PROVING PRIORITY: ASSIGNING EMPLOYEE INVENTIONS IN A GLOBAL MARKET

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ABSTRACT

Patent rights are territorial. A patent granted in the United States is only enforceable in the United States. Yet increasingly so, a successful launch of new technology or a product requires global strategy, and global strategy requires global patent protection. Seeking patent protection in multiple countries is routine for many companies. And while these multi-national teams of patent counsel and global administrative support are skilled at navigating different patentability requirements and processes, they are currently experiencing a new challenge: defending the priority date of their original patent application when seeking transnational patent protection. Companies are facing this challenge because of differences in patent assignment laws around the world. Patent assignment laws play a crucial role in patent protection, with the majority of patentable inventions around the world created by employees and assigned to employers.

This Article demonstrates the interconnection of patent priority around the world by showing how the application of different rules regarding patent assignment law and patent priority currently lead to higher transaction costs and wasteful, if not abusive, litigation. This Article proposes two possible solutions to the global problem of proving patent priority: build a centralized recordation database modeled after the already-existing secured transactions recordation systems in place in almost every country worldwide, or,

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alternatively, include a disclosure requirement in the already-existing transnational patenting processes.
Introduction .................................................................................. 758
1. Patent Priority & the Rise in Priority Challenges in the IP5 Offices ......................................................... 762
   1.1. The Sudden Rise in Priority Challenges ............... 766
   1.2. Challenging Post-Grant Patents in the IP5 Offices .... 770
2. Employee Inventions & Patent Assignments in the United States............................................................ 779
   3.1. The German Approach ........................................... 789
   3.2. The Dutch Approach .............................................. 792
4. Employee Inventions & Patent Assignments in East Asia ........................................................................ 796
   4.1. The Japanese Approach ........................................... 796
   4.2. The Korean Approach ............................................ 799
   4.3. The Chinese Approach ........................................... 801
5. Moving Towards Transparency & Predictability ........ 802
   5.1. Utilizing Current Secured Transactions Recordation Systems .......................................................... 803
   5.2. Requiring Ex Ante Disclosures ................................ 805
Conclusion ...................................................................................... 807
Companies are facing a new challenge: proving the priority of their employees’ patented inventions in post-grant patent proceedings. Most often, these companies are large companies that have a global presence, such as Pfizer (United States), Samsung (South Korea), Philips (Netherlands), Novartis (Switzerland), BMW (Germany), and Toyota (Japan). Yet, increasingly, this challenge is also faced by small to medium size companies that have a transnational presence, including private biotechnology and technology firms that commonly consider their patent portfolios as their most valuable asset.

In 2016, the United States Patent and Trademark Office (“USPTO”) reported that eighty-five percent of the 151,000 issued patents were assigned to for-profit companies. This percentage reflects a slight increase over the last ten years. This means that the majority of patents in the United States rely on patent assignments to transfer ownership from individual inventors to companies—in many instances, employee to employer.

So, while patent law scholarship is often dominated by discussion of the patentability requirements—namely, that an invention must be subject matter eligible, new, nonobvious, and sufficiently described, meeting these patentability requirements is

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not enough to compete in a global market. The patent holder must also have the ability to prove her ownership of the patent, most often by producing a written patent assignment when challenged. This ownership has a direct relationship with the priority position of the patent holder.\footnote{See 35 U.S.C. § 102 (2012) (outlining the “[c]onditions for patentability; novelty and loss of right to patent” in the United States); Robert P. Merges, \textit{Priority and Novelty Under the AIA}, 27 \textit{Berkeley Tech. L.J.} 1023, 1024 (2012) (identifying the filing of a patent application as the critical date and the relevance of worldwide prior art).} Focusing on employee inventions, this Article explains how inventions are assigned differently throughout the world, creating a lack of transparency and unpredictable results in litigation. In short, if the effective priority date—the date when the inventor steps into line compared to others—is changed, the patent will likely be invalidated.

This is because in patent law, only one patent will be granted per patentable idea. There is no independent creation defense in patent law, like there is in copyright law.\footnote{See Fred Fisher, Inc. v. Dillingham, 298 F. 145, 147 (S.D.N.Y. 1924) (citing Judge Hand’s famous explanation: “One may infringe a patent by the innocent reproduction of the machine patented, but the law imposes no prohibition upon those who, without copyright, independently arrive at the precise combination of words or notes which have been copyrighted.”).} The one idea, one invention rule is important in patent law. Recently, Professor Lemley has persuasively argued that much innovation occurs near simultaneously, with inventors conceiving their groundbreaking discoveries within just weeks of one another.\footnote{See Mark A. Lemley, \textit{The Myth of the Sole Inventor}, 110 \textit{Mich. L. Rev.} 709, 711 (2012) (providing many examples of the social phenomenon of simultaneous invention).}

With some form of a first-to-file priority rule employed throughout the world, inventors rush to their respective country’s patent office to get the first place in the priority line before another inventor does the same.

Given the global economy, it is no longer adequate protection in many instances to obtain patent protection solely in one’s local country when the patented product or method can easily be transported, streamed, or otherwise used and shared within seconds or days to far-reaching places in the world. Obtaining international protection means that patent holders must prove the priority of their patent on a global stage. This comes with a unique set of challenges.
A recent opinion from the District Court in The Hague is exemplary.\(^7\) In this opinion, two U.S. patent applications were filed naming two employee-inventors as the applicants. These employee-inventors worked for a U.S.-based multinational biotechnology company. At the time, U.S. patent law required the inventors to be named as the patent applicants, as opposed to the company that they worked for named as the inventor. Within the applicable 12-month period permitted by international law,\(^8\) the biotech company filed a single foreign application through the Patent Cooperation Treaty (“PCT”) based on the U.S. patents (and claiming their priority date), naming the biotechnology company as the applicant. For a PCT application, a company, not an individual inventor, is the appropriate applicant, although the inventors must still be identified in the PCT application.

The biotech company was granted a European patent stemming from the PCT application, which vested in the biotech company and claimed the priority date of the earlier filed U.S. patent applications. In a post-grant European opposition challenging the validity of the European patent, it was argued that the priority claim was inappropriate due to, in essence, a break in the chain of title. Simply, the applicants were different from the U.S. patent applications to the PCT applications. The problem? The biotech company must now prove that it had a proper assignment of the right to priority from the two inventors to their employer, the biotech company.

In the United States, the right of priority is not independent from the right to the patent itself. Accordingly, practitioners do not need a separate, formal assignment of the right of priority. Elsewhere, and in much of Europe, this right is separate, and as such, must be explicitly assigned separate from the patent. Ultimately, despite each patent application, those in the United States and the PCT application, effectively and appropriately filed when viewed apart from one another, the biotech company could not prove that the right to priority had been properly assigned to it by the time the PCT application was filed. Consequently, the biotech company’s


\(^8\) See Paris Convention for the Protection of Industrial Property art. 4, Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S. 305 (According to Article 4 of the Paris Convention for the Protection of Industrial Property (Paris Convention), there is a 12-month right of priority as of the date of these U.S. patent applications filing).
European patent was invalidated in the European post-grant proceeding. Yet, in a different forum, on appeal, the District Court of The Hague, the exact opposite conclusion was found: the biotechnology company was permitted to retain the priority date for the European Patent.

This example is not unique. Defending the priority of a patent priority should, in theory, come down to a seemingly simple chain-of-title analysis. Yet, because the rules of patent assignment laws vary substantially from country to country, this simple analysis is quite complicated. Moreover, the vast majority of patentable ideas and inventions are created by employee-inventors and assigned to employers, meaning that these differences in patent assignment laws creates uncertainty, as well as wasteful, inefficient litigation in post-grant proceedings around the world. Finally, differences in patent assignment laws result in lost opportunities for cross-border collaboration.

This Article argues that a centralized recordation database be created and housed by the World Intellectual Property Organization (“WIPO”), one that will track the chain of title of international patents. Alternatively, WIPO, and/or the proposed European unitary patent system should require a few extra additional disclosures during the PCT and/or unitary patent filing process to achieve transparency and predictability.

Part 1 discusses patent priority, including identifying the significance of priority and novelty, and the recent rise in priority challenges throughout the world. Part 2 identifies the relevant laws affecting patent priority for those claiming patent priority from U.S. applications. Part 3 then identifies the relevant laws affecting patent priority for those claiming patent priority from countries in Europe, notably the Netherlands and Germany. These two countries have routinely seen their patent holders lose patent priority dates, and both stand at a stark contrast to a common law system like that of the United States. Part 4 does the same identification for patent priority stemming from countries in East Asia, including Japan, the Republic of Korea, and China. Finally, Part 5 provides suggestions on how to increase the predictability of priority challenges, thereby decreasing inefficient and burdensome post-grant litigation.
1. PATENT PRIORITY & THE RISE IN PRIORITY CHALLENGES IN THE IP5 OFFICES

This Article will focus on the patent laws within the jurisdictions of five particular intellectual property offices. The five offices are the European Patent Office (“EPO”), the Japan Patent Office (“JPO”), the Korean Intellectual Property Office (“KIPO”), the National Intellectual Property Administration of the People’s Republic of China (“CNIPA”), and the United States Patent and Trademark Office (“USPTO”).

These five intellectual property offices comprise the “IP5.” The IP5 is a cooperation between the five largest intellectual property offices in the world. Together, these five offices “handle about 80 percent of the world’s patent applications, and 95 percent of all work carried out under the Patent Cooperation Treaty (“PCT”).”

Recognizing the opportunity for natural synergies with this high volume of patenting, during the first ten years of the IP5 Offices cooperation, the IP5 Offices directed their efforts at “improv[ing] the efficiency of the examination process for patents worldwide.” Over the course of the past decade, the IP5 Offices have commissioned many studies to assess the evolving global need of its users. As a result, a new vision of the IP5 Offices was published in 2017: “Patent harmonization of practices and procedures, enhanced work-sharing, high-quality and timely search and examination results, and seamless access to patent information to promote an efficient, cost-effective and user-friendly international patent landscape.”

The IP5 is so exciting precisely because of the recognition of the evolving needs of innovators throughout the world. Global collaboration and coordination are made more possible when the five largest players act together in their combined users’ interests.

One of the first projects the IP5 Offices undertook was to build a catalogue for its users displaying the areas in which patent practices...

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10 Id. See also Areas of Activity, FIVE IP OFFICES, https://www.fiveipoffices.org/activities.html [https://perma.cc/5L66-KAUT] (last visited Feb. 22, 2019) (Moreover, “[t]he vision of the IP5 Offices is global co-operation, which has been defined as ‘the elimination of unnecessary duplication of work among the IP5 Offices, the enhancement of patent examination efficiency and quality of guarantee of the stability of the patent right.’”).
11 About IP5 co-operation, supra note 9.
differed between the five offices. Two areas in this catalogue that received special attention: priority and novelty.

The determination of which inventor receives the sole patent is governed by the so-called “priority rule.” The priority rule tackles the “compared to whom” question. Yet the determination of whether the inventor gets to claim its invention is the first of its kind is governed by the novelty patentability requirement. The novelty patentability requirement tackles the “compared to what” question.

Starting with the priority rule, there are two general options: the “first-to-invent” rule and the “first-to-file” rule. Most basically, should the patent claimant who was first in time to invent receive the patent or, instead, should the patent claimant who was the first to file a patent application receive the patent? The first-to-invent priority rule was a longstanding hallmark of the U.S. patent system. Yet when President Obama signed the America Invents Act (“AIA”) into law, U.S. patent law moved towards a first-to-file rule. Most simply, if there is a priority dispute regarding a patent filed on or after March 16, 2013, in the United States, the dispute is most often settled by determining which inventor was the first to file its respective patent application.

