

The Disclosure Function, Academic/Private Partnerships, and the Case for Affirmatively Used, Multinational Grace Periods

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I. Introduction	110
II. Grace Periods and Technology Transfer Generally	111
A. Conditions for Patentability and Their Interaction with Grace Periods.....	113
B. Grace Periods in Europe, Japan, and the United States	115
1. Absolute Novelty and the EPO	116
2. Permissive Grace Periods and the U.S. Approach	121
3. Japan’s Moderate Approach.....	126
4. Related Doctrines and Exceptions.....	130
a. Experimental Use.....	130
b. Disclosure Requirements and U.S. Provisional Practice	132
III. Grace Period Impacts on Academic/Commercial Partnerships and Disclosure.....	135
A. Patentability in the United States	138
B. Patentability in Japan	139
C. Patentability under the EPC	143
D. Biases and Competing Pressures in Technology-Transfer Partnerships.....	144
E. Conclusion	146
IV. Analysis and Proposal	147
A. Proposed Grace Period Characteristics	147
1. Duration of Twelve Months	147
2. No Formalities or Restrictions on the Type of Disclosure Protected.....	148
3. Protections against Third-Party Disclosures and Filings	150
B. Previous Criticism of Grace Periods	152
1. Abuse of Deadlines, Sloppy Practice, and Risk to the Inventor.....	153
2. Legal Uncertainty	155

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3. The Paris Problem	156
4. First-to-Invent.....	157
C. The Disclosure Function	158
V. Conclusion.....	159

I. Introduction

In recent years there has been an increasing focus on promoting technology transfer through partnerships between research institutions and private entities interested in commercializing innovations resulting from such research, particularly smaller entities.¹ This paper examines the impact that one aspect of intellectual property law, patent grace periods, can have on such partnerships. Comparing and contrasting grace period provisions under the European Patent Convention, Japan's patent laws, and the U.S. America Invents Act, and illustrating how each set of laws impacts a theoretical partnership between an academic research institution and an early stage technology startup demonstrates how choices in grace period policies can support or hinder technology-transfer initiatives and create biases for and against small and large businesses. It also illustrates how liberal grace periods that can be used affirmatively are more supportive of patent law's disclosure function than restricted grace periods. Additionally, it discusses how discordant grace period provisions outside the United States mitigate the benefits of progressive grace period policy implemented under the America Invents Act (AIA).

The second part provides a general introduction to patent law, grace periods, and pre-filing disclosure policies implemented under the laws of the United States, Japan, and the European Patent Convention. The third part illustrates the impact that each system's laws are likely to have on a hypothetical partnership between an academic research institution and an early stage technology startup and the corresponding impact on patent law's disclosure function. The fourth part then proposes a unified set of grace period provisions and discusses the legal and political challenges facing grace period harmonization. Ultimately, this paper concludes that, due to the combination of increasing political pressure to promote technology transfer and the unilateral move by the United States to a first-inventor-to-file system with the passage of the America Invents Act, the conditions for implementing a harmonized, multinational grace period are more favorable now than at any time in recent history.

¹ See generally NAT'L CTR. FOR SCI. & ENG'G STATISTICS, NAT'L SCI. FOUND., SCIENCE AND ENGINEERING INDICATORS 2012 §§ 4-4 to -6 (2012) (summarizing national and international research and development trends and comparisons).

II. Grace Periods and Technology Transfer Generally

A patent is the result of a bargain—in return for disclosing an invention to the public so that others can learn from his innovation, the inventor is given a period of time during which he can exclude others from making, selling, importing, or otherwise using that invention.² For an invention to be worthy of a patent, it must meet certain requirements, including being new (meaning that the exact invention has not previously been disclosed to the public) and non-obvious (meaning that it is more than a trivial extension of what is already known).³ Novelty and obviousness are measured against “prior art,” which is essentially the body of knowledge available to the public as of the date the patent application is filed.⁴ Publications, public uses, product sales, presentations, and demonstrations can all be prior art.⁵ Thus, if an invention is within the prior art at the time of filing, or is nothing more than an obvious extension of what is known at that time, it is not patentable.

One issue that arises when considering patent policy is whether earlier disclosures that came from the inventor’s own work should be considered prior art against that inventor. The patent laws of various jurisdictions address this issue by including exceptions through which a given publication or public use can be excluded from the prior art with respect to a given patent application under certain circumstances.⁶ Such exceptions are often referred to as “grace periods.”⁷ The circumstances that fall within the grace periods enacted by different countries range from virtually no exceptions in Europe, to limited exceptions in Japan, to very broad and progressive grace periods in the United States.⁸

This continuum in policy decisions is partly due to the fact that grace periods can be controversial from a policy perspective.⁹ Proponents of progressive grace periods typically argue that allowing limited pre-filing disclosure by an inventor without loss of patent rights avoids draconian penalties

² *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 63–64 (1998); *see also* 35 U.S.C. § 271 (2006) (defining the scope of the patent monopoly).

³ 35 U.S.C. §§ 102–103 (2006 & Supp. 2011). The non-obviousness requirement is often referred to as the “inventive step” requirement outside the United States.

⁴ *Id.* § 102. Prior to the passage of the AIA, prior art could be measured from the date of invention as opposed to the application’s filing date. Robert A. Armitage, *Understanding the America Invents Act and Its Implications for Patenting*, 40 *AIPLA Q.J.* 1, 78 (2012). Now with the implementation of the AIA, the filing date is the critical date for determining the scope of the prior art, with only limited exceptions. *See infra* Part II.B.2.

