad, P. R. Montoya, and B. U. Ochoa, "Knowledge Management Processes and Intellectual Property Management Processes: An Integrated Conceptual Framework," Ad-Minister, no. 31 (2017); G. Maldonado-Guzman et al., "Knowledge Management as Intellectual Property Evidence from Mexican Manufacturing Smes," Management Research Review 39, no. 7 (2016).

[145] Peter C. Grindley and David J. Teece, "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics," California Management Review 39, no. 2 (1997).

[146] Ove Granstrand, "The Economics and Management of Technology Trade: Towards a Pro-Licensing Era?," International Journal of Technology Management 27, no. 2,3 (2004).

[147] E.g., Kumar and Turnbull, "Optimal Patenting and Licensing of Financial Innovations."; Ashish Arora, Andrea Fosfuri, and Thomas Rønde, "Managing Licensing in a Market for Technology," Management Science 59, no. 5 (2013); Stefano Comino and Fabio M. Manenti, "Dual Licensing in Open Source Software Markets," Information Economics and Policy 23, no. 3–4 (2011); Jisun Kim and Tugrul U. Daim, "A New Approach to Measuring Time-Lags in Technology Licensing: Study of U.S. Academic

In addition to the empirical results described above, the licensing literature includes a lot of conceptual and modelling research. This literature focuses on how to design licenses given a specific business model[153]. This also includes different license clauses[154] and different payment schemes[155], such as 'upfront', 'milestone', and 'royalty rate', and how to combine them. This connects to a very important area of research, namely how to price licenses.[156] More research is needed here, however, for example to establish FRAND license royalty principles and to establish internal pricing and internal licensing schemes for fair and reasonable taxation.

Turning to the more recent literature on license management, two main research problems can be distinguished in recent publications. That is, research efforts seem to be mainly directed to questions regarding (the design and evaluation of) the licensing contract on the one hand, and the use and organization of licensing activity on the other hand.

This includes, for example, how to calculate future cash flows from licensing contracts[157], and how to calculate innovator revenues in university licensing contracts.[158] Meanwhile the management of licensing activities has inspired research around the use of in-licensing by startups[159], the role of human capital in licensing outcomes[160], and the importance of attention both by R&D as well as top management in using licensed knowledge for the creation of product innovation.[161] Especially interesting in this last category is that the previously mentioned trend in patent management to start including human and organizational factors seems to be present in part in research of licensing as well. These studies focus on the organization of the licensing function as an essentially human activity, forming a valuable complement to studies on the more formalized aspects of contract design and valuation.

Secrecy Management

As compared to research on other types of IPRs, research on secrecy often puts trade secrets in the context of alternative IPRs, and the research is thereby not as limited as research on other types of IPRs.[162] An analysis of the small research stream on management of secrecy shows that the studies are often conceptual and/or based on modelling, rather than on empirical data.[163] This should come as no surprise, given that trade secrets are by their nature difficult to measure.

There are some interesting exceptions, however. For example, empirical research has shown that employees' ambitions to uphold secrecy depends on the employer's protocol for secrecy. Thereby, the management and enforcement of trade secrets is actually impacting how well secrets are kept.[164] In the university setting, this becomes especially complex as researchers need to balance publishing for academic reasons with secrecy for commercial reasons.[165]

Research Institutions," The Journal of Technology Transfer 39, no. 5 (2014).

148 Arora, Fosfuri, and Rønde, "Managing Licensing in a Market for Technology."

149 Kwaku Atuahene-Gima, "Determinants of Inward Technology Licensing Intentions: An Empirical Analysis of Australian Engineering Firms," Journal of Product Innovation Management 10, no. 3 (1993). Nobuya Fukugawa, "Determinants of Licensing Activities of Local Public Technology Centers in Japan," Technovation 29, no. 12 (2009).

150 Wesley M. Cohen and Daniel A. Levinthal, "Absorptive Capacity: A New Perspective on Learning and Innovation," Administrative Science Quarterly 35, no. 1 (1990).

151 Kwaku Atuahene-Gima and Paul Patterson, "Managerial Perceptions of Technology Licensing as an Alternative to Internal R&D in New Product Development: An Empirical Investigation," R&D Management 23, no. 4 (1993).

152 Ravi Sen, Chandrasekar Subramaniam, and Matthew L. Nelson, "Determinants of the Choice of Open Source Software License," Journal of Management Information Systems 25, no. 3 (2008).

153 Marius F. Niculescu and D. J. Wu, "Economics of Free under Perpetual Licensing: Implications for the Software Industry," Information Systems Research 25, no. 1 (2014).

154 Zhang and Seidmann (2010

155 Pascale Crama, Bert De Reyck, and Zeger Degraeve, "Milestone Payments or Royalties? Contract Design for R&D Licensing," Operations Research 56, no. 6 (2008).

156 See, e.g., Francis Bidault, "Global Licensing Strategies and Technology Pricing," International Journal of Technology Management 27, no. 2-3 (2004).

157 J. Lynch and R. Shockley, "Valuation of a Pharmaceutical Licensing Contract," Journal of Applied Corporate Finance 29, no. 3 (2017).

158 B. J. Rickard, T. J. Richards, and J. B. Yan, "University Licensing of Patents for Varietal Innovations in Agriculture," Agricultural Economics 47, no. 1 (2016).

159 P. Belingheri and M. I. Leone, "Walking into the Room with Ip: Exploring Start-Ups' Ip Licensing Strategy," Management Decision 55, no. 6 (2017).

160 M. Bianchi and J. Lejarraga, "Learning to License Technology: The Role of Experience and Workforce's Skills in Spanish Manufacturing Firms," R & D Management 46 (2016).