When the United States adopted the first-to-file priority rule, there was hope that there would be meaningful international patent harmonization. Yet the United States “did not in fact adopt the

14 See Merges, supra note 4, at 1028 (“Strictly speaking, priority is a question of who, as between two rival inventors, will obtain a patent for an identical invention . . . .” Novelt y is a question of whether, as between an inventor and a piece of prior art, the inventor acts before or after the prior art enters the field.”).
15 See id. (“If an inventor can show that he or she did whatever is required before a reference enters the prior art, the inventor gets the patent.”).
16 See David S. Abrams & R. Polk Wagner, Poisoning the Next Apple? The America Invents Act and Individual Inventors, 65 STAN. L. REV. 517, 520 (2013) (defining the first-to-invent rule as granting patent priority to “the party that had the inventive idea first”).
17 Id. at 519.
[first-to-file priority] rule in the way that the international community understands the first-to-file rule.”\textsuperscript{18} The international community, including the other IP5 Offices, follows what is commonly termed the “absolute” novelty rule. An absolute novelty rule is just as it sounds: it follows a “pure first to file system,” meaning “that if there is a use, sale or publication of information relating to the invention prior to the filing of a patent application[,] no patent can be obtained.”\textsuperscript{19}

Instead of the absolute novelty rule, the rule the United States adopted permits an inventor to prove priority in two ways other than the earliest filing date: “(1) where the first filer learned of or outright stole the invention from another person; and (2) where the second filer made a public disclosure of the invention before the first filer filed a patent application.”\textsuperscript{20} Accordingly, the United States adopted a first-proven-inventor-to-file rule, where an inventor proves her priority either by filing a patent application to reserve her place in line at the USPTO, or by making a widely available disclosure.\textsuperscript{21}

This means that unlike the first-to-invent priority rule that places the highest value on the first conception of the new invention, the first-to-file priority rule in the United States most values the first public disclosure of the new invention. This disclosure may be either making a widely available disclosure, such as through a printed publication, or by simply filing a patent application. In the United States, these events start the twenty-year clock that runs before the invention goes into the public domain.

While the United States and other countries mostly agree now on the priority rule to use when determining the priority date of any given invention, the international community does not agree on the level of novelty.\textsuperscript{22} A novelty dispute concerns one inventor and her


\textsuperscript{20} Merges, supra note 4, at 1028.

\textsuperscript{21} See, e.g., Merges, supra note 4, at 1046 (“While the AIA moves the United States to a first-inventor-to-file system, it does not go all the way to complete international harmonization.”).

\textsuperscript{22} For an example of the varying language used regarding this topic, see Gene Quinn, Harmonization and the Quest for an Elusive International Grace Period, IPWATCHDOG (Feb. 10, 2015), https://www.ipwatchdog.com/2015/02/10/
claimed invention compared to the already existing references composing the relevant prior art. 23 What constitutes prior art is a difficult question to answer, especially when comparing the answer to other answers to this question around the world. In the United States, the basic novelty rule requires that an inventor’s claimed invention is new compared to all previously granted patents, published patent applications, and printed applications across the world. 24 The claimed invention must also be new compared to inventions anywhere in the world that are already in the public’s use, already on sale, or otherwise available to the public. 25

In regards to the specific timing of the comparison between the claimed invention and the prior art, the Patent Act defines the “effective date” as the filing date of a patent application. 26 While it is no longer possible to antedate, or back-date, a patent application under current patent law, “the effective filing date of a claimed invention is [still] determined on a claim-by-claim basis and not an application-by-application basis.” 27 This is because claims may have different geneses, such as the actual filing date of the patent-at-issue in the United States versus a right to priority of a patent application filed in a foreign country. 28

While the novelty rule is not central to this Article, it is important to realize the impact the priority date has on the novelty of an invention. If, due to a successful priority challenge, the effective date is pushed back one year or even just a few months, there will

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23 See Merges, supra note 4, at 1030 (explaining the general rule of novelty and its exceptions “to the general rule that, to be valid, an application has to be filed before a prior art event”).

24 (a) NOVELTY; PRIOR ART. — A person shall be entitled to a patent unless—(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention; or (2) the claimed invention was described in a patent issued [to another] or in [another’s] application for patent [that is] published [and that] . . . was effectively filed before the effective filing date of the claimed invention.


almost certainly be new prior art references that will serve to destroy the once-thought novelty of the at-issue invention. Overall, if a patent holder cannot defend the priority date of the original patent application, the patent holder will either lose out to a competing patent application with the superior claim to the invention, or the patent holder may very well lose her ability to claim her invention is new and/or nonobvious.

The following two subparts will show the rise in priority challenges of post-grant patents in Europe, and then briefly explain the basics of the relevant post-grant patent opposition and invalidation systems of the IP5 Offices.

1.1. The Sudden Rise in Priority Challenges

In the past 15 years, there has been an explosion in post-grant patent priority challenges. Although the rise in priority challenges is most visible in Europe, the potential for these type of priority challenges also exists in the United States, Japan, and the Republic of Korea ("Korea"), among other countries outside of the IP5 Offices.29

Extrapolating from recent case law, it appears that patent challengers may have learned about challenging chain-of-title on the grounds that there should be a separate and express assignment of the right of priority from a 2006 European Opposition opinion.30 In that opinion, the board held that the patent holder, GE Plastics Japan K.K., had not carried its burden to prove that its priority date, claiming priority from a Japanese patent application, was valid.31 The problem is that the applicant for the Japanese patent application was GE Plastics Japan K.K., whereas the applicant for the European Patent was General Electric Company.32 Subsequently, and presumably not until the potential chain of title problem was noticed

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29 See infra Parts 2-4.
31 See id. at 24 ("The Board, after deliberation, informed the Parties, that the priority claim could not be considered as valid . . . ").
32 See id. at 10 ("There was a lack of identity of the proprietor of the priority right based on JP 2498697 and the proprietor of the contested patent . . . "). See also id. at 28 (identifying the issue that "priority is claimed . . . by different persons as can be seen from the European patent application (i.e. General Electric Company) and the priority document (i.e. Nihon GE Plastics K.K.)").
nearly seven years after the filing date of the European Patent application, General Electric transferred the at-issue right of priority, as well as the European Patent, to GE Plastics Japan K.K. This assignment was not within the twelve-month priority window, and the assignment could not retroactively overcome the chain-of-title issue presented by the two different applicants.

The patent holder, GE Plastics Japan K.K., did present evidence that GE Plastics Japan K.K. had assigned the patent application to General Electric Company, but it could not present evidence that it had expressly assigned the right of priority. It attempted to make the argument that it, in essence, would be “illogical for GE Plastics Japan to assign the application to [the parent company,] General Electric Company[,] without assigning the corresponding priority rights,” yet the board was unconvinced.

Instead, the board seemed to focus on the idea that “[p]riority rights are assignable independently of the corresponding patent application . . . .” And although the board explained that “the European Patent Convention ("EPC") does not contain any regulations concerning the formal requirements that an assignment of priority rights for the filing of an European patent application should fulfill in order to be considered valid,” the board also found that because the priority date on a patent has a “crucial effect,” the transfer of priority rights should, “in the Board’s view, be proven in a formal way.” The board found support in a different part of the EPC, Article 72, which requires that the assignment of an European Patent application be in writing and “signed by or on behalf of the Parties to the transaction.”

Overall, GE Plastics K.K. could not meet this formal requirement of a written and independent assignment. As a result, it lost its priority date. As mentioned above, the consequence of losing one’s priority date is twofold: one, there is the potential that another inventor is now ahead in the so-called priority line for the one patent; and two, the invention is no longer new, now failing to meet the novelty requirement. Either way, the effect is devastating to the patent holder: the patent, in effect, loses its monetary value, if it is affirmed at all (as opposed to invalidated altogether).

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33 Id. at 23.
34 Id. at 29.
35 Id.
36 Id. at 30.
37 Id. at 32.
Showing the downstream impact of this 2006 opinion is a more recent opinion. This 2015 opinion demonstrates some of the development in the approximately ten years since the groundbreaking 2006 opinion.

In the 2015 opinion, Teva Pharmaceutical Industries Ltd. had a post-grant patent challenged by multiple competitors in a European Opposition. Teva’s patent, European Patent No ‘489, was issued from a patent application that was filed through what is sometimes termed an international application or a PCT application, on August 23, 2005. This international application claimed priority from two U.S. provisional applications, with the earliest priority date of August 23, 2004.

In the European Opposition, the patent challengers argued that Article 87 of the European Patent Convention “require[s] a separate and express assignment of the right of priority executed by the applicants of the provisional US applications,” the ones upon which priority for EP ‘489 is based. While the statute does not explicitly state an assignment of the right of priority must be done in a separate and express assignment, Article 87 does provide that applicants, or “his successors in title, shall, enjoy, for the purpose of filing a European patent application in respect of the same invention, a right of priority during a period of twelve months from the date of filing of the first application.

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38 Teva Pharmaceutical Indus. Ltd v. Hexal AG, No. T 0205/14, Decision, Bd. of App. of the Eur. Patent Office (June 18, 2015). Ultimately, Teva’s patent was invalidated due to lack of inventive step, the United States equivalent of non-obviousness. See also id. at 50-66.
39 The Patent Cooperation Treaty (“PCT”) is a World Intellectual Property Organization (“WIPO”) system that: [A]ssists applicants in seeking patent protection internationally for their inventions, helps patent Offices with their patent granting decisions, and facilitates public access to a wealth of technical information relating to those inventions. By filing one international patent application under the PCT, applicants can simultaneously seek protection for an invention in a very large number of countries.”

40 See Teva, supra note 38, at 1.
41 See Teva, supra note 38, at 6.
42 European Patent Convention art. 87(1) Convention art., Oct. 5, 1973, 1065 U.N.T.S 199 [hereinafter EPC], [https://perma.cc/K7ER-74V3]. Article 87 expressly refers to the Paris Convention for the Protection of Industrial Property (Paris Convention), which has very similar language to Article 87. Article 4 of the
The board started its discussion with Article 87(1), the same article at issue in the 2006 decision, stating that:

[T]he right to claim priority for a European patent application from the filing date of . . . a previous application . . . originates in the applicant of said first application. Therefore, in principle, the applicant has to be the same for the first application and for the subsequent applicant for which the right of priority is invoked.43

The board then noted that a successor in title is also able under the statute to claim the right of priority.44 As to the right of priority itself, the board explained that the right of priority is “an independent right up and until it is invoked for one or more later applications to which it becomes an accessory.”45 Yet even so, this board disagreed that the independence, the severability of the right to priority, must be likewise assigned in a “separate and express assignment.”46 This stands in sharp contrast to the holding from the 2006 European Opposition opinion. Here, the board decided that because Article 87(1) was silent as to formalities, that this silence was not an invitation to read any such formalities into it. As such, “the present board cannot follow [the 2006 board’s] reasoning.”47

When determining which law to apply in regard to the right of priority assignment to a successor in title, this board stated that Article 72 is distinct from Article 87. Article 72 represents a collective law that specifically overrules national law, “which, in general, governs legal acts related to property interests in such applications[.]”48 After further discussion, this board decided that the silence of Article 87 should be construed as carrying with it no

Paris Convention provides for an international right of priority, lasting 12 months as of the date of filing of a patent application for filing in other countries. Just as with EPC Article 87, this right is conferred to “any person who has duly filed an application for patent . . . in one of the countries of the Union, or his successor in title.” Paris Convention for the Protection of Industrial Property, as last revised at the Stockholm Revision Conference, Mar. 20, 1883. 21 U.S.T. 1583, 828 U.N.T.S. 305, supra note 8.