⁵ *See* Armitage, *supra* note 4, at 53–55 (discussing the changes to the prior art standard under the AIA).

⁶ *See infra* Part II.B (discussing how pre-filing disclosures are addressed under the AIA, European Patent Convention, and Japan’s patent laws).

⁷ *Id.*

⁸ *Id.*

⁹ *See infra* Part IV.B (discussing past criticisms of grace-period provisions).

for honest mistakes.¹⁰ Opponents counter that grace periods contribute to legal uncertainty, promote sloppy practice, and can be abused to gain unwarranted patent term extensions.¹¹ In other words, grace periods are typically seen as a means to correct mistakes, and their critics focus on whether or not the benefit of allowing such corrections is worth the risk of potential abuse and the potential costs of allowing sloppy filing practices.

This paper views grace periods from a different perspective. Instead of viewing grace periods as merely a means to correct mistakes, it considers whether grace periods that can be used affirmatively, instead of simply to correct mistakes and misappropriations, will better serve patent law's disclosure function and be more supportive of technology-transfer partnerships.

Academic/commercial technology-transfer partnerships have become increasingly important over the last decade, both in the United States and abroad.¹² The Bayh-Dole Act in the United States¹³ is widely seen as a success in terms of promoting such partnerships by encouraging commercialization of innovations resulting from government support of basic research. The Bayh-Dole Act is expressly biased, however, in favor of small businesses.¹⁴ This is unsurprising given that U.S. economic policy generally promotes entrepreneurship as a driver of growth and job creation. Other countries, including Japan, England, Germany, Austria, Denmark, Norway, Portugal, Spain, and Finland have tried to replicate the success of the United States by implementing laws that mirror aspects of Bayh-Dole.¹⁵ The results have been mixed.¹⁶ In part this may be because of cultural issues and the fact that other aspects of each nation's laws are less optimized to meet the needs of smaller, early stage entities.¹⁷ As this paper illustrates, differences in patent law grace period provisions are one example.

¹⁰ See *infra* Part IV.A.2 (discussing the benefits of having few restrictions on grace-period provisions).

¹¹ See *infra* Part IV.B (discussing criticisms of grace-period provisions).

¹² See NAT'L CTR. FOR SCI. & ENG'G STATISTICS, *supra* note 1 (summarizing national and international research and development trends and comparisons); Thomas L. Bereuter & Peter Heimerl, *Lost in Translation: A European Perspective of Bayh-Dole*, 45 LES NOUVELLES 248, 251 (2010) (discussing challenges faced by European efforts to replicate U.S. success in academic/commercial partnering); Benton C. Martin, *The American Models of Technology Transfer: Contextualized Emulation by Developing Countries?*, 6 BUFF. INTELL. PROP. L.J. 104, 105 (2009) (discussing the challenges that developing countries face in implementing a system similar to the U.S. system); Michael S. Mireles, *Adoption of the Bayh-Dole Act in Developed Countries: Added Pressure for a Broad Research Exemption in the United States?*, 59 ME. L. REV. 259, 265-73 (2007) (discussing attempts by many countries to implement legislation similar to the Bayh-Dole act).

¹³ 35 U.S.C. §§ 200-212 (2006).

¹⁴ See *id.* § 200 ("It is the policy and objective of the Congress to use the patent system to promote the utilization of inventions arising from federally supported research or development; to encourage maximum participation of small business firms in federally supported research and development efforts.").

¹⁵ Mireles, *supra* note 12, at 265-75.

¹⁶ *Id.*

¹⁷ Compare, e.g., 35 U.S.C. § 200 (expressly favoring small businesses in the statutory language) with Sangyou gijyutsu youka hou [Industrial Technology Enhancement Act], Act No. 44 of 2000,

A. Conditions for Patentability and Their Interaction with Grace Periods

Before the tradeoffs inherent in affirmatively used grace periods are analyzed in detail, it is necessary to define the concept of a grace period and consider its function in the mechanics of patent law. There are four basic conditions that must be met before a patent will be granted, each of which is relevant to the issue of grace periods. First, the invention must be of the type that the law is willing to accept as patentable.¹⁸ Apparatuses, compounds, and processes are generally considered patentable subject matter, provided they are capable of commercial application.¹⁹ Laws of nature, abstract ideas, and natural materials are within the public domain and are not patentable, regardless of whether or not they were previously known and understood.²⁰ Hence, while Einstein could not have patented the formula $E=mc^2$, he may have been able to patent a nuclear reactor that operated based on that principle.

Second, the invention must be described in sufficient detail to show that the inventor actually possesses the invention and to enable others of ordinary skill in the art to practice the invention.²¹ This is the quid pro quo of the bargain—in return for adding to the body of public knowledge, the inventor is rewarded with a limited monopoly.²² From as far back as the time of Thomas Jefferson it has been understood that “[t]he patent monopoly was not designed to secure to the inventor his natural right in his discoveries” but was instead “an inducement, to bring forth new knowledge” that furthered human understanding.²³ This disclosure function encourages inventors to disclose their inventions publicly so others can learn from them, and the limited monopoly allows such disclosures to be made without fear that free-riders will unfairly take advantage of the inventor’s work.²⁴ From a policy perspective, the importance of this function cannot be overstated. As Jefferson pointed out, monopolies are an embarrassment to capitalist systems that can only be suffered under very limited circumstances.²⁵ Therefore, while an important secondary objective of the patent system is to promote economic growth by encouraging investment in research and development, the system’s primary goal is to promote disclosure of innovations in order to foster growth of the body of information available to society.

art. 19 (Japan) (implementing Japan’s provisions similar to the U.S. Bayh-Dole Act, but without expressing any preference based on the size of the commercial entity).