161 T. Klueter, L. F. Monteiro, and D. R. Dunlap, "Standard Vs. Partnership-Embedded Licensing: Attention and the Relationship between Licensing and Product Innovations," Research Policy 46, no. 9 (2017).

162 Thomas Hemphill, "The Strategic Management of Trade Secrets in Technology-Based Firms," Technology Analysis & Strategic Management 16, no. 4 (2004); Brenda Bos, Thijs L. J. Broekhuizen, and Pedro de Faria, "A Dynamic View on Secrecy Management," Journal of Business Research 68, no. 12 (2015).

163 James J. Anton and Dennis A. Yao, "Little Patents and Big Secrets: Managing Intellectual Property," The RAND Journal of Economics 35, no. 1 (2004); Ján Zábojník, "A Theory of Trade Secrets in Firms*," International Economic Review 43, no. 3 (2002); Ronald L. Dufresne and Evan H. Offstein, "On the Virtues of Secrecy in Organizations," Journal of Management Inquiry (2008); Hemphill, "The Strategic Management of Trade Secrets in Technology-Based Firms."

164 David R. Hannah, "Should I Keep a Secret? The Effects of Trade Secret Protection Procedures on Employees' Obligations to Protect Trade Secrets," Organization Science 16, no. 1 (2005); "Keeping Trade Secrets Secret," MIT Sloan Management Review 47, no. 3 (2006).

165 Andrew J. Nelson, "How to Share "a Really Good Secret": Managing Sharing/Secrecy Tensions around Scientific Knowledge Disclosure," Organization Science 27, no. 2 (2016).

Turning to the more recent literature on secrecy, two topics are in focus. Firstly, the strategic decision to keep trade secrets versus patenting or publishing[166] and what conditions affect the importance of secrecy as a way of protecting IP[167], i.e., how secrecy is used and managed at the level of the inventor or firm. Secondly, the effect of (legal changes in) trade secret law on a number of macro and micro level outcomes, including market value in acquisitions[168], venture capital investment[169], and level of disclosure.[170] This draws on developments in trade secret law and studies its impact on a number of economic outcomes, therefore approaching secrecy mostly from a legal perspective as a mostly independent condition. In contrast, the first group mainly treats secrecy as a managerial decision or as a process to be managed.

Management of Design Protection, Trademarks, and Copyrights

The literature on management of design protection, trademarks, and copyrights is very limited, despite the fact that they are probably the most common ones. The low numbers of citations also indicate that the research has not made a big impact, see Table 4. Due to the limitations, these fields are covered jointly here.

Just like for patents, there are differences across industries and firms in the propensity to register community designs in EU[171] and in the propensity to register trademarks[172]. Thus, registered design rights and registered trademarks cannot be used as direct measures of design or marketing output. Also, just lite for patents, research indicates that the management of designs and design protection needs to be integrated with the corporate strategy.[173]

The copyright literature identifies digitalization as a source of both challenges and opportunities.[174] Many of these are applicable to other types of IPRs as well, such as designs, for example in terms of rights related to drawings and designs in 3D printing.

Finally, the field of copyright is related to the vast amount of research on open source software and different types of licenses in this setting.[175] Some of this is related to the management of open and closed innovation models in software.[176]

Turning to the more recent literature on these types of IPRs, one single paper in the sample discussed the use of industrial designs for SMEs in open innovation processes. This paper discusses the use of different IP rights and concludes that industrial designs currently provide the most efficient type of IP protection for SMEs. Likewise, this paper uniquely discusses the role of copyright in protecting IP, finding that it is the least used form of intellectual property protection by SMEs yet suggesting it can be useful strategically due to the low costs involved.[177] The second publication on copyright discusses the development of the music industry and how this can historically be explained through market effects rather than by looking at copyright law.[178]

The sample of papers in the trademark category conforms to a generally noted trend to study startups and SMEs. That is, out of three papers in this category, two looked at SMEs' different uses of IPRs and startups decision between trademarks and patents under a number of conditions, respectively.[179] The last paper in this category used experimental methods to study trademark dilution through third party use of the trademark.[180]

4. CONCLUSIONS AND DIRECTIONS FOR RESEARCH AND PRACTICE

After this broad review of research on IP management, what can be concluded and what directions for actions can be given to practitioners and academics? A first conclusion is that research on IP management has had increasing growth, especially since the early 2000s. This can be illustrated by a number of special issues being published during recent years (2003, 2013, 2014, 2014, 2014, 2016, and 2017, respectively) and a growing number of publications more generally, as illustrated in Figure 2.

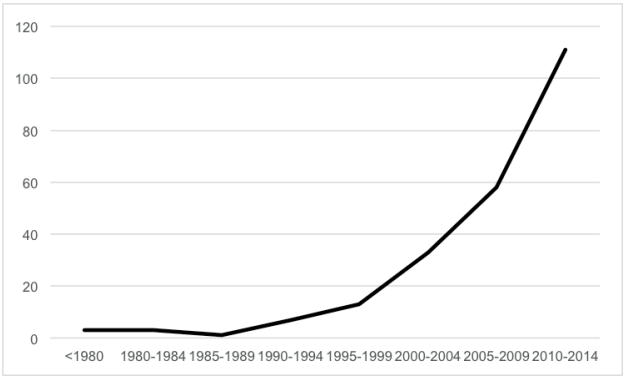

FIGURE 2 NUMBER OF PUBLICATIONS PER TIME PERIOD, AS IDENTIFIED IN THE SYSTEMATIC SEARCH

A second conclusion is that the literature mainly focuses on single types of IPRs, typically patents. This limitation is identified in previous reviews[181], in special issues[182], and in the structured literature review. From the publications studied it is clear that most researchers (and quite often practitioners as well) substitute IP management for patent management and pay relatively little attention to other types of IPRs, their uses and interdependences with the rest of the IP portfolio. IP management in its essence includes the entire scope of formal IPRs and informal appropriation strategies however, so that a part of the picture is obscured when patents are singularly studied, or managed. Research as well as practice need to take a more holistic perspective on the concepts of IP and IPRs, especially when the basis for competitiveness dynamically moves between different types of intellectual resources, such as technical inventions, data, and user communities, and the related IPRs.