43 Teva, supra note 38, at 24.
44 Teva, supra note 38, at 24 (“the right of priority may also be invoked by the ‘successor in title’ of the person who has filed the first application . . . it is recognised that the right of priority . . . may be transferred from the original applicant to a third person.”).
45 Teva, supra note 38, at 24
46 Teva, supra note 38, at 25.
47 Teva, supra note 38, at 26-27.
48 Teva, supra note 38, at 27-28.
formal requirements, and that because the EPC provisions do not directly answer questions of this type of assignment, the validity of transfer of a priority right “is a matter of national law.”

As a result, parties before the Boards of Appeals of the EPO, and first the Opposition Division, must navigate not only the intricacies of patentability requirements, but also which law, and what formal requirements, are going to be imposed upon any successor in title.

Assigning patents from the original inventor(s) to another, a successor in title, is an everyday practice for companies such as General Electric and Teva Pharmaceuticals. On the one hand, requiring those companies to understand and navigate specialized rules is fair. On the other hand, when all companies, both large and small, have a shifting target as to what law applies, with some not permitted to obtain written patent assignments at early stages due to national patent law, it becomes an impossible task of navigation.

1.2. Challenging Post-Grant Patents in the IP5 Offices

Since the 1970s, the EPO has provided a way for petitioners to challenge issued patents in post-grant opposition proceedings. As such, the EPO is the experienced leader of the other IP5 Offices. That said, there is change coming to Europe with the likelihood that a Unified Patent Court (“UPC”) will be introduced sometime soon, change that may shake up this previously consistent stability that is so attractive to patent applicants and patent challengers. The

49 Teva, supra note 38, at 30 (citing references omitted).

50 See, e.g., Olga Partington & Paul Calvo, On the Attack, EUR.

51 For the most recent status of the Unified Patent Court (UPC), see Agreement on a Unified Patent Court, 2013 O.J. (C 175) 1. Most notably, Germany has yet to ratify the agreement that would establish the UPC and a unitary patent. Id. The EPO is currently stating on its website that “[t]he start of the new system is currently expected for the first half of 2019.” When Will the Unitary Patent System Start?
United States, with the AIA, only recently adopted a robust post-grant opposition system, one that is similar to the EPO post-grant opposition. In 2015, just a few years after the AIA, Japan reintroduced its previously terminated post-grant opposition system. Similarly, Korea just reintroduced its previously terminated system in 2017. And although China does not currently have a post-grant opposition system, the CNIPA, like the other IP5 Offices, does have the traditional litigation-based invalidation option to challenge patents after they are granted.

This subpart will briefly give the highlights of each system to impart a basic understanding of how priority dates of previously filed patents are most often being challenged. If the reader is already familiar with post-grant oppositions in the IP5 Offices, please proceed to Part 2.

Starting with the post-grant opposition system in Europe, European oppositions must be filed within nine months of patent issuance. Assuming a petitioner pays the appropriate fees and follows other basic filing procedures, anyone can file a petition against as many patent claims as the petitioner can support. Perhaps to increase the motivation to challenge potentially dubious or weak patents, the petitioner does not have to reveal the real party behind the petition. This is commonly called the “straw man” opposition, which thereby permits potential competitors to shield
their identity. This is particularly useful if the petitioner is a licensee of the patent or a direct competitor of the patent holder.

A filed opposition may challenge the subject matter of the European patent, the written description of the European patent, or that the subject matter of the European patent is broader than the application itself, whereby the patent “extends beyond the content of the application as filed.”56 This means that if the priority date of the patent is incorrect due to a break in the chain-of-title, the change of a priority date will almost always likewise impact the written description and enablement of the patent. Thus, grounds for opposition necessarily also include a challenge that the priority date of the patent is incorrect, as demonstrated by the EPO decisions above. For a discussion of this very point, the following is illustrative:

If the appellant’s right to priority is denied, that could only be for subject matter disclosed in the earlier UK application. That application disclosed only the embodiments using a self-closing slit valve in a dome-shaped region whereas the subsequent UK application contains both the dome-shaped and the flat end embodiment. Thus, the only subject matter which could lose priority is the dome-shaped region subject matter, because Article 87(4) EPC cannot apply to the alternative flat end subject matter which was not in the earlier application but only in the subsequent UK application. Hence, for the flat end embodiment the priority date of 7 April 1992 must be valid.57

In terms of filing fees, the European opposition process is affordable, with an official fee around $1,000 U.S. that is independent of how many claims are challenged or grounds for such challenges are asserted.58 The petitioner may challenge a European patent on a number of grounds, including:

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56 EPC, supra note 42, at art. 100.
[1] that the subject-matter of the patent is not patentable within the terms of Articles 52-57 EPC, [2] that the invention is not disclosed clearly and completely enough for a person skilled in the art to carry it out, [and 3] that the patent’s subject-matter extends beyond the content of the application as filed.\textsuperscript{59}

Upon this reexamination of the European patent, the opposition may be rejected (and the patent validity is, in essence, affirmed), the patent is amended with a new patent specification, or the patent is revoked.\textsuperscript{60}

The timeline of the post-grant process from start to finish is generally within an eighteen to thirty-month turnaround, with many oral decisions granted in a fifteen to twenty-four-month timeline.\textsuperscript{61} As a result, European oppositions are a cost-effective and time-efficient mechanism for centrally challenging a European patent.

Conversations in the United States leading up to the AIA included discussion of international harmonization, including the adoption of a first-to-file priority rule and also the introduction of a post-grant opposition proceeding similar to that of the EPO described above.\textsuperscript{62} Arguably trying to achieve this stated policy


\textsuperscript{60} \textit{Id.}

\textsuperscript{61} See Flibbert, Wall, & Queler, supra note 54.

\textsuperscript{62} \textit{See, e.g.}, 157 \textit{CONG. REC.} 4369, 4428 (statement of Rep. Manzullo) (“This bill would finalize the shift towards a European-style patent system through changing from a ‘first-to-invent’ to ‘first-to-file’ system; establishing a new set of ‘prior use’ rights; and adopting a third European style ‘post-grant’ challenge.”). Prior to the implementation of the AIA, post-grant \textit{ex parte} reexamination and \textit{inter partes} reexamination proceedings were available. \textit{See} 35 U.S.C. § 305 (2012) (describing the process of reexamination proceedings). This pre-AIA system fell short of an ideal reexamination process. Criticism of pre-AIA post-grant proceedings included charges of insufficient third-party involvement, unfair bias favoring the patent holder, and lack of international harmonization of post-grant proceedings. \textit{See} Jeffrey P. Kushan, \textit{The Fruits of the Convoluted Road to Patent Reform: The New Invalidity Proceedings of the Patent and Trademark Office}, 30 \textit{YALE L. \\& POL’Y REV.} 385, 391 (2012) (regarding criticism of unfair bias favoring the patent holder and the lack of international harmonization of post-grant proceedings); Christopher L. Logan, \textit{Patent Reform 2005: HR 2795 and the Road to Post-Grant Oppositions}, 74 \textit{UKMCL REV.} 975, 988-89 (2006) (explaining failures in the pre-AIA system, including insufficient
The AIA introduced significant changes to the U.S. post-grant opposition system. This included the introduction of post-grant review ("PGR"), inter partes review ("IPR"), and covered business method review ("CBM"). After issuance of a patent, PGR is initially the only adversarial proceeding available to challenge the validity of the patent within the USPTO. As in Europe, and the other countries housing the four other IP5 patent offices, there is always the traditional option of litigation (through district court litigation in the United States) to challenge an issued patent.

Available grounds for challenging the patent through PGR include the following patentability requirements: subject-matter eligibility, novelty, nonobviousness, and the written description. Not just anyone can file a PGR petition: those who have already or are currently in the process of challenging the validity of the same patent in a U.S. patent infringement lawsuit may not use the PGR process offered in the United States.

Notably, unlike that of the European opposition, the U.S. PGR requires that the real party behind the petition be revealed to the public. Yet like a European opposition, the PGR petition must be filed within nine months of the patent grant. A PGR petition is submitted to the newly created PTAB, which is staffed by administrative patent judges, many of whom are experienced patent prosecutors and, or, patent litigators. Although PGRs are similar to European opposition proceedings, they are not as popular.

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third-party involvement and the estoppel provision). Although Congress initially looked to the example of European opposition proceedings, much changed during the course of legislation. Today, there are still arguments to be made that the United States’ system is disappointingly distinct from that of the European Patent Office. See Karen E. Sandrik, The Post-Grant Life: Coordinating & Strategizing Challenges of Issued Patents in Multiple Continents, 17 Chi.-Kent. J. Intel. Prop. 449, 450-51 (2018) (arguing the lack of international harmonization creates opportunities for inefficient strategic behaviors).

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64 See id. at § 325(a)(1).
65 Id. at § 322(b).
66 Id. at § 321(c).
Presumably, one reason is the expense associated with a PGR. Unlike the low filing fee of the European opposition proceedings, the minimum filing fee of a PGR is $38,000 U.S., which covers patents with up to twenty claims. There are additional fees for every claim over twenty that is challenged.

After the nine-month PGR period has expired, or after the termination of any PGR that has been instituted as to the at-issue patent, an IPR or CBM petition may be filed. Unlike in PGR or in a European opposition, an IPR petition may only challenge an issued patent on limited grounds, including failure to satisfy the novelty or nonobviousness requirements, which must be argued only on the basis of prior patents or printed publications. Similar to PGR, IPR challenges are available to anyone with a couple of exceptions. IPR is not available to the patent owner, nor is it available to those who have previously sought to invalidate a claim of the at-issue patent through a civil action. Like PGR, the petitioner must also reveal the real party in interest. Although narrower in scope, IPRs have quickly proved popular in terms of number of requests. IPRs have also been the focus of much writing.

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70 USPTO Fee Schedule, supra note 69. This number does not include any litigation fees, merely the filing fee.

71 See 35 U.S.C § 311(b) (2012).

72 See id. at § 311(a), 315(a).

73 See Brian Love & Shawn Ambwani, Inter Partes Review: An Early Look at the Numbers, 81 U. CHI. L. REV. DIALOGUE 93, 93 (2014) (explaining that by late 2014, almost two thousand requests for IPR were filed since the new procedure launched in 2011).

74 See, e.g., Scott A. McKeown, PTAB Institution Rate Dips Into 60% Range, PATENTS POST-GRANT (July 22, 2014), http://www.patentspostgrant.com/ptab-institution-rate-dips-into-60-range [https://perma.cc/2WXR-XJU8] (discussing the PTAB institution rates of IPR from February 2013 to July 2014); Michelle Carniaux & Michael E. Sander, Instituted Patent Claims Survive in About One Third of All IPR Trials, INTER PARTES REV. BLOG (Aug. 13, 2014), http://interpartesreviewblog.com/instituted-patent-claims-survive-one-third-ipr-trials/ [https://perma.cc/72DV-E95C] (calculating that the PTAB had issued 91 Final Written decisions in IPR proceedings as of a little more than a year after the first was issued); Neal Solomon, The Problem of Inter-Partes Review (IPR), IPWATCHDOG (Aug. 8, 2017), http://www.ipwatchdog.com/2017/08/08/
Even newer than the U.S. post-grant proceedings, the Japan Patent Office (JPO) reintroduced its post-grant proceedings in 2015 after terminating the proceedings in 2003. This post-grant system is, at its core, the same as the opposition system that was terminated at the end of 2003.