¹⁸ 35 U.S.C. § 101 (2006 & Supp. 2011) (addressing patentable subject matter in the United States).

¹⁹ *Id.*

²⁰ *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012).

²¹ 35 U.S.C. § 112 (2006 & Supp. 2011) (describing requirements for creating a patent).

²² *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1345 (Fed. Cir. 2010) (“Every patent must describe an invention. It is part of the quid pro quo of a patent; one describes an invention, and, if the law’s other requirements are met, one obtains a patent.”).

²³ *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) (discussing the overall policy justifications underlying the patent system).

²⁴ *Id.*

²⁵ *Id.*

The third requirement is that the invention must be novel, meaning that it has not previously been publicly disclosed.²⁶ The body of all public disclosures made prior to the filing of the patent application is referred to as the “prior art” and comprises publications, prior patent applications, public uses, and offers for sale.²⁷ If no example of the invention can be found in the prior art, it is novel.²⁸

This is consistent with the fourth requirement—that the invention be more than an obvious extension of the prior art.²⁹ Determining obviousness is often the most difficult and complex issue in a patentability evaluation.³⁰ At the same time, it is critical to the issue of patent quality. If an applicant can receive a patent on an invention that a person of ordinary skill could have created herself without undue experimentation, then that applicant would be granted the extraordinary benefit of a monopoly without having contributed meaningfully to the body of human knowledge. In other words, there would be a failure of consideration in the theoretical contract underlying the patent system.

The concept of a grace period impacts the novelty and obviousness requirements directly and the subject matter and disclosure requirements indirectly. A grace period is a period of time prior to the filing of a patent application during which certain public disclosures are removed from the prior art by operation of law.³¹ The public disclosures that are removed are generally those that were made by the inventor or that were derived from the inventor’s work.³² Thus, a grace period serves a fairness purpose by preventing an inventor’s own work from being used against him and by preventing situations in which an inventor’s work is disclosed by unscrupulous third parties before he files an application for a patent. By limiting the amount of time available to the inventor, the grace period does not overly alleviate the pressure to file a patent application quickly in order to preserve patent rights.³³ It merely adds a window of time in between the date of invention and the date of filing during which the inventor’s own disclosures will not prejudice his rights. As such, grace periods are most often incorporated in the novelty

²⁶ 35 U.S.C. § 102 (2006 & Supp. 2011); *see also* Armitage, *supra* note 4 (discussing the novelty standards under the AIA and the earlier Patent Act).

²⁷ 35 U.S.C. § 102.

²⁸ *Id.*

²⁹ *Id.* § 103; *see also* KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007) (discussing the obviousness standard and case law interpreting it).

³⁰ *See* KSR Int’l Co., 550 U.S. at 417–18 (discussing difficulties in the application of the obviousness standard).

³¹ *See* Joseph Straus, *Grace Period and the European and International Patent Law, Analysis of Key Legal and Socio-Economic Aspects*, 20 IIC STUD. IN INDUS. PROP. & COPYRIGHT L. 3, 15 (2001) (describing the grace period provisions in German law).

³² 35 U.S.C. § 102(b).

³³ *See id.* (limiting the exception to publications made up to one year prior to the effective filing date).

provisions of patent statutes that specify the deadlines for filing an application.³⁴ Such provisions can be referred to as early filing requirements.

The impact of grace periods on the novelty and obviousness requirements is readily apparent. By removing certain disclosures from the body of prior art, a grace period marginally improves the chances of an invention being found to be new and non-obvious. To ensure that quid pro quo is maintained, only a limited number of disclosures that meet well-defined conditions can be excluded, and only during a limited time period.

The impact of grace periods on the subject matter and disclosure requirements is more subtle. Given that ideas and laws of nature are not patentable subject matter, an inventor who conceives a new idea or discovers a new law of nature faces a quandary. If the inventor publishes the idea before it is reduced to a commercialized form, that publication becomes part of the prior art.³⁵ As a publication that does not describe the commercialized invention itself, it would not defeat the novelty of a later patent application claiming a commercial embodiment.³⁶ It could, however, render claims in that application obvious.³⁷ Such a publication could also benefit third parties and enable them to beat the inventor to the patent office with applications that claim other commercial embodiments. Accordingly, a wise inventor will withhold any such publication until it has been reduced to a commercialized form that can support a patent application. Of course, were ideas and laws of nature themselves patentable, this would not be a concern. But, given that they are not, the researcher who conceives an idea or divines a new law of nature is faced with a choice of either withholding that discovery until it has been commercialized or publishing it and accepting the risk that it could be used against her in a future patent application.³⁸ Grace periods help alleviate that risk by providing a window of time after a publication during which a commercial embodiment can be developed, tested, and refined without risk of losing patent rights.³⁹

B. Grace Periods in Europe, Japan, and the United States

To illustrate how grace periods operate in practice, three different approaches are considered: the early filing rules under the European Patent Convention (EPC), the similar provisions under Japan's patent statutes, and the approach under § 102 of the AIA. The European approach implements what is commonly referred to as an "absolute novelty" rule with virtually no

³⁴ See, e.g., *infra* Parts II.B.1 (discussing EPC provisions providing exceptions to early filing requirements), II.B.2 (discussing the U.S. grace-period provisions under the AIA), II.B.3 (discussing corresponding provisions under Japanese law).

³⁵ See *infra* Part II.B.