Just as the research and practice of IP management need to integrate different types of IPRs, a third conclusion is that it also needs to be integrated with general management and business strategy.[183] The recent increase in the study of organizational factors in the management of IP is welcomed. Even though several advancements have been made in this area, partly thanks to several special issue specifically requesting such research, there is still much room for further advancements in both research

and practice. For example, more knowledge is needed about how to efficiently and effectively organize the IP function, which is in practice often quite isolated from business strategy decisions as well as from technology decisions. The provision of IP intelligence may here function as an internal door-opener for IP lawyers and IP managers.[184] More knowledge is also needed about how to design IP strategies to align with new business models (and vice versa), and their various components involving more or less collaboration and competition across firm boundaries.

A fourth conclusion is that there is a sustained attention for the role of open innovation in the management of IP and vice versa. Boundaries between organizations, industries, and technologies are increasingly blurring with a noticeable impact on the management of IP. While discussions on the commensurability between IPRs and open innovation have dominated the debate on their relationship, recent years seem to indicate an effort to instead find the right usage of IP in open innovation and more generally in collaboration, competition, and coopetition across firm boundaries. This nuance of the debate is encouraged, as the discussion on commensurability of IP and open innovation suggests a false dichotomy between 'closed' innovation characterized by strong IP protection and knowledge hoarding, and 'open' innovation characterized by free sharing and a lack of IP protection. Instead various types of openness in innovation exist in parallel (and even in mutually reinforcing relationships).[185] Therefore the questions of how to manage IP in open innovation contexts and how to facilitate open innovation efforts through the right mix of IP strategies seem more productive at this stage of development in the field.

[166] M. Holgersson and M. W. Wallin, "The Patent Management Trichotomy: Patenting, Publishing, and Secrecy," Management Decision 55, no. 6 (2017).

[167] W. Sofka, P. de Faria, and E. Shehu, "Protecting Knowledge: How Legal Requirements to Reveal Information Affect the Importance of Secrecy," Research Policy 47, no. 3 (2018).

[168] F. Castellaneta, R. Conti, and A. Kacperczyk, "Money Secrets: How Does Trade Secret Legal Protection Affect Firm Market Value? Evidence from the Uniform Trade Secret Act," Strategic Management Journal 38, no. 4 (2017).

[169] F. Castellaneta et al., "The Effect of Trade Secret Legal Protection on Venture Capital Investments: Evidence from the Inevitable Disclosure Doctrine," Journal of Business Venturing 31, no. 5 (2016).

[170] Y. H. Li, Y. P. Lin, and L. D. Zhang, "Trade Secrets Law and Corporate Disclosure: Causal Evidence on the Proprietary Cost Hypothesis," Journal of Accounting Research 56, no. 1 (2018).

[171] Rainer Filitz, Joachim Henkel, and Bruce S. Tether, "Protecting Aesthetic Innovations? An Exploration of the Use of Registered Community Designs," Research Policy 44, no. 6 (2015).

[172] Meindert Flikkema, Ard-Pieter De Man, and Carolina Castaldi, "Are Trademark Counts a Valid Indicator of Innovation? Results of an in-Depth Study of New Benelux Trademarks Filed by Smes," Industry and Innovation 21, no. 4 (2014); Jörn H. Block et al., "Why Do Smes File Trademarks? Insights from Firms in Innovative Industries," Research Policy 44, no. 10 (2015).

[173] Tung-Jung Sung and Peter Gilmour, "An Empirical Examination of the Relationship between Design, the Npi Process and Strategy Implementation," International Journal of Technology Management 24, no. 5-6 (2002).

[174] Keith Dickson and Anne-Marie Coles, "Textile Design Protection:: Copyright, Cad and Competition," Technovation 20, no. 1 (2000); Roberto García and Rosa Gil, "A Web Ontology for Copyright Contract Management," International Journal of Electronic Commerce 12, no. 4 (2008). Reto Hilty and Sylvie Nérisson, "Collective Copyright Management and Digitization: The European Experience," Handbook on the Digital Creative Economy/Ruth Towse and Christian Handke (eds.), Cheltenham: Edward Elgar (2013).

[175] E.g., Georg von Krogh et al., "Carrots and Rainbows: Motivation and Social Practice in Open Source Software Development," MIS Quarterly 36, no. 2 (2012); Wen Wen, Marco Ceccagnoli, and Chris Forman, "Opening up Intellectual Property Strategy: Implications for Open Source Software Entry by Start-up Firms," Management Science 62, no. 9 (2016).

[176] E.g., Henkel, Baldwin, and Shih, "Ip Modularity: Profiting from Innovation by Aligning Product Architecture with Intellectual Property."; Joachim Henkel, "Selective Revealing in Open Innovation Processes: The Case of Embedded Linux," Research Policy 35, no. 7 (2006).

[177] Brem, Nylund, and Hitchen, "Open Innovation and Intellectual Property Rights How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?."

[178] R. Towse, "Economics of Music Publishing: Copyright and the Market," Journal of Cultural Economics 41, no. 4 (2017).

[179] Brem, Nylund, and Hitchen, "Open Innovation and Intellectual Property Rights How Do Smes Benefit from Patents, Industrial Designs, Trademarks and Copyrights?."; De Vries et al., "Trademark or Patent? The Effects of Market Concentration, Customer Type and Venture Capital Financing on Start-Ups' Initial Ip Applications."