Like in the European Union and the United States, anyone is permitted to utilize the Japanese opposition. The Japanese opposition has the same option offered by the European opposition: the real party in interest may remain anonymous during the opposition proceeding. This is simply done by naming a shell entity instead. Yet unlike the European opposition, an opposition may only be filed with the JPO against an issued patent within the first six months, not nine months. Moreover, also unlike the European opposition, the Japanese opposition has many grounds available to argue, including subject matter eligibility, novelty, enablement, and inventive step (the equivalent of non-obviousness in the United States). Again, with the priority date changed, often by one entire year, the patent’s subject matter, novelty, and nonobviousness are affected.

The filing fees are extremely low for filing a Japanese opposition, requiring an initial filing fee of about the equivalent of $150 U.S., with an additional $22 U.S. for each challenged claim. Although foreign parties will likely need to incur translation fees, the Japanese opposition system is based only on documental evidence. There

https://scholarship.law.upenn.edu/jil/vol41/iss3/4
are no oral proceedings. This helps to keep costs manageable, especially in regard to the parallel option of invalidation proceedings.83

Notably, neither the European nor Japanese post-grant opposition systems have estoppel statutes.84 The lack of an estoppel statute stands in stark contrast to the post-grant system in the United States, creating two non-U.S. locations to, as patent practitioners have noted, “test competitor patent validity.”85

In the United States, there are multiple estoppel statutes, with the following statute pertaining to the inter partes review:

[t]he petitioner in an inter partes review of a claim in a patent . . . that results in a final written decision . . . may not request or maintain a proceeding before the Office with respect to that claim on any ground that the petitioner raised or reasonably could have raised during that inter partes review.86

This means that in the United States, there is one opportunity to make arguments regarding a particular patent’s claims. If a particular argument loses, or for strategic reasons a particular argument is not made, there is no second opportunity to try again. The petitioner is estopped from making the argument, although determining what the petitioner “raised or reasonably could have raised” is not without its own interpretation troubles.87

However, in Europe and Japan, the lack of an estoppel statute means that if the petitioner loses on one or all of its grounds, it may

84 See Karen E. Sandrik, The Post-Grant Life: Coordinating & Strategizing Challenges of Issued Patents in Multiple Continents, 102 CHI.-KENT J. INTELL. PROP. 449, 455 (discussing the differences in post-grant systems of the United States, Japan, and the EU, and highlighting the lack of estoppel statutes in Japan and EU post-grant proceedings).
85 Alastair Jones, The Gloves Are Off: Europe is the Location to Test Competitor Patent Validity, BARKER BRETTELL (Jan. 4, 2018) https://www.barkerbrettell.co.uk/the-gloves-are-off-europe-is-the-location-to-test-competitor-patent-validity/ [https://perma.cc/56FK-RZ5D] (last visited Feb. 12, 2019). See also International Post Grant Practice: Strategic Considerations Before the USPTO, EPO and CNIPA, INTELL. PROP. OWNERS ASS’N, https://www.ipo.org/index.php/ip-chat-channel/ip-chat-channel-post-grant-proceedings/ [https://perma.cc/RD9D-UDAY] (last visited Feb. 12, 2019) (explaining “some have noted that in Europe and China, opposition can be used with little risk as a testing group for the presentation of arguments that could be used in litigation”).
87 See Sandrik, The Post-Grant Life, supra note 84, at 454-55.
repeat the same validity challenges in future proceedings. This makes opposition systems with no estoppel doctrine quite attractive as a testing ground for presentation of arguments. With the combination of no estoppel statute, lower filing fee, ability to stay anonymous, and proceeding forward with well-known and tried system, there are relatively little downstream costs for parties to challenge their competitors’ patents.

In this way, Europe has been the testing ground for challenging patents for some time now, as well as a patent holder’s willingness to litigate on multiple fronts to retain key features of the patent, such as breadth of claims and priority date. The number of Japanese oppositions has been consistent for a few years, yet, for the reasons stated above, the post-grant proceedings present a strategic opportunity that companies will likely take advantage of as part of a global patent protection and enforcement policy.

Following Japan’s example, Korea reintroduced its post-grant system in 2017, titling its new process “Request for Patent Cancellation.” Korea had previously terminated its post-grant opposition system in 2007. In its earlier version, the post-grant process was only three months from the publication date of the patent, yet, with the new system, it is six months (like Japan’s patent opposition). Similarly, anyone may file a request to cancel a patent, with grounds specifically including novelty, inventiveness, and priority. Although the fees are incredibly low, like in Japan—just the equivalent of $10 U.S. per challenged patent—transactional fees (and local counsel) will quickly increase the total price.

Finally, Korea does have an estoppel statute for all trial decisions, including a trial for cancellation, that prevents litigants from re-litigating a patent if an undesirable outcome occurs. In this

88 See Sandrik, The Post-Grant Life, supra note 84, at 455.
90 Patent Office Litigation, supra note 55, at § 23:46
91 Patent Office Litigation, supra note 55, at § 23:46
92 Patent Office Litigation, supra note 55, at § 23:46 (showing that the priority challenge is technically listed under the “first-to-file rule” and the “expanded first-to-file rule”).
93 See Patent Office Litigation, supra note 55, at § 23:62 (advising litigants of the broad estoppel created by an invalidation trial decision and for litigants to
way, Korean patent law resembles U.S. patent law more than Japanese patent law.

Currently, there is no post-grant system available in China.\footnote{PATENT OFFICE LITIGATION, supra note 55, at § 23:71.} Instead, a petition to invalidate a patent goes through a litigation-based system any time after the patent is granted. This system is open to anyone wishing to challenge a post-grant patent.\footnote{PATENT OFFICE LITIGATION, supra note 55, at § 23:72.} The official fee required to file a request for invalidation is around $475 U.S.\footnote{PATENT OFFICE LITIGATION, supra note 55, at § 23:72.}

Part 2, focused on U.S. law, and the next two parts, focusing on European and East Asian law, will explore particular laws regarding inventorship, ownership, and patent assignments. There are several complicating factors here when looking at different laws. One such complicating factor is the distinction between a common law country and a civil law country. The United States is a common law country, with case law providing much guidance even when there is a statute. Germany is a civil law country, with regulatory law and statutory law playing a much bigger role. Handling issues of ownership and assignment through case law versus statute notably affects the struggle each independent country faces. For the United States, it is how particular patent assignment law interprets particular words used in an effective, present assignment versus an ineffective assignment. In other countries, including Germany, the Netherlands, and Japan, statutes provide much more guidance. This creates more certainty but limits flexibility, which constrains parties and can lead to unnecessary inefficiencies.

2. EMPLOYEE INVENTIONS & PATENT ASSIGNMENTS IN THE UNITED STATES

The general rule in U.S. patent law is that the individual inventor owns what she creates.\footnote{See Board of Trs. of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc., 563 U.S. 776, 785 (2011) (“Our precedents confirm the general rule that rights in an invention belong to the inventor.”).} Following this general rule, U.S. patent law historically required that patent applications be filed in the name of the individual inventor. Simply, “[a]n Application for patent shall coordinate arguments and positions when there are invalidity proceedings in the other countries that involve the same family of patents”).
be made, or authorized to be made, by the inventor . . . “98 The Patent Act explained that the applicant is the inventor: “The applicant shall make oath that he believes himself to be the original and first inventor of the process, machine, manufacture, or composition of matter, or improvement thereof, for which he solicits a patent . . . .”99

Prior to the AIA, U.S. patent law had just a handful of exceptions to the general rule that the applicant is the same as the inventor. These exceptions included the death of the inventor, as well as if the inventor—obligated to assign her invention to another—either refused to participate in the filing of a patent application or could not be found or reached after “diligent effort.”100 In those instances, another party was permitted to file on behalf of the inventor, but not without a showing of an assignment, or an agreement to assign in writing, or that the filing without such a written record is nevertheless justified and necessary.101 In the latter instance, the person making the filing would also need to show a proprietary interest in the patent application, such as that she formally employed the inventor. In this way, U.S. patent law has long required that the inventor be named in the application, even in the extraordinary circumstance that the inventor was not the actual applicant.102

This pre-AIA practice of having the inventor, rather than the company, designated as the “Applicant” on patent applications is different when compared to other countries. For example, the Federal Circuit Court of Appeals, the exclusive court of patent appeals in the United States, has explained that in “many foreign countries, unlike in the United States, the actual applicant for a

100 See 35 U.S.C. § 118 (2002) (pre-Leahy-Smith America Invents Act) (explaining that if “an inventor refuses to execute an application for patent, or cannot be found or reached after diligent effort,” then another person may be able to file a patent application).
101 Id. (stating that the substitute application is limited to “a person to whom the inventor has assigned or agreed in writing to assign the invention or who otherwise shows proprietary interest in the matter justifying such action, may make application for patent on behalf of and as agent for the inventor on proof of the pertinent facts and a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage”).
102 37 CFR 1.64 (pre-AIA) (explaining that the substitute statement must name the inventor, even when the inventor is not filing the patent application herself).
patent can be other than the inventor, e.g., an assignee.” 103 Similarly, the Manual of Patent Examining Procedure (MPEP) warns:

The requirement that the applicant for a patent in an application filed before September 16, 2012 be the inventor(s) . . . and that the inventor or each joint inventor be identified in applications filed on or after September 16, 2012, are characteristics of U.S. patent law not generally shared by other countries. Consequently, foreign applicants may misunderstand U.S. law regarding naming of the actual inventors causing an error in the inventorship of a U.S. application that may claim priority to a previous foreign application under 35 U.S.C. 119. 104

Because a goal of the AIA was to bring U.S. patent law closer to the rest of the world, this requirement was changed. For all patents filed on or after September 16, 2012, the patent applicant no longer needs to be the same as the inventor. Instead, “[a] person to whom the inventor has assigned or is under an obligation to assign the invention may make an application for patent.” 105 Accordingly, a company may now be designated as the applicant, although the individual persons are still named as the inventors. 106 Importantly, the AIA also included a change in law, that “[t]he original applicant is presumed to be the owner of an application for an original patent, and any patent that may issue therefrom in the absence of an

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104 MPEP, supra note 27 at 2137.01.
105 35 U.S.C. § 118. See also MPEP, supra note 27, at 605 (detailing this change in law):

Effective September 16, 2012, the Office revised the rules of practice to permit a person to whom the inventor has assigned or is under an obligation to assign an invention to file and prosecute an application for patent as the applicant, and to permit a person who otherwise shows sufficient proprietary interest in the matter to file and prosecute an application for patent as the applicant on behalf of the inventor. See MPEP § 605.01 for information regarding the applicant in applications filed on or after September 16, 2012.

For applications filed before September 16, 2012, a person to whom the inventor assigned an invention could file and prosecute an application for patent, but the inventor is considered the applicant.