³⁶ See *infra* Part III.

³⁷ See *infra* Part III.

³⁸ See *infra* Part IV.C.

³⁹ See *infra* Part IV.C.

grace period protections.⁴⁰ Under this system, all public disclosure, including that from the inventor, is treated as prior art.⁴¹ The only exceptions are disclosures arising from wrongdoing at the expense of the applicant and disclosures at a very limited number of international exhibitions.⁴² Those exceptions only apply to disclosures occurring no more than six months prior to the filing of the European application.⁴³

The laws of Japan take a somewhat more permissive approach by expanding the number and types of commercial venues where the inventor can make pre-filing disclosures and allowing for public experimental uses prior to filing.⁴⁴ Japan still limits the exception to a six-month period and requires the inventor to claim the exception affirmatively at the time of filing.⁴⁵

The U.S. law takes the most permissive approach.⁴⁶ Disclosure derived from the inventor's own work is excepted, provided it did not occur more than one year prior to the filing date.⁴⁷ There are no restrictions on the forums in which such disclosures are made and no express requirement that the inventor affirmatively claim the protection.⁴⁸

The three systems thus present useful data points on a continuum of approaches from an almost zero tolerance European policy to a permissive U.S. system, with Japan's laws taking a middle ground.

1. Absolute Novelty and the EPO

Currently, the EPC has been adopted by all twenty-seven European Union member nations and several non-member nations in Europe, with the fourteenth edition of the EPC having gone into force in December 2007.⁴⁹ The EPC is published in French, German, and English, all of which are official languages of the Convention.⁵⁰

The EPC created a centralized European Patent Office (EPO) through which applicants can seek patent protection in one or more EPC signatory countries without having to file independent applications in each nation.⁵¹ Through the EPO examination process, an application can be submitted in

⁴⁰ See *infra* Part II.B.1.

⁴¹ See *infra* Part II.B.1.

⁴² See *infra* Part II.B.1.

⁴³ See *infra* Part II.B.1.

⁴⁴ See *infra* Part II.B.3.

⁴⁵ See *infra* Part II.B.3.

⁴⁶ See *infra* Part II.B.2.

⁴⁷ See *infra* Part II.B.2.

⁴⁸ See *infra* Part II.B.2.

⁴⁹ Convention on the Grant of European Patents (European Patent Convention), Oct. 5, 1973, 1065 U.N.T.S. 255, as amended by the Act Revising the European Patent Convention, Nov. 29, 2000, available at [http://documents.epo.org/projects/babylon/eponet.nsf/0/00E0CD7FD461COD5C1257C060050C376/\\$File/EPC_15th_edition_2013.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/00E0CD7FD461COD5C1257C060050C376/$File/EPC_15th_edition_2013.pdf).

⁵⁰ *Id.* art. 177. References to EPC provisions in this paper are to the official English version.

⁵¹ *Id.* arts. 1, 2, 4 & 6.

any of the three official languages and will be examined one time by a board of three examiners.⁵² If the examiners determine that the application meets the requirements for patentability, the application is subject to an opposition period during which third parties can raise challenges.⁵³ If no successful challenge is mounted, the applicant can then nationalize the application in any EPC signatory country by providing a translation in the country's native language and paying the appropriate fees.⁵⁴ The applicant can then seek to enforce its patent in the local courts of each country where it nationalized the application.⁵⁵ The result is an efficient and professionally-run system that avoids redundant examinations by patent offices in each country but still leads to enforceable rights in local courts.

The substantive law governing the examination of European patent applications is set forth in the rules implemented under the EPC and decisions issued by the Enlarged Boards of Appeal.⁵⁶ The EPC sets forth the conditions for novelty as follows:

- (1) An invention shall be considered to be new if it does not form part of the state of the art.
- (2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.
- (3) Additionally, the content of European patent applications as filed, the dates of filing of which are prior to the date referred to in paragraph 2 and which were published on or after that date, shall be considered as comprised in the state of the art.⁵⁷

The EPC thereby creates a framework in which an invention is compared to the "state of the art" to determine if it is worthy of a patent.⁵⁸ The state of the art is made up of all information that has been "made available to" the public prior to the filing date and all later-published but earlier-filed European patent applications.⁵⁹ There is no exception in this provision for

⁵² *Id.* arts. 14 & 18.

⁵³ *Id.* art. 99.

⁵⁴ *Id.* art. 3. This paper does not consider the impact of the proposed European unitary patent. See generally *Unitary Patent*, EUROPEAN PATENT OFFICE, <http://www.epo.org/law-practice/unitary/unitary-patent.html> (last updated Oct. 4, 2014).

⁵⁵ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 3.

⁵⁶ *Id.* art. 21. Ordinary appeals by applicants are addressed by a three-judge Board of Appeal. *Id.* Decisions of the Board of Appeal are binding only on the appellee and do not establish substantive law that binds Examiners or other Boards of Appeal in future cases. *Id.* In most matters, Enlarged Boards of Appeal are made up of five legally-qualified judges and two technically-qualified judges. *Id.* art. 23. Decisions issued by Enlarged Boards are binding on Examiners and ordinary Boards of Appeal in other cases. *Id.* Enlarged Boards of Appeal have only a very limited jurisdiction, being restricted to questions submitted by the European Commissioner of Patents or cases in which different Boards of Appeal have taken divergent legal positions. *Id.*

⁵⁷ *Id.* art. 54. Article 54 has additional sections addressing issues relating to patentability of pharmaceuticals and medical procedures, but those provisions do not directly impact early filing requirements. *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

the inventor's own disclosure, regardless of whether such disclosure was intentional, unintentional, or the result of a misappropriation.⁶⁰ Disclosure by the inventor is treated no differently than third party prior art, so long as it is made available to the public. For example, if an applicant market tested his invention to gauge commercial interest prior to filing a patent application, that application would not meet the novelty requirement as the market testing would have made the invention available to the public prior to the filing date. This is an absolute novelty requirement—any disclosure of the invention prior to filing an enabling application, regardless of the source of the disclosure, is likely to result in a loss of patent rights.