[180] W. Macias and J. Cervino, "Trademark Dilution: Comparing the Effects of Blurring and Tarnishment Cases over Brand Equity," Management & Marketing-Challenges for the Knowledge Society 12, no. 3 (2017).

[181] Candelin-Palmqvist, Sandberg, and Mylly, "Intellectual Property Rights in Innovation Management Research: A Review."

[182] Al-Aali and Teece, "Towards the (Strategic) Management of Intellectual Property: Retrospective and Prospective."

[183] Somaya, "Patent Strategy and Management."; Al-Aali and Teece, "Towards the (Strategic) Management of Intellectual Property: Retrospective and Prospective."; Conley, Bican, and Ernst, "Value Articulation."; Cesaroni and Piccaluga, "Operational Challenges and St's Proposed Solutions to Improve Collaboration between Ip and R&D in Innovation Processes."; Granstrand and Holgersson, "Managing the Intellectual Property Disassembly Problem.". David J. Teece, "Business Models, Business Strategy and Innovation," Long Range Planning 43, no. 2-3 (2010).

[184] IP intelligence can provide a basis for many types of decisions, including for sourcing, R&D collaborations, competition analysis, market entries, M&As, etc., and business managers are typically interested in the information that IP intelligence can provide.

[185] Holgersson, Granstrand, and Bogers, "The Evolution of Intellectual Property Strategy in Innovation Ecosystems: Uncovering Complementary and Substitute Appropriability Regimes."

The above conclusions become even more relevant as the business landscape is changing, partly as a result of digitalization. Digitalization is not only changing the technology base of firms, but also how they do business. Business models are increasingly building on various forms of platforms and/or business and innovation ecosystem,[186] and research has shown that IP management has a very important role to play here, for example in controlling how accessible different interfaces and components should be.[187]

Moreover, IP is taking an increasingly central place in new industries. For example, service firms have historically built their competitiveness on the efficient and effective use of human resources with an offering ensured by their trademarked brands. In the process of automation, human resources are replaced by different forms of robots and artificial intelligence, and profits may no longer accrue to the firm who controls human resources, but rather to the firm who controls the rights to key technologies enabling automation.

In this setting, different industries and technologies will converge, meaning also that actors with different types of IP strategies and IP cultures will eventually collide. For example, the automotive industry converges with parts of the computer, software, and ICT industries. Practitioners need to make proactive efforts in preparing for, or avoiding, IP culture and strategy collisions. Researchers, on the other hand, may find interesting new avenues for research when the industrial differences in IP strategy identified in several publications and research fields here[188] are gradually converging, being erased, or leading to increasingly litigious industries.

As identified both here and in previous reviews, the IP management field has had an overweight of studies utilizing quantitative secondary data, such as patent statistics, where many relevant strategy- and management-related variables are missing.[189] Many of these requests for additional research call for studies where in-depth primary data is collected, for example with case study research designs or with new survey designs focusing specifically on IP management. There is here large potential in collaborations between practitioners and researchers that can move the field of IP management forward.

Finally, for the IP (law) function or unit of a firm there are ample opportunities and benefits of integrating different types of IPRs and integrating (being integrated with) more strategic decision-making, see Figure 3. While there are of course huge differences in how well-integrated IP (law) functions are in different firms, they are most often involved in the front-end of patent application as well as in the back-end of IP enforcement. In between is a range of strategic issues relating to IP, where the IP (law) function is however often less involved despite its relevance for such decisions, as described above. A combination of internal IP education efforts and top management support may be needed to make organizations ready for what IP management has to offer.

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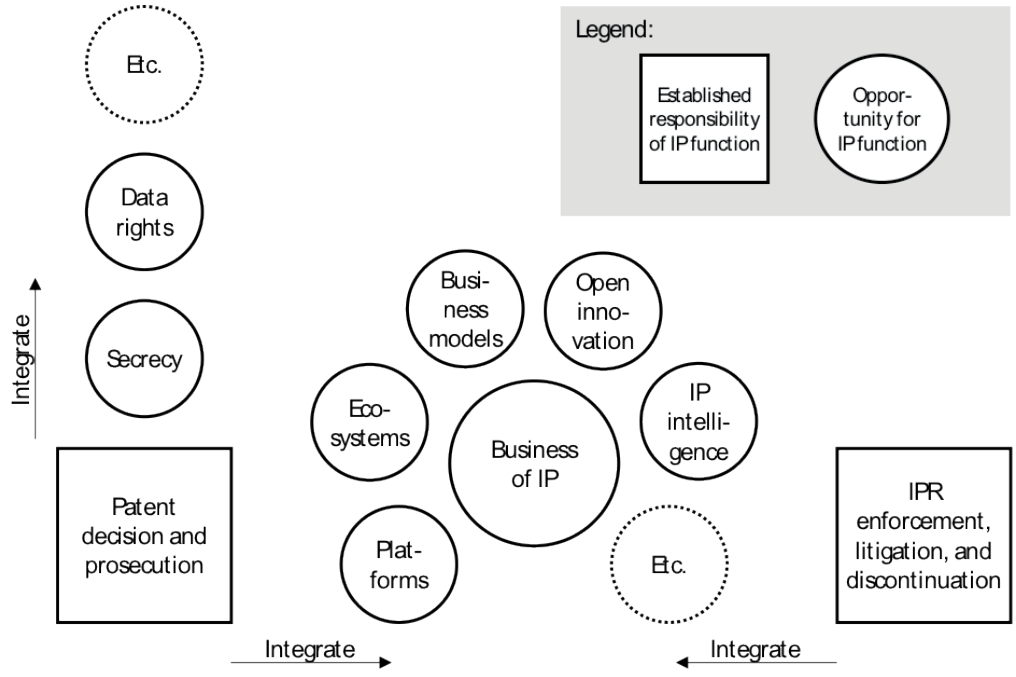

FIGURE 3 OPPORTUNITIES FOR BETTER INTEGRATION OF IP FUNCTION

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[186] Annabelle Gawer, "Bridging Differing Perspectives on Technological Platforms: Toward an Integrative Framework," Research Policy 43, no. 7 (2014); Annabelle Gawer and Michael A. Cusumano, "Industry Platforms and Ecosystem Innovation," Journal of Product Innovation Management 31, no. 3 (2014); Ron Adner and Rahul Kapoor, "Value Creation in Innovation Ecosystems: How the Structure of Technological Interdependence Affects Firm Performance in New Technology Generations," Strategic Management Journal 31, no. 3 (2010).