See MPEP § 605.02 (2015) for information regarding the applicant in applications filed before September 16, 2012.
106 See, e.g., U.S. Patent No. 10,212, 827 (filed July 21, 2016) (naming Intel Corporation as the “applicant” and the individual persons, presumably employees of Intel, as the “inventors”).
assignment.” 107 Although the new statute regarding this change in practice does not state that the assignment must be in writing, it does retain that requirement elsewhere in the Patent Act. 108

U.S. patent law is clear that patent assignments must be in writing, but there is no statutory guidance on the language or contents of the assignment. This means that employee inventors, and their respective assignments of any patentable inventions to their employers, are handled completely by common law.

For example, in terms of assigning the specific priority right of a patent, U.S. patent law does not require that an assignment of a patent include an express statement also assigning the right of priority. Simply, in U.S. law, the priority right is regarded as part of the patent itself. So while the Patent Act does mandate a patent assignment be in written form, there is no similar mandate regarding the particular contents of the assignment. 109 Also, unlike other countries, U.S. patent law does not require, nor provide, any statutory suggestion requiring employers to compensate employees for their inventions. Any assignment and, or, any form of additional compensation must be a contractual agreement between the parties.

Before a formal recordation of an assignment from an inventor to assignee may be filed with the USPTO, it was, and remains after the AIA, a common practice for employees to enter into contractual agreements with their employers regarding the transfer of ownership of any patentable inventions made or conceived during employment. This occurs after the individual inventor is designated as the “Applicant” in a patent application.

Because a patent assignment is a contract, the Federal Circuit has historically applied the contract law of the relevant individual state when faced with an issue involving a patent assignment. 110 The Federal Circuit has also previously stated that state courts should

109 U.S. patent law does provide advantages to those who record patent assignments with the USPTO, namely protection against third party buyers or lenders. See 35 U.S.C. § 261 (2012) (“An interest that constitutes an assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent and Trademark Office within three months from its date or prior to the date of such subsequent purchase or mortgage.”).
determine who owns the patent rights and on what terms. However, the Federal Circuit has, in recent years, also expressed that U.S. federal law, or more specifically “Federal Circuit law,” applies to certain instances. The Federal Circuit has explained that “[a]lthough state law governs the interpretation of contracts generally . . . , the question of whether a patent assignment clause creates an automatic assignment or merely an obligation to assign is intimately bound up with the question of standing in patent cases. We have accordingly treated it as matter of federal law.”

U.S. patent law clearly states that “[i]nventions may be assigned before they are patented.” Moreover, U.S. patent law also clearly states that “[a]n assignment of an expectant interest can be a valid assignment.” However, until the employee does indeed create or conceive of patentable technology, “the assignee holds at most an equitable title.”

Equitable title is distinct from legal title in U.S. patent law. For example, equitable title is not a sufficient title to bring a suit for patent infringement; one must have legal title to bring a suit for patent infringement and seek damages. This “expectant interest,” also known as a future interest, is created when there is an assignment that is made prior to the actual existence of an invention. It is called an expectant interest because the employee and the employer are expecting that the employee creates or

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111 See, e.g., Jim Arnold Corp. v. Hydrotech Sys., 109 F.3d 1567, 1572 (Fed. Cir. 1997) (“It may seem strange at first blush that the question of whether a patent is valid and infringed ordinarily is one for federal courts, while the question of who owns the patent rights and on what terms typically is a question exclusively for state courts. Yet that has long been the law.”).
113 DDB Techs., L.L.C. v. MLB Advanced Media, L.P., 517 F.3d 1284, 1290 (Fed. Cir. 2008) (citations omitted). Despite some inconsistencies in this jurisprudence, it is now generally understood in the United States that Federal Circuit law governs the interpretation of the type of patent assignment at issue in the present case. Still, because of these inconsistencies, district federal courts do sometimes look to state law for guidance when interpreting patent assignments. See, e.g., Affymetrix, Inc. v. Illumina, Inc., 446 F. Supp. 2d 292, 296 (D. Del. 2006) (concluding no Federal Circuit opinion was directly relevant to the language in the at-issue expectant interest clause and, therefore, it was proper for the court to look to California state contract law for guidance).
114 Cammeyer v. Newton, 94 U.S. 225, 226 (1876).
116 Id.
conceives a patentable invention at some point in the future during her employment. Because of this expectation of the creation of patentable technology, the parties are planning ahead by assigning the expectant interest in any future inventions by way of a patent assignment clause. This patent assignment clause is often a part of a larger employment agreement. Assigning future rights in this way is permitted under U.S. law.

When an employee assigns an expectant interest to an employer, one of two situations can occur. The first situation is one in which the expectant interest clause immediately changes into an “automatic” or “immediate” assignment; that is, an assignment transfers legal title to the employer without any further conveyance or action needed by either party. As soon as the employee creates an invention, the employer enjoys legal title to that invention. The second situation is one in which the expectant interest clause does not immediately transfer legal title once the employee creates an invention. Instead, the employer, the assignee, remains with just equitable title. This is often termed an “agreement to assign” or “obligation to assign.” Thus, the second situation does not result in the immediate conveyance of equitable-to-legal title, like that which occurs with an automatic assignment. In this second situation, the employee has only agreed to assign her invention, meaning the employer starts with equitable title and ends with equitable title until some future act of conveyance in writing takes place transferring legal title to the employer.119

The creation of an assignment that conveys automatic and immediate ownership compared to a mere obligation to assign ownership at some future point depends upon the language used by the parties.120 Accordingly, the parties distinguish between an immediate assignment and an obligation to assign a close analysis of the language. This is important, as this law distinguishes the United States from much of the world. This unique law, one that hinges on very particular language, is at issue in seemingly almost

119 Compare FilmTec Corp. v. Allied-Signal, Inc., 939 F.2d 1568, 1573 (Fed. Cir. 1991) (finding expectant interest clause language “agrees to grant and does hereby grant” creates an automatic assignment), with Arachnid, Inc. v. Merit Indus., Inc., 939 F.2d 1574, 1580 (Fed. Cir. 1991) (finding expectant interest clause language “all rights thereto will be assigned” as merely an “agreement to assign, not an assignment”) (emphasis removed).

120 See DDB Techs., L.L.C. v. MLB Advanced Media, L.P., 517 F.3d 1284, 1290 (Fed. Cir. 2008) (explaining “whether an assignment of patent rights in an . . . is automatic, requiring no further act on the part of the assignee, or merely a promise to assign depends on the contractual language”).

https://scholarship.law.upenn.edu/jil/vol41/iss3/4
every post-grant European Opposition where the opposition is challenging the chain of title of the patent that is based on U.S. priority.

As stated above, an automatic assignment occurs when the contract expressly grants rights in future inventions. There is no further act of conveyance needed to effectuate legal title to the assignee. The Federal Circuit has held that an automatic assignment was created when the parties stated that the employee “‘agrees to and does hereby grant and assign’ all rights in future inventions.”

When using this present conveyance language, the parties seem to intend no further action is necessary to effectuate the transfer of legal title from the employee to the employer. With the automatic transfer of the expectant interest, while the individual inventor does still claim inventorship and most often will designate herself as “Applicant” pursuant to U.S. law, and had to prior to the AIA, legal ownership is already with the employer.

In contrast, when the parties use language that seems to speak of a future event happening, the Federal Circuit has held that the parties created only an agreement to assign. For example, an agreement to assign is conveyed with the following language: “[a]ny inventions conceived by [Company] or its employees ... in the course of the project covered by this agreement, shall by the property of [Client], and all rights thereto will be assigned by [Company] to Client.” This “will be assigned” conveyance language implies that the parties had not intended for the

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121 Id. at 1290.
122 See also Imatec, Ltd. v. Apple Computer, Inc., 81 F. Supp. 2d 471, 482 (S.D.N.Y. 2001), aff’d 15 F. App/x 887 (Fed. Cir. 2001) (quoting the Invention agreement which states “I agree to assign, and hereby do assign to [Company] ... all my rights to inventions which I have made or conceived ... ”); SIRF Tech., Inc. v. Int’l Trade Comm’n, 601 F.3d 1319, 1326 (Fed. Cir. 2010) (“[t]he Employee assigns all of his or her right, interest, or title in any Invention to the Employer to the extent allowed by law.”); Preston v. Marathon Oil Co., 684 F. 3d 1276, 1288 (Fed. Cir. 2012) (“Because the assignment clause in the April Employee Agreement states that the employee agrees to ‘hereby assign’ all ‘Intellectual Property,’ it is an express assignment of rights in future inventions that automatically assigned rights to [Company] without the need for any additional act.”); AgroFresh Inc. v. MirTech, Inc., 2017 WL 2829627, *13 (D. Del. 2017) (holding that “[Company] hereby assigns automatically all rights, and all future rights, ... ” is an “assignment [that] is effected at the moment the” invention is made) (emphasis in original).
123 See Israel Bio-Engineering Project v. Amgen, Inc., 475 F.3d 1256, 1263 (Fed. Cir. 2007) (explaining “issues of patent ownership are distinct from questions of inventorship”).
124 Arachnid, Inc. v. Merit Indus., Inc., 939 F.2d 1574, 1576 (Fed. Cir. 1991) (emphasis added).
assignment to occur without some further act of conveyance in the future. Another example of an expectant interest clause that merely obligates the employee to convey an assignment of her creations at a future date reads:

Such Proprietary Developments are the sole property of [Company], and I agree:

a. to disclose them promptly to [Company];

b. to assign them to [Company]; and

c. to execute all documents and cooperate with HP in all necessary activities to obtain patent, copyright, mask work, and/or trade secret property in all countries, [Company] to pay expenses.

With this expectant interest clause, the Federal Circuit determined that the multiple actions contemplated by the parties, “to disclose,” “to assign,” and “to execute,” demonstrated their intent for the employee to have obligations to take these actions, not that legal title would automatically vest in the employer once the employee conceived of an invention.

The language that expresses the agreement to assign is not significantly different than that used in an automatic assignment. Indeed, Justice Breyer has expressed in a U.S. Supreme Court opinion his concern that “[g]iven what seem only slight linguistic differences in the contractual language, this reasoning seems to make too much of too little.” At this moment, the Supreme Court has not taken the opportunity to reconsider this doctrine and potentially overrule or alter it. Because of the small variance in the language, federal courts are often faced with very difficult interpretations of expectant interest clauses. This is especially true because the very nature of this type of patent assignment seems to necessarily invoke the use of words like “shall” and “will” when talking about something that is in the future.

Moreover, parties often combine present language with that of future conveyance language, as there are several stages of the patenting process that may require that the employee take further

125 Id. (emphasis added).
127 See Board of Trs. of Leland Stanford Junior Univ., supra note 97, at 2202-03 (Breyer, J., dissenting).
actions. When this occurs, it makes the interpretation of the patent assignment more difficult, thereby opening the door for the court to decide the outcome (as opposed to the parties in the first instance).