This rule is quite unforgiving. As summarized in *New Japan Chemical*, “[t]he case law accepts that information is ‘available to the public’ if only a single member of the public is in a position to gain access to it and understand it, and if there is no obligation to maintain secrecy.”⁶¹ In other words, even a disclosure to a single person prior to filing an application can make the invention available to the public, and therefore not novel.

However, applicants are not completely without options. When the applicant has secured an obligation of confidentiality from the other party prior to the disclosure, that disclosure will not have been “made available to the public.”⁶² Common sense dictates that such obligations should be in writing if possible, but obligations of confidentiality implied from the circumstances of the disclosure can also suffice.⁶³ Implied confidentiality situations are considered on a case-by-case basis without bright-line rules,⁶⁴ and the need to establish confidentiality rests with the applicant.⁶⁵ Thus, the question of whether or not a particular disclosure has been made available to the public

⁶⁰ *Id.*

⁶¹ *New Japan Chem. Co.*, Case No. T 1081/01, at 5–6 (Technical Bd. of Appeal, Eur. Patent Office Sept. 27, 2004).

⁶² *EPO Board of Appeal Case Law*, 2012 OJ EPO Special Edition at 29 (“If the person who was able to gain knowledge of the invention was under an obligation to maintain secrecy, the invention cannot be said to have been made available to the public, provided the person did not breach that obligation.”), available at http://archive.epo.org/epo/pubs/oj012/07_12/12_spe0.pdf.

⁶³ *See id.* (“A tacit obligation to maintain secrecy could be presumed, for instance, where business partners had a shared interest in confidentiality . . .”).

⁶⁴ *See Siemens Aktiengesellschaft v. Hitachi, Ltd.*, Case No. T 1512/06 (Technical Bd. of Appeal, Eur. Patent Office Sept. 25, 2008) (finding that a tacit obligation between business partners existed, but only up to the point where parts were shipped for serial production); *TauroPharm GmbH v. Ed Geistlich Söhne AG Für Chemische Industrie*, Case No. T 0945/09 (Technical Bd. of Appeal, Eur. Patent Office June 23, 2010) (finding that a patient had no obligation of confidentiality with respect to the use of particular substance as a “catheter lock” when doctors explained the procedure and the patient was sufficiently lucid to understand it).

⁶⁵ *See Procter & Gamble Co. v. Personal Products Co.*, Case T 1054/92 (Technical Bd. of Appeal, Eur. Patent Office June 20, 1996) (interlocutory decision) (finding that where approximately one hundred persons tested diapers containing an absorbent material, there was insufficient proof that the tests were confidential, particularly in light of the large number of tests and the fact that not all of the used diapers were returned to the applicant).

is often unclear until after a Board of Appeal considers the circumstances and the applicant provides evidence of the secrecy obligation.

The EPC includes two other protections as well, albeit very limited ones. Article 55 addresses what is referred to as “non-prejudicial disclosures” and provides:

(1) For the application of Article 54, a disclosure of the invention shall not be taken into consideration if it occurred no earlier than six months preceding the filing of the European patent application and if it was due to, or in consequence of: (a) an evident abuse in relation to the applicant or his legal predecessor, or (b) the fact that the applicant or his legal predecessor has displayed the invention at an official, or officially recognised, international exhibition falling within the terms of the Convention on international exhibitions signed at Paris on 22 November 1928 and last revised on 30 November 1972.

(2) In the case of paragraph 1(b), paragraph 1 shall apply only if the applicant states, when filing the European patent application, that the invention has been so displayed and files a supporting certificate within the time limit and under the conditions laid down in the Implementing Regulations.⁶⁶

Article 55 therefore provides two very limited exceptions to the absolute novelty requirement of Article 54.⁶⁷ The first applies where there is “evident abuse in relation to the applicant.”⁶⁸ Evident abuse occurs where clear and unquestionable evidence establishes that a recipient of information disclosed that information without authorization.⁶⁹ “[T]here [is] abuse not only when there was the intention to harm, but also when a third party [acts] in such a way as to risk causing harm to the inventor, or when this third party failed to honour the declaration of mutual trust linking him to the inventor.”⁷⁰

The second limited exception covers display of the invention at certain “official, or officially recognised,” exhibitions.⁷¹ There are very few of these exhibitions each year and the exception requires that a certificate supporting the applicant’s position that the exhibition was covered be filed within four months after the European application filing date.⁷²

It is important to note that in both cases, the exception only applies to disclosures made during a six-month window preceding the filing of the European application, not the priority document. Whereas Article 89 of the EPC provides that applicants can receive the benefit of their filing dates in

⁶⁶ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 55.

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ CASE LAW OF THE BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE 69 (Legal Research Serv. for the Bds. of Appeal ed., 6th ed. 2010).

⁷⁰ *Id.*

⁷¹ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 55.