[187] Holgersson, Granstrand, and Bogers, "The Evolution of Intellectual Property Strategy in Innovation Ecosystems: Uncovering Complementary and Substitute Appropriability Regimes."

[188] Pitkethly, "Intellectual Property Strategy in Japanese and Uk Companies: Patent Licensing Decisions and Learning Opportunities."; Barros, "Exploring the Use of Patents in a Weak Institutional Environment: The Effects of Innovation Partnerships, Firm Ownership, and New Management Practices."; Holgersson, "Patent Management in Entrepreneurial Smes: A Literature Review and an Empirical Study of Innovation Appropriation, Patent Propensity, and Motives." Filitz, Henkel, and Tether, "Protecting Aesthetic Innovations? An Exploration of the Use of Registered Community Designs." Flikkema, De Man, and Castaldi, "Are Trademark Counts a Valid Indicator of Innovation? Results of an in-Depth Study of New Benelux Trademarks Filed by Smes."; Block et al., "Why Do Smes File Trademarks? Insights from Firms in Innovative Industries."

[189] Candelin-Palmqvist, Sandberg, and Mylly, "Intellectual Property Rights in Innovation Management Research: A Review." Somaya, "Patent Strategy and Management."

Lacking a European Touch: The Delhi High Court Design Law Ruling in Crocs Inc v. Liberty Shoes*

By Eashan Ghosh and Afzal Badr Khan

Case Note

SUMMARY

On March 14, 2018, the European General Court in *Crocs Inc v. European Union Intellectual Property Office*[1] issued a judgment cancelling a European Community design registration for American footwear giants Crocs. This confirmed a decision by the Board of Appeal in June 2016,[2] which had held that Crocs' signature footwear design was invalidly registered owing to prior publication.

Meanwhile, in faraway India, 'Crocs' massive design infringement litigation against seven Indian footwear manufacturers over the same design at issue in the European proceedings, finally came to a head in February 2018 before the Delhi High Court in *Crocs Inc* v. *Liberty Shoes*.[3]

Like its European counterparts, the Indian Court ruled against Crocs on the validity of the design registration. However, the European General Court decision also reveals that much of the material on which its judgment was based was never raised before the Indian Court. This raises numerous concerns, not just about the bleak future of Crocs' Indian design infringement actions but also of possible sanctions for Crocs for failing to meet disclosure requirements under Indian legal procedure.

This note discusses the key findings of the Delhi High Court in *Crocs Inc* v. *Liberty Shoes* on the issues of prior publication and originality. The finding on prior publication is incomplete for its failure to refer to the material disclosed in the European proceedings, and the Delhi Court has deviated markedly from established Indian design law in ruling that Crocs' design lacked originality. It is a decision, that therefore, requires urgent reconsideration on both counts.

1. BACKGROUND TO THE DELHI PROCEEDINGS

Crocs secured design registrations for its popular perforated and non-perforated clog-style footwear designs in India in May 2004.[4] These design registrations, corresponding to European Community Design Registration No. 257001-0001 registered in February 2005,[5] were the centerpieces around which Crocs instituted design infringement actions against seven Indian footwear manufacturers between 2014 and 2018.[6]

While Crocs was successful in securing interim injunctions *ex parte* against two of these footwear manufacturers before other Delhi Courts, the full interim injunction motions in all the design infringement proceedings were consolidated before the Delhi High Court and heard between November 2017 and February 2018.[7] By its judgment of February 8, 2018, the Delhi High Court dismissed Crocs' motions for interim injunction in all these cases.

Curiously, the substance of the Defendants' defence was not that their footwear designs were not imitations or pirated versions of the Crocs' designs. Instead, they argued that, under Indian design law, no action for imitation or piracy brought by the proprietor of a registered design could be granted relief if the registration itself was invalid.[8]

2. THE DELHI HIGH COURT FINDING ON PRIOR PUBLICATION

To this end, the Defendants first sought to prove that the Crocs' registered designs were invalid on account of prior publication. To establish this, they would have to demonstrate that Crocs' registered designs had been published prior to May 28, 2003, the date from which Crocs' Indian registration claimed priority.[9]

The Defendants relied on two sets of materials to de-

*Disclosure: The authors advised and represented the Claimants before the Delhi High Court in Pentel v. Arora Stationers, a case which is discussed in Parts 5 and 6 of this Case Note.

1 Judgment of 14 March 2018, Crocs Inc v. European Intellectual Property Office, Case T-651/16.

2 Judgment of 06 June 2016, Gifi Diffusion v. Crocs Inc, Case R 853/2014-3.

3 Crocs Inc v. Liberty Shoes, Case CS(COMM) 772/2016 [Delhi High Court Judgment of 8 February 2018], available at http://lobis.nic.in/ddir/dhc/VJM/judgement/12-02-2018/VJM08022018SC7722016.pdf (last accessed on April 3, 2018).