For example, take the following language: “‘Bios hereby conveys, assigns, transfers and delivers to [Agribiotics, Inc.] all of its right, title, estate and interest to all its property, assets, business and undertaking, both real and personal, movable and immovable, wherever situate [sic] . . . .‘” 128 This italicized language seems similar to the automatic assignment language seen in other opinions such as FilmTec Corp. or DDB Techs, Inc., yet the dissolution agreement between the parties also called for Bios to provide any necessary documentation “for more effectively and completely vesting the property and assets conveyed . . . or for the purpose of registration or otherwise.” 129

In interpreting these two clauses together, the court determined that the language in the dissolution agreement was “suggest[ing] only that Bios will perform any ministerial tasks necessary to effectuate the transfer of its assets.” 130 Finding the parties had created an automatic assignment, the court then explained that the language obligating the assignee to take further steps “does not undermine the conclusion that the dissolution was a present assignment of assets to Agribiotics Inc.” 131 So despite the language of “effectively and completely vesting,” no further action was necessary to create a legally cognizable interest when the invention was created. There was only the recognition by the parties that more paperwork in the future would likely be necessary. And while not citing directly to the applicable state law, for both parties had agreed federal law controlled this issue, the state law did favor the approach taken here to carefully ascertain the intent of the parties. 132

129 Id. at 1014 (emphasis added).
130 Id.
131 Id.
132 See Tufail v. Midwest Hosp., LLC, 833 N.W.2d 586, 592 (Wis. 2013) (“Contract interpretation generally seeks to give effect to the parties’ intentions.”). When parties cite to state law, or when the federal court feels like it needs further guidance given the ambiguity of the agreement, employing state contract law or general principles of contract law may be appropriate. See St. Clair Intellectual Property Consultants, Inc. v. Palm, Inc. 2009 WL 1220546 (D. Del. May 4, 2009) (using both present conveyance language and agreement to assign conveyance language, and where the court used general principles of contract law and Federal Circuit law to interpret such language).
In summary, while the individual state law usually governs the interpretation of contracts, whether the assignment of patent rights under an expectant interest clause is an automatic assignment or merely an agreement to assign is a matter of Federal Circuit law. Federal courts applying Federal Circuit law look closely at the contractual language used by the parties. And if the at-issue language seems to expressly convey present rights in future inventions, no further act of conveyance is required once an invention is created. The transfer of legal title occurs immediately by the operation of law. In contrast, if the language in the expectant interest clause explains that the parties intend for the inventor to take further steps to convey legal ownership, such as agreeing to cooperate and execute paperwork to establish ownership, this is merely an agreement to assign. There is no transfer of legal title; some other act of conveyance is necessary before legal title is transferred from employee to employer.

3. EMPLOYEE INVENTIONS & PATENT ASSIGNMENTS IN EUROPE

When comparing U.S. patent assignment law, most notably in the employer-employee context, to corresponding law around the world, there are a couple questions to ask in every instance. First, does the respective country require, like the United States does, that the inventor be identified in the patent application? This may occur by the inventor being the same as the applicant, as is often the case in the United States, or as the inventor but not the applicant and, or, owner of the patent. This latter situation is now permitted in the United States. Second, what is the general rule regarding whether an employer or the employee owns the invention? In the United States, the employee generally owns the invention, yet employees and employers often enter into patent assignment agreements prior to the creation of any patentable inventions. This causes the employee’s ownership interests to either automatically vest in the employer upon creation of the invention, or with some further act of conveyance. These next two subparts will explore the answers to these two questions in two different countries: Germany and The Netherlands.
3.1. The German Approach

In Germany, as well as under the European Patent Act, the general rule of patent entitlement is that it shall belong to the inventor. Moreover, only an individual, a natural person, is able to make the creative contribution necessary to entitle one to a patent. In this way, a legal entity, a company, cannot be an inventor under German law.

That said, it is estimated that between eighty to ninety percent of all patented inventions in Germany are created by employees. Intending to provide rules for balancing the interests under patent law and labor and employment law for employees-inventors and employers, Germany has enacted the Employees’ Inventions Act (ArbEG). Most notably, the ArbEG provides employers the ability to secure ownership of inventions made by their employees, while also balancing the employees’ interest to reasonable compensation.

Under the ArbEG, the general rule holds true: the initial inventor is the owner. Instead of using patent assignment law, through the form of contract, like the United States does, to change this ownership, the ArbEG contains a provision providing employers the right to claim either the transfer of ownership or an exclusive license to use the invention. Not only is there no need to contract

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135 Id.

136 Sebastian Wündisch, Employee-Inventors Compensation in Germany – Burden or Incentive?, 52 LES NOUVELLES - J. LICENSING EXECUTIVES SOC’Y 105 (2017).


138 See ArbEG, supra note 137, at §§ 6, 9.

139 Takenaka, supra note 137, at 314.

140 See ArbEG, supra note 137, at 19, § 6.
in the way that employers do in the United States, but any contract that conflicts with the ArbEG is simply void.\textsuperscript{141}

The ArbEG also clearly defines the scope of this statute and the inventions that fall under it. There are two types of inventions: service inventions and free inventions.\textsuperscript{142} A service invention is one made or conceived from the employee’s tasks within the scope of the employer’s business, or, more generally, public administration.\textsuperscript{143} A free invention is defined as anything other than a service invention.\textsuperscript{144}

In practice, for all service inventions, the statute works to create an obligation on the employee to immediately report any and all inventions to her employer, or at least “without undue delay.”\textsuperscript{145} This reporting requires a detailed description of the invention that is sufficient for one to understand how and why the invention was made.\textsuperscript{146} Upon this reporting, a four-month period is triggered.\textsuperscript{147} The employer then has four months to decide whether to claim the invention or not.\textsuperscript{148} This is an “opt out” period of sorts. In short, if the employer misses this deadline, the invention is nevertheless deemed claimed by the employer. Thus, the employer has to actively opt out of claiming any patentable invention by its employees. This is a rather recent shift in the statute, with pre-2009 law requiring the employer to actively claim the employee’s invention.\textsuperscript{149} In this way, the former approach was an “opt-in” approach.\textsuperscript{150}

For free inventions, which should likewise be disclosed like service inventions upon conception, the employee does not have the same burden of a detailed report. That said, the employee does need

\textsuperscript{141} ArbEG, \textit{supra} note 137, at § 22.
\textsuperscript{142} ArbEG, \textit{supra} note 137, at § 4(1).
\textsuperscript{143} ArbEG, \textit{supra} note 137, at § 4(2). More technically, “[a]n invention made during a term of employment is a service invention if (1) it resulted from the employee’s tasks in the employer’s business or public administration, or (2) it is essentially based upon the experience or activities of the employer’s business or public administration.” Takenaka, \textit{supra} note 137, at 315.
\textsuperscript{144} ArbEG, \textit{supra} note 137, at § 4(3).
\textsuperscript{145} ArbEG, \textit{supra} note 137, at § 5.
\textsuperscript{146} ArbEG, \textit{supra} note 137, at § 4(2).
\textsuperscript{147} ArbEG, \textit{supra} note 137, at § 5.
\textsuperscript{148} ArbEG, \textit{supra} note 137, at § 5.
\textsuperscript{149} See Wündisch \textit{supra} note 136, at 105 (explaining this “opt-in” approach was riddled with errors in practice and prompted the recent change).
\textsuperscript{150} See Wündisch \textit{supra} note 136, at 105.
to, in essence, adequately explain why the invention falls outside the scope of her employment.\footnote{See ArbEG, supra note 137, at § 18(1).}

Similar to other countries’ patent law, like other countries within the European Union,\footnote{Other countries in the European Union similarly have remuneration statutes, including the Netherlands, Finland, Italy, and Spain. See Scott Foley et al., Thinking Globally: Inventor Remuneration Rights, LANDO & ANASTASI (Dec. 8, 2017), http://www.lalaw.com/news_resources/thinking-globally-inventor-remuneration-rights/ [https://perma.cc/NC9K-6QZ9].} as well as Argentina, Hong Kong, and Korea,\footnote{See id. See also Orly Lobel, The New Cognitive Property: Human Capital Law and the Reach of Intellectual Property, 93 TEX. L. REV. 789, fn. 148 (2015) (“Germany, the United Kingdom, France, and Finland all require fair compensation to the employee for any assigned invention” and “China and Japan similarly guarantee employee-inventions a reward for assigned work.”).} the ArbEG provides that an employee inventor is entitled to reasonable compensation, additional to her normal salary, when her employer claims her invention and uses it.\footnote{See ArbEG, supra note 137, at § 9(1).} Note, that this right of additional compensation only arises upon the employer’s use of the patented technology.\footnote{See Wündisch supra note 136, at 106.} The claim for payment occurs three months after this first use, and continues for the life of the patent.\footnote{See Wündisch supra note 136, at 106.} If the patent is invalidated at some point, payments made to the employee may not be reclaimed by the employer.\footnote{See ArbEG, supra note 137, at § 9(1).}

The valuation of this compensation is on a case-by-case basis, with factors such as the commercial application of the invention, level of employee contribution and position within the company, playing a role in determining the reasonable compensation.\footnote{See Wündisch supra note 136, at 106.} Moreover, the Guidelines on the Compensation of Employee Inventions offers a complex formula that takes into account different fields, from electrical to chemicals and pharmaceuticals.\footnote{See ArbEG, supra note 137, at § 9(1).} And, finally, for some industries, such as academia, there is a flat rate, which is taken from the licensing or other income of the patentable invention, used to simplify and streamline the remuneration process.\footnote{See Wündisch supra note 136, at 109 (explaining “German law has a special provision granting the university inventor a flat rate of 30 percent of the income from the utilization proceeds of the university”).} Overall, while there is debate regarding whether Germany’s regulatory approach to compensation of patentable
inventions in the employment context provides desirable incentives that lead to maximum creativity and ingenuity, empirical research has confirmed “that the law creates substantial monetary rewards for productive inventors.”

3.2. The Dutch Approach

The Dutch Patent Act of 1995 governs patent assignments, including those assigned in the employer-employee relationship, via statute. The language of Article 12.1 states the general rule: the employee-inventor is the entitlement owner. The exception to this general rule is when the nature of the employee’s job is to make inventions of the type at issue. Let’s call this the “employee exception.” In full:

If the invention for which a patent application has been filed has been made by a person employed in the service of another party, the employee shall be entitled to the patent unless the nature of the service entails the use of the employee’s special knowledge for the purposes of making inventions of the same kind as that to which the patent application relates, in which case the employer shall be entitled to the patent.

There are some patent commentators that feel the opposite is true: that actually the general rule is that the employer is the owner of the patent, with the exception that the employee might own the


163 Id. at Article 12.1. This entitlement is for both the patent application and resulting patent. See also The International Association for the Protection of Intellectual Property, Netherlands Report Q183, at 6 [hereinafter AIPPI], [https://perma.cc/8X5M-C8HN] (explaining the courts’ application of Article 78.1 of the Patent Act, which states that ownership of the patent can be claimed by the person who is entitled to the patent based on Article 12 of the Patent Act).

invention. Presumably, this opinion comes from the observance that in many instances, the employee at question will be hired specifically to create or be a part of a team that creates innovation. Moreover, practitioners do not want the employer to need to get a separate agreement from the employee, which “may lead to difficulties, e.g., when the employee cannot be traced or refuses to co-operate with such a transfer.”

Two examples of this occurred, at least in part, due to the pre-AIA U.S. law requiring that employees/inventors serve as the applicants of U.S. patent applications. In these two examples, an employee refusing to execute documents needed to assign U.S. patent applications to the employer. This serves as another reason that international harmonization is so important. It is hard to trace the chain of title when there are different requirements on which party must serve as the applicant, which may or may not be the same as the owner from one country to another.

Beyond the traditional employer/employee context, the Dutch Patent Act contains a similar provision for patents created “in the context of training course,” — the trainee exception, and for patents in the field of research or service at a university, college or research institution — the researcher exception. In the training exception, “the party for whom the services are performed shall be entitled to the patent[,] unless the invention has no connection with the subject of the services.” In the researcher exception, the statute, in essence, assumes that the invention was made pursuant to one carrying out “research in the service of a university, college or research establishment, [then] the university, college or research establishment shall be entitled to the patent.”