⁷² Implementing Regulations to the Convention on the Grant of European Patents, r. 25, Dec. 7, 2006, as amended by decision of the Administrative Council of the European Patent Organisation, June 27, 2012.

other Paris Convention countries for novelty purposes, it does not provide that the priority date applies to Article 55.⁷³ In 2000, an Enlarged Board of Appeal was faced with a situation where an oral disclosure was made within six months of the priority date, but more than six months prior to the filing of the European application.⁷⁴ The applicant attempted to seek shelter under Article 55 by arguing that the disclosure was an abuse and had occurred within six months of the priority date.⁷⁵ The Board held that the priority date was irrelevant and Article 55 did not apply.⁷⁶ Reasoning that Article 89 does not list Article 55 as a provision under which the priority date is recognized, the Board held that the only relevant date for the Article 55 exceptions is the European application filing date.⁷⁷

As can be seen from the foregoing, the cutoff date for prior art is often critical. However, determining that cutoff date is not always easy. Under Article 87 of the EPC, a European application may claim a right of priority to an earlier filing.⁷⁸ This means that the state of the art is determined as of the date of the earlier filing as opposed to the date the European application is filed.⁷⁹ This allows an applicant to file in her home country initially and later file a related application in the EPO, presumably without fear that disclosures after the initial filing date but before the European filing date will be used against the applicant.

The difficulty with this rule in practice is that there is no requirement that the priority document be identical to the later-filed European application. What is required by Article 87 is that the priority document and the European application disclose “the same invention.”⁸⁰ If a priority document is later held not to fully and properly disclose the same invention, the claim of priority is ineffective. If that occurs, the state of the art is determined as of the filing of the later European application and not as of the filing date of the initial application.⁸¹ Not only does this enlarge the body of third-party prior art that can be used to defeat the novelty or inventive step requirement,

⁷³ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 89.

⁷⁴ Univ. Patents, Inc. v. SmithKline Beecham Biologicals SA, Case No. G 3/98, 2001 OJ EPO 62, 63 (Enlarged Bd. of Appeal July 12, 2000). The proceeding consolidated referred questions from two Technical Boards of Appeal. *Id.* at 62. In doing so, the Enlarged Board noted that national courts in Switzerland, the Netherlands, and Germany had reached contrary conclusions on the question of whether the six-month period referenced in Article 55 ended on the priority date or on the filing date of the European application. *Id.* at 64.

⁷⁵ *Id.* at 64.

⁷⁶ *Id.* at 71.

⁷⁷ *Id.*

⁷⁸ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 87.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *See, e.g.*, Case No. G 2/98, 2001 OJ EPO 413, 433 (Enlarged Bd. of Appeal May 31, 2001) (finding the same disclosure requirements apply to priority documents as apply to regular filings).

it also means that the earlier application itself becomes part of the state of the art to the extent it is made public.

What does the phrase “the same invention” signify in this context? In 2001, an Enlarged Board of Appeal held that “‘the same invention’, referred to in Article 87(1) EPC, means that priority of a previous application . . . is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole.”⁸² In other words, if the subsequent application adds refinements to the invention disclosed in the priority document, the priority document (i) may itself be part of the state of the art with respect to the European application if it is made public and (ii) may not shield the applicant from other disclosures he himself makes between the two filings. Therefore, to be effective, priority documents must meet all of the disclosure requirements under the EPC and must do so with respect to the entire invention claimed.

In sum, the EPO early disclosure rules do not provide for a grace period in any meaningful sense. All disclosures made available to the public prior to filing a fully enabling application are treated as prior art.⁸³ The only exceptions are disclosures made under confidentiality obligations, abusive disclosures, and displays at certain pre-defined international exhibitions within six months of the date the European application is filed.⁸⁴ Therefore, applicants interested in protection in Europe are well advised to avoid any disclosure of their invention prior to the date an application fully compliant with EPC rules is filed, either with the EPO or as a priority document.

2. *Permissive Grace Periods and the U.S. Approach*

The United States takes the opposite approach by providing a liberal, one-year grace period. In 2011 the United States passed the America Invents Act and in doing so implemented fundamental changes in U.S. patent laws.⁸⁵ The most notable change is a switch from a first-to-invent system to

⁸² *Id.* The concepts of “the application as a whole” and “common general knowledge” are of particular importance and provide some needed flexibility. As the priority document is considered “as a whole,” it is not necessary that the claims in the priority document be identical to the claims in the European application—it is only necessary that the application sufficiently disclose what is claimed in the European application. *See* *Esselte N.V. v. Bro. Kogyo Kabushiki Kaisha*, Case No. T 0515/00 (Technical Bd. of Appeal, Eur. Patent Office June 25, 2003) (noting that comparing the claims was not the correct approach). Additionally, where a feature claimed in the European application can be easily inferred by a skilled person using what he knows of the art from the priority document, it need not be expressly disclosed. *Id.*

⁸³ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 54.

⁸⁴ *Id.* art. 55.

⁸⁵ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

a first-inventor-to-file system.⁸⁶ Under the old first-to-invent system, there was no need for a grace period, *per se*. Publications, market testing, and offers of sale prior to filing a patent application were, if anything, evidence of the date of inventorship and could be used to pre-date a third party application with an earlier filing date.⁸⁷ But, there was an important exception.

The pre-AIA version of § 102(b) precluded patentability where “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, *more than one year prior to the date of the application* for patent in the United States.”⁸⁸ This created a twelve-month deadline for filing a patent application after a foreign patent application was filed, the invention was disclosed in a publication, or the invention was sold or used publicly.⁸⁹ As a practical matter, while an inventor’s own disclosure of his invention through a publication or a public use or offer of sale taking place more than a year prior to the filing date precluded patentability, publications, public uses, and sales occurring less than a year prior to the filing date did not.⁹⁰ Accordingly, while the pre-AIA law did not have a grace period *per se*, its reliance on invention date as opposed to filing date and the one-year deadline imposed by § 102(b) were often treated as a grace period by U.S. practitioners.