4 Crocs were issued registrations under Indian Design Nos. 197685 and 197686 for these designs. Ibid., [1]-[2].

5 The European Community design registration claimed priority from US Design Patent Application No. 29/206,427 filed on 28 May 2004. See Judgment of 26 March 2010, Crocs Inc v. Holey Soles Holdings, Case R 9/2008-3, [1].

6 These consisted of actions against seven different Indian Defendants, namely Liberty Shoes, Relaxo Footwear, Bioworld Merchandising, Bata India, Action Shoes, Aqualite, and Kidz Palace. Crocs claimed that these Defendants were manufacturing and selling sandals with clog-style designs that were imitations or pirated versions of Crocs' own registered designs. Supra, note 3, [4].

7 Supra, note 3, [1].

8 Under Section 22(3) of the Indian Designs Act, 2000, every ground on which a design registration may be susceptible to cancellation may be argued by a Defendant in design infringement proceedings. An exhaustive list of these grounds is offered in Sections 19(1)(a)-(e) of this Act. The Defendants here sought to make out two grounds for invalidity of Crocs' Indian design registrations: that these designs had been published prior to the date of registration [Section 19(1)(b)] and that these designs were not new or original [Section 19(1)(c)].

monstrate prior publication. First, they introduced online materials published by Holeys (then Holey Soles), a Canadian competitor of Crocs. These materials were December 2002-February 2003 vintage, and appeared to disclose footwear designs similar to Crocs' Indian design registrations.[10] Second, the Defendants introduced screenshots and printouts from Crocs' own website going back to October 2002-December 2002, also relating to footwear designs broadly similar to the designs registered by Crocs in India.[11]

In response, Crocs opted to challenge the reliability of the material in a slightly odd manner. It argued that the depiction of the footwear designs by Holeys in the online material was not a guarantee that the depiction did, in fact, take place between December 2002 and February 2003.[12]

This was rejected by the Delhi High Court as "nothing but a desperate argument."[13] Instead, the Court found that the Defendants' prior publication objection was *prima facie* acceptable. In the Court's view, this was because, once the Holeys designs were shown to be broadly similar to Crocs' designs, *"it was up to Crocs to lead evidence to demonstrate that Holeys' website from the timeframe in question had not made the designs publicly available"* – something Crocs failed to do.[14]

This comes across as a rather roundabout manner in which to conduct a prior publication inquiry for two reasons. First, the Delhi High Court fails to identify or explain the reasons for its *prima facie* impression that the Holeys designs were similar to the subject of Crocs' Indian design registrations. There is no judicial discussion of how the Holeys material stacks up against Crocs' Indian designs, either in terms of an overall impression or an element-by-element comparison.

Second, it is worth emphasizing that the online material submitted by the Defendants was simply in the form of unverified printouts of material downloaded from the internet. While the Court does offer to extend a similarly lax level of scrutiny to Crocs' evidence as well, it raises the question of whether the Court's *prima facie* opinion of a potentially case-turning issue such as prior publication should be on firmer ground.

3. THE EUROPEAN MATERIAL ON PRIOR PUBLICATION OF RELEVANCE TO THE INDIAN PROCEEDINGS

The latter is especially troubling in view of the European General Court proceedings — ongoing at the time of the Delhi High Court hearings — which, in March 2018, yielded a finding against Crocs on prior publication but on extremely contrasting evidence.

[9] Supra, note 3, [14].
[10] Supra, note 3, [12]-[13].
[11] Supra, note 3, [16].
[12] Crocs then relied on a Delhi appeals court decision in Reckitt Benckiser v. Wyeth 2013 (54) PTC 90 (FB) [Delhi High Court Judgment of 15 March 2013] to argue that, in order to qualify as a prior publication, the material in question must offer complete clarity on what had been published. Supra, note 3, [15(i)].
[13] Supra, note 3, [15(ii)].
[14] Supra, note 3, [15(ii)].

The European General Court, sitting in appeal of the June 2016 decision by the Third Board of Appeal which it eventually confirmed, carefully reviewed numerous exhibits led as evidence by French opponents Gifi Diffusion.[15] It concluded that Crocs' European Community design registration, mirrored by Crocs' design registrations in India, was indeed hit by prior publication.

In addition to the online material on Crocs' website from late 2002, which was also produced before the Delhi High Court, this evidence included material demonstrating that:

(i) The clog corresponding to Crocs' design registration had been put on the market in July 2002;
(ii) Crocs had exhibited its design at the Fort Lauderdale Boat Show in the United States in November 2002, and that the clogs to which the design at issue had been applied had been 'a smashing success';
(iii) Crocs' website archives held images of a clog with a heel strap marked '© 2003';
(iv) Crocs' own websites contained publicity material claiming that *"by 2003, Crocs had become a bona fide phenomenon, universally accepted"*; and,
(v) The clogs to which Crocs' European design registration had been applied were available for sale prior to May 2003, including through a distributor called Western Brands, as well as several retailers in the United States.[16]

This begs the question of why this staggering amount of evidence considered by the European General Court finds no mention in the Indian litigation. On this omission, while the Delhi High Court did clarify that the prior publication issue in reference to European proceedings was raised by the parties, the Delhi High Court felt it unnecessary to discuss it at length since the case fell to be decided on the "existence of prior publication with respect to [the] registered designs of the [Claimant] and lack of [originality]."[17]

It is puzzling that the Delhi High Court should admit to deciding these cases, in part, on the prior publication issue and yet not give sufficient consideration to material from the European proceedings having a profound and direct bearing on that very issue. It may also be that the numerous Defendants contesting the Indian proceedings failed to fully impress upon the Delhi High Court the breadth and depth of prior publication material in the European proceedings.[18]

4. CROCS' KNOWLEDGE AND LEGAL STRATEGY UNDER THE SCANNER

However, the principal responsibility for the anaemic consideration of the prior publication objection by the Delhi High Court must lie at the door of Crocs, in their capacity as Claimants.