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165 See AIPPI, supra note 163, at 15 (explaining “the group is of the opinion that if the requirements for entitlement of the employer to the intellectual property rights in the employee’s creation have been fulfilled (e.g. the requirement that making creations like the creation in question must have been part of the employee’s employment), the employer should be the owner of the intellectual property rights from the outset.”).
166 AIPPI, supra note 163, at 15.
167 See AIPPI, supra note 163, at 15.
169 See Patent Act 1995, supra note 162, at Article 12.3. Note here that “Article 12 makes a distinction between employees in the private sector (article 12.1: entitled to their inventions unless the making of such inventions was part of the employment) and researchers at a university or research institute (article 12.3: inventions made by these researchers always belong to the university or research institute”).
Finally, the Dutch Patent Act also permits parties to change, pursuant to a written agreement, the general rule of Article 12.1, as well as its exceptions and the provisions regarding inventions made connected to training courses and research. These rules all govern what we would term “employees” in the United States, that is, not independent contractors. These provisions specifically cover employees who have an employment contracts, as meant in the Dutch Civil Code, and to civil servants employed by the government or other public institutions, such as a public university or research institution. If an employee does not have a contract, then the default rule applies: the employee enjoys the rights to her inventions. Accordingly, parties and courts must look to the agreement to determine the scope of one’s employment and expectation regarding future inventions. If parties simply use language that invokes the Dutch Patent Act, there will not be the parsing of language like there is in the United States. Indeed, there are “few disputes . . . brought before the court” regarding patent ownership and use of rights over inventions made or conceived in the workplace.

Two rules that parties are not permitted to opt out of or change via contract, are the right as an inventor to be identified as such in the patent application and the remuneration statute. Like in the United States and elsewhere, the inventor has a right to be identified as the inventor. While in the United States, this right is not

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170 See Patent Act 1995, supra note 162, at Article 12.5 (“The provisions of paragraphs (1), (2) and (3) may be departed from by written agreement.”).
171 See Wouter Pors, Employee Inventions in The Netherlands, Y.B. LES NOUVELLES 117, 118 (June 2017), http://birdbuzz.nl/wp-content/uploads/2017/07/2017-07-Pors-Employee-Inventions-In-The-Netherlands.pdf [https://perma.cc/D9VD-AFMT] (stating that the employee exception “doesn’t cover free lancers, self-employed workers or managers who don’t have an employment contract (but for instance a management contract between their personal legal entity and the company”).
172 Id.
173 Id.
174 AIPPI, supra note 163, at 13.
175 See Patent Act 1995, supra note 162, at Article 14 (“Any person who has made an invention for which a patent application has been filed, but who cannot claim any title to a patent on the ground of Article 12(1), (2) or (3) or under an agreement concluded with the applicant or his predecessors in title, shall have a right to be named as the inventor in the patent.”).
attributed as a “moral” right, it is commonly so throughout Europe.\footnote{See AIPPI, supra note 163, at 1-2 (explaining that is a “mandatory” rule and a “(moral) right of the employee to be mentioned as the inventor in the patent”).}

Also, somewhat common in Europe is the remuneration statute in the Dutch Patent Act regarding employee compensation for patents. This remuneration statute covers the employee, trainee, and research exceptions: where the “employer” is entitled to the patent, not the inventor. Article 12.6 states that

In the event that the inventor cannot be deemed to have been compensated in the salary he earns or the pecuniary allowance he receives or in any extra remuneration he receives for not having been granted a patent, the party who is entitled to the patent on the basis of paragraphs (1), (2) or (3) will be obliged to grant him equitable remuneration related to the pecuniary importance of the invention and the circumstances under which it was made. Any right of the action on the part of the inventor in accordance with this paragraph shall lapse after the expiry of three years from the date of the grant of the patent.\footnote{See Patent Act 1995, supra note 162, at Article 12.6 translated in Patent Act 1995, Netherlands Enterprise Agency (Sept. 18, 2009), https://english.rvo.nl/topics/innovation/patents-other-ip-rights-topic/patent-law/patent-act-1995 [https://perma.cc/2ZKR-F4VR].}

As to the determination of whether an employee/inventor should receive extra compensation, that beyond the employee’s normal wages, is one that seems troubling on the surface, but is not as much in practice. The Supreme Court has, on at least two occasions, stepped in to clarify and provide guidance to Article 12.6.\footnote{AIPPI, supra note 163, at 6 (identifying two cases, including a claim for compensation of the employee and a decision of a public entity regarding compensation).}

In both opinions, the Supreme Court held that the invention created was within the scope of the employee’s employment, thereby supporting the conclusion that the employee’s normal wages cover the possibility of a patentable invention. It is only in the “exceptional circumstances [that] [] the employee [will] be entitled to additional compensation.”\footnote{AIPPI, supra note 163, at 11.}
4. EMPLOYEE INVENTIONS & PATENT ASSIGNMENTS IN EAST ASIA

Similar to the two parts above, this part will detail who has the first right to the patent, the inventor or the company, in Japan, Korea, and China. In the case that there needs to be a patent assignment, this part will also describe the patent assignment laws that are unique to each country.

4.1. The Japanese Approach

Unlike in the United States, where, at least until very recently, most patent applicants are the inventor, in Japan, most patent applicants are the assignees, not the inventors. Seeking to address a myriad of shortfalls in its employee invention law under the Japanese Patent Act, amendments were made in 2004 and 2015, effective on April 1, 2016, to the employee inventions statute. Japanese patent law is more like that of Germany and Netherlands, than the United States, in that its statutory law seeks to answer many of the basic questions of inventorship and ownership in the first instance. It is also like Germany and others in that only an

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individual, a natural person, can be the inventor. Accordingly, the general rule is that patent ownership is first vested with the individual inventor. The fact that most applicants are not the inventors demonstrates the high importance of patent assignment, either via statute or common law, in Japan.

Article 35, the employee inventions statute, has five subsections. The first subsection is unchanged from the former law. Most simply, if the employee-inventor receives a patent that is within the scope of her employer’s business, then the employer has a royalty free, non-exclusive license to the patent. Like Germany and Netherlands, this law applies to both private and public industries.

The second subsection then explains that an invention made by an employee that is not captured within the first subsection because it is, in essence, outside the scope of the employee’s work, it does not automatically vest in the employer, nor can it be assigned ex ante to the employer. In fact, any such “contractual provision . . . providing in advance that the right to obtain a patent for such an invention shall belong to the employer . . . shall pass to the employer, etc. or [] shall have a provisional exclusive license or exclusive license on such an invention shall be null and void.” This section is largely unchanged from the former statute, with simple language added for clarification. This section makes sense as it carves out inventions made by employers that are presumably conceived on their own time and outside the scope of their job. Of course, what does and does not “correspond to an employee invention” is not necessarily clear cut. The next section briefly discusses what does “correspond to an employee invention”, a 2015 amendment.

This third subsection explains that when an invention is made by an employee that does, in fact, correspond to an employee invention, it can be assigned to the employee prior to the conception

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186 See Akashi & Hirata, supra note 185, at 6 (emphasis added).
of the patent. In this way, Japanese patent law is similar to the U.S. common law equivalent of the automatic assignment of an expectant interest without requiring a strict parsing of language. The shall language, which is used in the statute, is not sufficient to pass legal titles under U.S. law, but it is under Japanese law. In summary, this third subsection is clear that “[f]or an invention created by an employee, the right to obtain a patent may be assigned to an employer or even originally acquired in accordance with rules established by the employer, and the said employer may file the patent application as the applicant.”

The fourth subsection is an employee invention remuneration statute. It was amended in 2004, and then again in 2015. It explains that the employee “shall have the right to a reasonable money or other reasonable economical profits . . . when he has enabled the right to obtain a patent for an employee invention to belong to the employer, etc.” The final subsection elaborates on what is reasonable, by explaining that compensation “shall not be considered to be unreasonable” where there has been a negotiation between the parties, the employer and employee, that was carried out with some of established policy or criteria. This is largely the same as the former statute, and affirms case law that “emphasizes the importance of adopting reasonable procedures to determine the amount of remuneration awarded.” With the latest amendment, and similar to that seen in relation to reasonable compensation under the German employee inventions statute, ArbEG, there are guidelines provided to help this determination.

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187 See id. (“In the case of an invention made by an employee, etc., which corresponds to an employee invention, when there is a contractual provision . . . in advance that the right to obtain a patent for such an invention shall belong to the employer, etc., the right to obtain a patent for such an invention shall inherently be vested in the employer, etc., since the occurrence of the right.”)
188 Tokkyoho Patent Act, supra note 181, Art. 35.
189 Tokkyoho Patent Act, supra note 181, Art. 35. Cf. Steven Cherensky, Comment, A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property, and Personhood, 81 CALIF. L. REV. 595, 623 (1993) (“It is worth noting that the American system of uncompensated contractual cognitive assignment is an exception among highly innovative countries. In the United States, private employers have no affirmative duty to compensate employees for profits derived from their inventions.”).
190 LaFrance, supra note 180, at 92.
Due in part to the remuneration statute, and

because Japanese patent law does not distinguish deliberate misrepresentations from inadvertent errors in this context [joint inventorship, omitting a joint inventor], even an honest mistake as to inventorship, or as to the validity of an assignment agreement, could lead to invalidation. This result seems unjust with respect to the excluded inventors or assignees who acted without fraudulent intent, since the invalidation will extinguish their patent rights.\(^{192}\)

Errors in the chain of title may also have a significant impact on the question of reasonable remuneration.\(^{193}\)

Finally, in terms of patent assignments, Japanese patent law requires that all assignments changing the ownership of a patent be registered in the patent registry of the JPO. The documents necessary for this change in ownership are the original or certified copy of the patent assignment itself and a power of attorney.\(^{194}\)

4.2. The Korean Approach

The Korean Invention Promotion Act explains that the ownership of a patent originally vests in the employee-inventor, at least absent any contractual agreements or any specific employment regulations.\(^{195}\) The employer is entitled to a non-exclusive license for the patent right that the employee acquires after completing the patent process. This is premised on the idea that the employer should have at least a non-exclusive license due to its contributions

\(^{192}\) LaFrance, *supra* note 180, at 91.

\(^{193}\) See LaFrance, *supra* note 180, at 91 (arguing that errors in inventorship have serious impacts on remuneration under Japan Patent Act Section 35).


that lead to the patentable invention of the employee-inventor in the first instance.

Of course, employers do not just want a non-exclusive license, and the Korean Invention Promotion Act recognizes this by permitting employers to use the mechanism of a contractual agreement to alter the original vesting of ownership in the employee. With an employment agreement, for example, much like the United States, Korean employers can require their employees to transfer all rights to future patentable inventions prior to their creation.196 If the ownership has already vested in the inventor, meaning there was no contractual agreement in place, and the employee decides to assign her inventor to her employer, or, for example, an independent contractor sells her patent rights to a company, the patent assignment must then be recorded with the KIPO.197 The requirements of registration include: (1) a deed of assignment that is executed by the assignor, (2) a Notarized Corporate Nationality Certificate, also executed by the assignor, and (3) a power of attorney of the assignor and the assignee.198 Unlike in the United States where a recordation of a patent assignment is not required for it to be effective, Korean patent law requires the above three steps before the patent assignment is effective.199

Finally, in the case that the employee must transfer to her employer the right to acquire, she is entitled to receive fair compensation.200 Many commentators contend that this right to fair or justifiable compensation cannot be waived by a contractual agreement.201 If the employee feels the compensation is not reasonable, she can challenge the amount. If a court indeed decides the “compensation is unreasonable, a court can decide the amount


197 See id. (introducing that the patent assignment shall be recorded before KIPO).

198 Bhattacharyya, supra note 194, at 2.

199 See Bhattacharyya, supra note 194, at 2 (showing the differences in patent assignment laws in different countries and regions).