Of course § 102(b) was not effective outside the United States. Where a publication or U.S.-based public use or sale did not preclude issuance of a U.S. patent, provided the twelve-month window was respected, such disclosures could be treated as prior art outside the United States.⁹¹ As a result, U.S. practitioners commonly advised clients that filing an enabling patent application prior to any publication, public use, or offer of sale was critical if patent protection outside the United States was to be sought. In other words, the more limited rules outside the United States often prevented U.S. applicants from taking full advantage of the flexibility available under the U.S. system.

Under the AIA, § 102 has been rewritten as part of the move to a first-inventor-to-file system and now includes a true grace period.⁹² The new §

⁸⁶ Armitage, *supra* note 4; *see also* 35 U.S.C. § 102 (2006 & Supp. 2011) (defining novelty in terms of filing dates).

⁸⁷ *See generally* 35 U.S.C. § 135 (2006) (establishing a procedure for competing inventors to participate in an administrative proceeding called an interference to establish which party was the first inventor); U.S. PATENT & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 2300 (9th ed. 2014) (outlining the procedures utilized by the PTO when conducting interference proceedings).

⁸⁸ 35 U.S.C. § 102(b) (2006) (emphasis added).

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *See, e.g., supra* Part II.B.1 (discussing treatment of prior art under the EPC); *infra* Part II.B.3 (discussing treatment of prior art under Japanese law).

⁹² 35 U.S.C. § 102 (2006 & Supp. 2011).

102 is best understood by considering it in sections. Sections 102(a) and 102(b)(1) provide:

(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 under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

(b) Exceptions.—

(1) Disclosures made 1 year or less before the effective filing date of the claimed invention.—A disclosure made 1 year or less before the effective filing date of a claimed invention shall not be prior art to the claimed invention under subsection (a)(1) if—

(A) the disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(B) the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.⁹³

The new § 102 thus takes an approach similar to that of the EPC and compares the invention as claimed to the prior art, which is defined as that which was available to the public prior to the application's filing date and that which was disclosed in earlier-filed patent applications by others.⁹⁴ This is the essence of the move to a first-inventor-to-file system as it requires that where an invention is not known to the public, the first inventor to file a proper application will receive the patent, regardless of whether or not a later filer claims to have invented first.

Section 102(b)(1) then withdraws from the prior art disclosures that came from the inventor within twelve months of the filing date, thereby creating a true one-year grace period.⁹⁵ In doing so, the new provision considers both disclosures that arose from the inventor and those made after a disclosure by the inventor but before the inventor's filing date.⁹⁶ The identity of the discloser is irrelevant provided that the discloser "obtained the subject matter disclosed directly or indirectly from the inventor."⁹⁷ This provision thus protects the inventor from third parties who misappropriate information from the inventor and then make it public before the inventor makes it pub-

⁹³ *Id.*

⁹⁴ *Compare id.*, with Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 54 (each defining novelty in terms of the state of the art at time of filing).

⁹⁵ 35 U.S.C. § 102(b).

⁹⁶ *Id.*

⁹⁷ *Id.*

lic or files an application. While such a disclosure would be prior art as to applications filed by third parties, it is not treated as prior art for applications filed by the original source of the information.⁹⁸ This addresses one of the primary arguments in favor of grace periods—the need to protect the inventor against misappropriations. However, as there is no requirement that the disclosure be an abuse, the provision goes further and allows for affirmative use by also protecting the inventor from her own disclosures and disclosures by others who obtain the subject matter from the inventor lawfully.

Section 102(b)(1)(B) addresses the situation in which there has been a public disclosure derived from the work of the inventor, and a third party subsequently makes another disclosure of the same subject matter.⁹⁹ In those cases, the second disclosure is excluded from the prior art as if it were derived from the first disclosure, without the necessity of proving derivation.¹⁰⁰

Taking these provisions together, where there is a pre-filing disclosure, it will not matter if the disclosure is a third-party disclosure resulting from a misappropriation of the inventor's work, an accident on the part of the inventor, or an affirmative decision by the inventor to publish or market test the invention prior to filing, so long as (i) the disclosure comes directly or indirectly from the inventor, or (ii) the inventor or a third party who directly or indirectly obtained the information from the inventor makes an earlier public disclosure of the same subject matter.¹⁰¹

Similarly, § 102(b)(2) addresses prior-filed patent applications:

(2) Disclosures appearing in applications and patents.—A disclosure shall not be prior art to a claimed invention under subsection (a)(2) if—

(A) the subject matter disclosed was obtained directly or indirectly from the inventor or a joint inventor;

(B) the subject matter disclosed had, before such subject matter was effectively filed under subsection (a)(2), been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(C) the subject matter disclosed and the claimed invention, not later than the effective filing date of the claimed invention, were owned by the same person or subject to an obligation of assignment to the same person.¹⁰²

Under that section, disclosure appearing in a patent or published application shall not be prior art if it was “obtained directly or indirectly from the inventor or a joint inventor,” or the same subject matter had been publicly disclosed by the inventor or one who obtained the information from the inventor, and the disclosure occurred prior to the filing of the application in

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ 35 U.S.C. § 102(b).