While the European General Court decision was, indeed, returned in March 2018, it did not consider any significant evidence that was not already before the European Board of Appeal when it returned its ruling in June 2016.[19] This already puts Crocs — the same entity asserting, in substance, the same design registration in both the European Union and India — to constructive notice of this evidence prior to instituting at least six of the seven design infringement actions in Delhi.[20]

However, the antecedents of the challenge to Crocs' European Community design registration run deeper still. The Board of Appeal proceedings make clear that the invalidity challenge by Gifi Diffusion to Crocs' European Community design registration was filed as far back as March 2013, following a design infringement action by Crocs against Gifi Diffusion.[21] This invalidity motion sought to revive a ruling of the same Board of Appeal from March 2010 where, upon an application by Holeys (then Holey Soles Holdings), the Board of Appeal had found Crocs' European Community design registration to be invalid.[22] In its invalidity challenge, Gifi Diffusion reiterated at length the March 2010 findings of the same Board of Appeal in *Crocs Inc* v. *Holey Soles Holdings*,[23] *en route* to a decision in its favour.[24]

The illustration of this complex history of litigation is in service of a simple observation: compelling material has been led by Crocs' adversaries and ruled on by European Courts on the issue of prior publication of its Euro-

[15] Supra, note 1, [49]-[71].
[16] The European General Court would go on to hold that Crocs "failed to establish to the requisite legal standard that the [disclosure events] established by the Board of Appeal could not have become known in the normal course of business to the circles specialized in the sector concerned, operating within the European Union". It also rejected Crocs' contention that disclosure events could not reasonably have become known in the normal course of business to the circles specialized in the sector concerned since Crocs' website was "technically accessible worldwide". Even failing this, the European General Court found that Crocs' design could "have become known to the circles specialized in the sector concerned, operating within the European Union, by other means than through a search engine" since these circles could, in fact, "reasonably have been informed of the two disclosure events [which] occurred outside [Crocs'] website". As such, it confirmed the Board of Appeal's finding that Crocs' design had been "exhibited, used in trade or otherwise disclosed" before May 2003. Supra, note 1, [8], [50]-[52], [60]-[62], [71].
[17] Supra, note 3, [18].
[18] The High Court's observation that the Defendants only raised "certain aspects" of the European proceedings while raising the prior publication objection certainly admits of this. Supra, note 3, [18].
[19] Crocs had further attempted to introduce findings of the US Court of Appeal in a 2010 Crocs litigation in the United States to support its claim on the validity of the European Community design. However, the Board of Appeal had shut this down, stating that such findings were irrelevant for ruling on the validity of Crocs' European Community design registration. Supra, note 4, [117]-[120].
[20] Crocs instituted design infringement actions against Action Shoes and Bioworld Merchandising India in July. 2016, against Suncorp Exim in September 2016, against Liberty Shoes in October 2016, and against Aqualite India and Kidz Palace in January 2018. Tellingly, nothing in the February 2018 Delhi High Court decision indicates that the Court was made aware of Gifi Diffusion's successful challenge before the European Board of Appeal, or the material pending consideration before the European General Court, while the Delhi cases were sub judice.

pean Community design registration going all the way back to the 2010 invalidity challenge,[25] through to the 2016 decision by the Board of Appeal,[26] and now the March 2018 ruling by the European General Court.[27] However, a vast majority of this material was not pressed before the Delhi High Court while it was adjudicating the same prior publication issue in relation to Crocs' Indian design registrations.

It appears, therefore, that Crocs' decision not to disclose this material in Indian proceedings was a deliberate one. This is, first and foremost, legally impermissible under Indian civil procedure.[28] Equally, though, it raises some serious questions about the ethics of the manner in which Crocs opted not merely to withhold this evidence but also to institute fresh design infringement actions, press for and secure interim injunctions against multiple competitors *ex parte*, and continue to litigate them from a position of advantage. Set against their awareness of information casting serious doubts on the validity of their Indian design registrations in the first place, this lack of disclosure in the Indian proceedings comes across as particularly grave.

5. THE DELHI HIGH COURT FINDING ON ORIGINALITY

Having *prima facie* found against Crocs on prior publication, the Delhi High Court had the option of simply dismissing its motion for interim injunction on that ground. Instead, the Court proceeded to examine Crocs' design registrations under the "new or original design" standard prescribed under the Indian Designs Act.[29]

In doing so, it relies heavily on its own decision exactly a month earlier in *Pentel* v. *Arora Stationers*.[30] This case made two contributions of note.

First, consistent with Indian precedent on the point,[31] it confirmed that mere trade variants would not entitle a design to statutory protection unless there were elements of the variant that were new or original enough to distinguish it from known designs or combinations of designs.[32]

Second, however, the Delhi High Court controversially opted to hold subsisting design registrations to differing standards for what constitutes a "new or original design" under Indian law. Incredibly, over the course of a single judgment, the Court variously stated that the statutory standard for originality under Indian design law was *"a totally new product applying the design"*, *"sufficient [originality] for a completely new creation to come into existence of a design"*, *"significantly distinguishable from the known designs or combination of designs"*, *"a completely unique new design having that much originality so as to be significantly distinguishable from [known] features"*, and *"a completely new and original design."*[33]

6. "A FOOTWEAR IS A FOOTWEAR IS A FOOTWEAR"

With such unclear standards for what constitutes registrable originality, defining the scope of the trade variants exception is no easy task. In *Pentel*, the Delhi High Court held that the Claimants were unable to demonstrate sufficient originality in their design for a ballpoint pen, without once examining how similar the rival design of the Defendants was.[34]