200 See Jihyun Kim et al., supra note 195 (explaining that The Invention Promotion Act provides a right of fair compensation for employees).

of the compensation by taking into account the profit earned by the employer based on the employee’s invention, along with any other circumstances relating to the [intellectual property rights].”

4.3. The Chinese Approach

Chinese patent law divides inventions into two categories: non-service invention-creation and service invention-creation. For non-service invention-creations, the ownership of the invention vests in the inventor herself. In contrast, for service invention-creations, what we generally think in the United States as employee inventions, the ownership of the invention vests directly to the inventor’s employer.

Like Germany, Japan, and Korea, Chinese patent law has specific laws regarding the compensation of employee inventors. Specifically, Chinese patent law and its Implementation Rule state a basis for inventor rewards (one-time payments) and remuneration (royalty payments), yet other authorities in the country have issued their own regulations. These various remuneration statutes are at conflict with each other, with some practitioners commenting on the inconsistency.

In terms of actual recordation, and the recognition of recordation, of ownership changes, Chinese patent law is somewhat unique to the other IP5 countries. While patent assignments are permitted, all assignments to a “foreigner, foreign enterprise, or other foreign organizations must be approved by the relevant department under the State Council.” Moreover, if the right to apply for a patent is assigned, as in the case of an employee

202 Id.
204 Id. ¶ 2.
205 Id. ¶ 2.
207 See, e.g., id. (stating that inconsistency exists regarding the amount of the inventor remuneration and industries stakeholders are uncertain how the laws will be applied and interpreted).
208 Bhattacharyya, supra note 194, at 2.
assigning her future rights to apply for a patent, a written contractual agreement between the parties must be “registered with the patent administration department under the State Council.”

5. MOVING TOWARDS TRANSPARENCY & PREDICTABILITY

As Part 1 identified, proving patent priority is fundamental to the successful granting, in the first instance, and, the focus of this Article, the defense of a post-grant patent. As the different approaches taken in the IP5 countries demonstrate, there are various ways to structure the initial decision of ownership and identification of inventor, as well as to transfer or otherwise assign the ownership of the patent by statutes or individual contractual agreements.

What is clear in all of these approaches is that ex ante transparency and predictability of patent priority would reduce transaction and litigation costs. It would reduce transaction costs, when either practitioners are taking on a new client or assessing an infringement action (whether as plaintiff or defendant) for a current client, as the practitioner would be able to quickly assess patent ownership and the effective global date. In this way, they would not need to do extensive file searching, retroactive assignments, or go through patent error correction with their local or foreign patent office. If they do need to take those measures, it will be out of certainty of a position, rather than a “just-in-case” position.

Further, more transparency and higher predictability regarding global priority dates prior to post-grant opposition proceedings or invalidity litigation would reduce litigation costs, as well as certainly, as parties would know quickly whether a priority challenge is likely to win or not in a post-grant challenge. Currently, due to the disparate patent assignment laws and procedures, there is unpredictability that favors an expensive litigation strategy. This litigation strategy involves simply challenging priority to try and obtain information that may disrupt the effectiveness of the at-issue patent. Patent holders that are particularly likely to see this sort of priority challenge are those that have gone through mergers, acquisitions, or other structural changes, ones that may affect the ownership of patents. Moving towards better transparency and predictability of global patent priority is the focus of the two new proposals.

209 Bhattacharyya, supra note 194, at 2.
5.1. Utilizing Current Secured Transactions Recordation Systems

In a 2016 study conducted by AIPPI, the International Association for the Protection of Intellectual Property, groups representing different countries responded to a questionnaire regarding whether the group’s current law permitted the possibility of creating security interests over intellectual property rights.\footnote{AIPPI, Summary Report – Security Interests Over Intellectual Property (2016), http://aippi.org/library/summary-report-general2016/ [https://perma.cc/5U9M-2Q3D].} Out of the more than forty countries that responded, just three responded in the negative.\footnote{Id.} Each group was generous in their response regarding their respective country’s adoption of a secured transactions law, often explaining how their respective secured transaction worked in their country.


For a bit more detail on secured transactions in practice, consider the United States, for example. In the United States, the drafters of
the Uniform Commercial Code ("UCC") developed Article 9, the law of secured transactions, from "a motivation to encourage lending practices."\textsuperscript{213} Most basically, the drafters determined that if the law could help reduce a lender’s risk and cost to lend, and thereby increase predictability and certainty, then a lender should be more willing to enter into transactions with debtors.\textsuperscript{214} Recognizing the need for a uniform system, one that was not impacted by individual rules with states, as well as a central place for parties to gather information about what financial transactions might affect them, the UCC drafters created a uniform, one-page UCC financing statement that can be filed online in a matter of minutes in each state and province, including D.C. for foreign entities, among others. The UCC recordation system has a pure notice function: the financing statement is not detailed, but it must contain accurate information on the debtor’s name, the creditor’s name, and collateral that is covered.\textsuperscript{215}

While countries surveyed here have aspects that are unique in their secured transactions law, as financing law is typically tailored towards the needs and culture of each respective country,\textsuperscript{216} there is also a notable commonality. Secured transactions laws must be predictable, no matter what country they are operating in. Why? The reason is the same everywhere: third parties rely on this information when deciding to lend credit to a debtor. Again, third parties do not need access to much detail of any given transaction, but they must know who the debtor is, who the creditor is, and what the general collateral is.

In a similar way, patent law needs a central, online recordation system for patents. This would not be necessary for patents that are used as collateral to help secure financing, like what the AIPPI


\textsuperscript{214} See U.C.C. § 9-101 (1962), official comment ("The aim of this Article is to provide a simple and unified structure within the immense variety of present-day secured financing transactions can go forward with less cost and with greater certainty.").

\textsuperscript{215} See id. at 7, § 9-502 (introducing the financing statement formal requisites).

\textsuperscript{216} See AIPPI, \textit{Japan: Security Interests Over Intellectual Property, supra} note 212, at 10 & 14, http://aippi.org/library/security-interests-over-intellectual-property-14/ [https://perma.cc/32YZ-JZMG] (The report from Japan demonstrates this uniqueness most visibly, answering "no" to whether it would be desirable to harmonize laws governing security interests in IPRs. The reasoning: trying to move away from unique national law would create instability and unpredictability in the financial markets in Japan and likely around the world).
survey was specifically inquiring about, but a central place where the ownership of patents can be registered for all to see. This is purely about providing sufficient notice of what the global effective date is for any patent, as well as the ownership of the patent. This information should show the chain-of-title, much like what local county property offices do for real property here in the United States.

Unfortunately, as the systems are currently set up, again, using the United States as a specific example, the systems are designed specifically to gather information regarding a debtor, creditor, and collateral. The secured transactions systems are not designed to ask information about a patent applicant or a patent owner, let alone the effective global date of a patent itself. Certainly, it would not be a difficult task, at least compared to most law reform, to enable the online systems to intake this information, but it would mean some technical overhauling of the online systems and patent laws in each country.

Yet, even if this does not ever happen, looking to the consistent and predictable secured transactions laws across the world that almost all use some sort of quick, online recordation systems, can at least lead to the adoption of similar one-page per patent filing systems for tracking the chain-of-title of patent ownership.

5.2. Requiring Ex Ante Disclosures

The above section argued that secured transactions law, with its notice function of recordation, should provide an example, if not in-place model, for creating more predictability and certainty for patent priority in a global market. This subpart suggests that either coordinating with a centralized recordation system, one that would be online for anyone to search, or building new disclosure requirements into an already-existing system, would create a common notice system in regard to the priority date of patents.

A centralized recordation should likely be housed at the World Intellectual Property Organization (“WIPO”), which is also the place where PCT applications are filed as a part of fulfilling its mission. The WIPO is also ideal space, as its mission is to “promote[] innovation and creativity for the economic, social and cultural
development of all countries, through a balanced and effective international intellectual property system.”

As stated above, the PCT, the Patent Cooperation Treaty, sometimes also referred to as the “international patent system,” helps patent applicants seek patent protection in countries outside of their local country. Patent applicants can file an international patent application, which will then jumpstart a process to selecting one or more of the 153 PCT Contracting States, from the United Arab Emirates to Zimbabwe, and many in between.

When filing the international patent application under the PCT, the patent applicant has the opportunity to use the priority date of a national, or local patent. For example, if a patent is first filed in China, the patent owner then has up to twelve months to file the patent application, link it, and use the priority date of the Chinese patent. Accordingly, adding very specific questions that would auto-fill into a centralized database would be relatively easy. Simply, where is the country of origin? What is the claimed effective priority date? Who is the patent owner of the Chinese patent? Who is the PCT applicant? Ideally, of course, the last two questions will have the same answer. If the answers are not the same, it will at least trigger an automatic inquiry by WIPO and the patent applicant herself. This automatic function would also function to help bring notice to the potential chain-of-title immediately, as opposed to having memories and records stale for years before the issue is ever noticed.

This same type of centralized recordation system, if not housed by WIPO, could also be a simple add-on to the unitary patent system. The EPO has stated that the unitary patent system is scheduled to launch by the end of 2020. Given that many of the priority challenges are occurring in EU oppositions, this simple yet


219 Id.

effective centralized recordation system is particularly relevant to the newly proposed unitary patent system. Again, the additions would be easy: just a couple more questions to answer when filing with the EPO.

Overall, filling out basic chain-of-title information at the same time as the filing of the PCT application or EPO unitary patent application would help prevent simple mistakes from happening, or lapsing in memories or written records. While each country will continue to have their own unique approach to initial patent entitlement, mechanisms for patent assignments, and decisions whether to provide additional monetary payments to employees, each country can use a common system of notice. This system of notice is one that is already used across the world in secured transactions laws to increase transparency and predictability, and, thereby, certainty, to all parties within the global patenting marketplace.

**CONCLUSION**

Employee inventions are an important source of innovation around the world, yet the assignment of these inventions are also a source of transactional inefficiency and increased patent litigation.

By itself, conveying legal title of a patent is not difficult, yet it becomes more complex when the rules of patent assignments regarding patent priority are different from country to country. There is no worldwide, uniform approach for parties to follow when assigning patents in order to avoid future patent priority challenges. This creates opportunity for parties to capitalize on drafting errors, omissions in a complex merger or acquisition, or simply disorganized corporation record-keeping systems.

More so than ever before, innovation requires a multinational approach, one where global partners have accurate information about one another, both to help assess the competition and to decide when a partnership is worth building. This Article has argued that creating a centralized recordation system, one based upon already-existing secured transactions databases, would help reduce the amount of opportunism and user errors by promoting transparency and predictability, while also providing an easy way to ensure that information regarding priority and chain of title is valued and encouraged. Though no worldwide centralized system currently exists, there are groups, such as the AIPPI and IP5, that have
expressed an interest in the connection of secured transactions law and intellectual property law. And, finally, even if no centralized databased is built, there are also opportunities to build disclosures into already-existing multi-country patenting processes in Europe. This is particularly true with the unitary patent system that is scheduled to launch in Europe at the end of this year.