In *Crocs*, the Delhi High Court, once again without reference to the Defendants' imitation designs, concludes:

> *"... [E]xcept where a footwear design is an intellectual property right, footwear is a footwear is a footwear, shoe is a shoe is a shoe and sandal is a sandal is a sandal. All the different footwear have changed over different periods of time...but ultimately, all the different types of footwear are variations of nothing else but a footwear, i.e. foot plus wear i.e. something that is worn on the feet. Really, therefore, it would take, in the opinion of this Court, an effort larger than an ordinary effort to create a different footwear than the known types of footwear, to be an innovation/creation having such requisite [originality] for that creation to become an intellectual property right as a design in terms of the Designs Act."*[35]

[21] Supra, note 2, [4].
[22] Supra, note 4. Crocs had appealed this decision before the European General Court but, following Holey Soles Holding's withdrawal of its application for invalidity, the European General Court disposed of the case in November 2012, concluding that it did not need to adjudicate. See Judgment of 23 November 2012, Crocs Inc v. Holey Soles Holdings, Case T-302/10.
[23] Supra, note 2, [11]-[13].
[24] Supra, note 2, [91]-[92].
[25] Supra, note 4, [59]-[92].
[26] Supra, note 2, [52]-[87].
[27] Supra, note 1.
[28] Order 7, Rule 14 and Order 13, Rule 1 of the Indian Code of Civil Procedure, 1908 oblige parties to a civil litigation to disclose all material in its knowledge that may be relevant for determining the real questions in controversy between the litigants.
[29] This standard is required to be met under Section 19(1)(c) read with Section 4(1)(a) of the Indian Designs Act.
[30] 2018 (73) PTC 209 (Del) [Delhi High Court Judgment of 8 January 2018].
[31] B Chawla & Sons v. Bright Auto Industries AIR 1981 Del 95 [Delhi High Court Judgment of 21 November 1980].
[32] Supra, note 30, [7].
[33] Supra, note 30, [6(ii)], [9], [20], [22]. It merits observation that the implied requirement, in essence, for a completely new and original article to result from the design is more akin to a requirement of novelty or anticipation under patent law.
[34] Supra, note 30, [18]-[22].
[35] Supra, note 3, [27].

There are two grave objections with this style of conclusion, now offered twice by the Delhi High Court in Pentel and Crocs. First, in the absence of a positive definition of what constitutes this "effort larger than an ordinary effort" to create a type of footwear different from what is already known, it becomes impossible to identify a design for footwear that would not amount to a trade variant. Second, peculiar to Indian law, both Pentel and Crocs are per incuriam of an existing line of Indian case law best represented by Cello Household Products v. Modware India.[36]

Delivered in March 2017, Cello pointedly addressed the "footwear is a footwear is a footwear" type of characterization, which suggests that designs applied to commonly known articles must somehow create an entirely new article altogether in order to be entitled to statutory protection. The *Cello* Court rejected this position as *"an unacceptable over-simplification of the requirements of [design law]."*[37]

It ruled that the idea that *"every single aspect of the design must be newly concocted and unknown to the history of mankind,"*[38] a view that appears to mesh closely to the Delhi High Court's conception of originality under design law in *Crocs*, could *not* be the requirement under law. *Cello* eventually found for the claimant, who were manufacturers of water bottles, granting them injunctive relief against the defendant who had reproduced the shape, configuration and ornamentation on water bottles that were "wholly indistinguishable"[39] from those of the claimant.

7. A NEED FOR SWIFT RECONSIDERATION

Set against these objections, the Delhi High Court judgment in *Crocs* certainly appears untenable, both for its failure to consider prior publication material led in the European proceedings and for its interpretation of a "new and original design" under Indian law. However, the finding of the Delhi High Court against Crocs was also accompanied by a punitive costs order of Rupees 200,000 (€2,500) per Defendant plus legal costs – a hefty amount by Indian standards – for Crocs' refusal to settle with the Defendants and for "obdurately and illegally"[40] pursuing these cases all the way to full interim judgment.

Crocs' appeal against the judgment was filed belatedly, in April 2018, and is currently being held in advisement by an appellate bench of the Delhi High Court.[41] This leaves that the fate of the seven constituent design infringement cases, which have now moved to trial at the Delhi High Court, very much in the balance. It remains to be seen whether material from the successful European challenge to Crocs' design registration will be introduced belatedly into the Indian proceedings and, if so, to what effect. It is also uncertain what consequences the Delhi High Court's controversial interpretation of originality will have on future claimants in designs cases.

Given the deep fault lines prominent in the judicial treatment of both issues in *Crocs* v. *Liberty Shoes*, a swift reconsideration in the pending Delhi proceedings in Crocs, as well as in future claims, would be most welcome.

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[36] 2017 (70) PTC 325 (Bom) [Bombay High Court, 30 March 2017]. Prior to this, Asian Rubber Industries v. Jasco Rubber 2013 (53) PTC 495 (Bom) [Bombay High Court, 6 March 2012], [14]-[17] had, in the context of footwear products, already sidestepped the "completely new article" objection raised by the Delhi High Court in Crocs by holding that design law protection meant to protect the "look and feel" and "creative expression" of the article and not the article itself.

[37] Ibid., [19].

[38] Supra, note 36, [28].

[39] Supra, note 36, [20].

[40] Supra, note 3, [33].

[41] The appeal has been docketed as Crocs Inc v. Liberty Shoes FAO(OS)(COMM) 78-91/2018 before the Delhi High Court. The appeal was taken under advisement on May 8, 2018. The record for the appellate proceedings are available at http://delhihighcourt.nic.in/dhcqry-disp_o.asp?pn=128394&yr=2018 (last accessed on May 22, 2018).

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