¹⁰² *Id.*

question.¹⁰³ Here again, two situations are addressed: where the disclosure can be proved to be from the inventor, and where an earlier public disclosure of the same subject matter can be proved to have been made by the inventor or by one who “obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.”¹⁰⁴ The one-year grace period therefore applies both to public disclosures and to earlier patent filings by others.¹⁰⁵

Section 102(b)(2)(C) fills a final gap by preventing an applicant’s own prior applications made within the one-year window from being treated as prior art.¹⁰⁶ In this provision, all that is required is that the subject matter in the prior disclosure and the invention in the current application be owned by, or subject to an assignment to, the same person.¹⁰⁷ Thus, filings made by the inventor himself that are not the subject of a priority claim will still not be held against the inventor for one year.¹⁰⁸ The assignment language in this provision is particularly important as it promotes collaboration within companies. Different inventions conceived by different members of a research team within a company are not held against each other provided they are both owned by the same entity.

Section 102(c) takes a further pro-collaboration stance, providing:

(c) Common Ownership Under Joint Research Agreements.—Subject matter disclosed and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person in applying the provisions of subsection (b)(2)(C) if—

- (1) the subject matter disclosed was developed and the claimed invention was made by, or on behalf of, 1 or more parties to a joint research agreement that was in effect on or before the effective filing date of the claimed invention;
- (2) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and
- (3) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.¹⁰⁹

This provision carries forward the intentions of the 2004 CREATE Act by continuing to promote and protect agreements under which distinct parties desire to collaborate on a research agenda.¹¹⁰ In such situations, patent applications filed by one party to the agreement will not be used as prior art against applications filed by the other party, provided the invention arose

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ 35 U.S.C. § 102(b).

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* § 102(c).

¹¹⁰ Cooperative Research and Technology Enhancement (CREATE) Act of 2004 § 2, 35 U.S.C. § 103(c) (2006).

from their joint research activities and the names of the parties to the agreement are disclosed.¹¹¹

Viewed as a whole, it can be seen that the new § 102 is quite supportive of both collaboration and early disclosure of innovations. Where a disclosure is public and is the result of the inventor's work, the disclosure will not prejudice the inventor's patent rights.¹¹² Where the disclosure is in the form of an unpublished patent application, the disclosure will still not be used against the inventor provided the two applications are commonly owned or are owned by parties to a collaborative joint research agreement.¹¹³ Unfortunately, the disclosure-promoting benefits of the new provision are rendered moot in many instances by intolerance for any pre-filing disclosures in patent systems outside the United States.¹¹⁴

3. Japan's Moderate Approach

Japan's law takes a middle ground approach. Prior to the 2011 revision to the Japan Patent Act, which went into effect in April of 2012, Japan's law allowed more pre-filing disclosure than is permissible under the EPC but placed restrictions on the types of permissible disclosures and the venues at which they could be made.¹¹⁵ In the 2011 amendment, Japan amended the Act to eliminate many of those restrictions and thus moved closer to an open grace period, but it imposed more restrictions than are imposed by the United States under the AIA.¹¹⁶

The novelty requirement under Japan's patent law was unchanged by the amendment and is set forth in Article 29(1):

(1) An inventor of an invention that is industrially applicable may be entitled to obtain a patent for the said invention, except for the following:

(i) inventions that were publicly known in Japan or a foreign country, prior to the filing of the patent application;

(ii) inventions that were publicly worked in Japan or a foreign country, prior to the filing of the patent application; or

(iii) inventions that were described in a distributed publication, or inventions that were made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the patent application.¹¹⁷

As with the EPC, the line is drawn at the time of filing.¹¹⁸ Any invention publicly known, publicly worked, or described in a printed or online publi-

¹¹¹ 35 U.S.C. § 102(c).

¹¹² *Id.* § 102.

¹¹³ *Id.*

¹¹⁴ See *infra* Parts II.B.4, III (illustrating the ramifications of pre-filing disclosures on international filings).

¹¹⁵ Tokkyo hou [Patent Act], Act. No. 121 of 1959 (through amendments made by Act No. 109 of 2006) (Japan), translated at <http://www.cas.go.jp/jp/seisaku/hourei/data/PA.pdf>.

¹¹⁶ Tokkyo hou [Patent Act], Act. No. 121 of 1959 (through amendments made by Act No. 63 of 2011) (Japan), translated at http://www.wipo.int/wipolex/en/text.jsp?file_id=299486.

¹¹⁷ Patent Act (through amendments made by Act No. 109 of 2006), art. 29.

cation prior to the filing time can be used against the applicant.¹¹⁹ Article 29(2) contains Japan's obviousness or inventive step provision:

Where, prior to the filing of the patent application, a person ordinarily skilled in the art of the invention would have been able to easily make the invention based on an invention prescribed in any of the items of the preceding paragraph, a patent shall not be granted for such an invention notwithstanding the preceding paragraph.¹²⁰

The novelty and inventive step provisions work together in that the inventive step provision applies to inventions that are obvious in light of publications covered under the novelty provision.¹²¹ Therefore, if a publication is excluded under Article 29(1), it is unavailable for assertion against the applicant under Article 29(2).¹²²

The pre-2012 version of Article 30 provided a somewhat limited, but well thought out, set of exceptions designed to exclude certain disclosures occurring up to six months prior to the priority date from the prior art.¹²³ The exceptions covered testing as well as written and online publications by the inventor and immunized presentations by the inventor at certain academic conferences and exhibition at certain tradeshows.¹²⁴

The amended version of Article 30 retains the six-month timeframe but expands the applicability of the grace period by eliminating the defined list of exceptions in favor of a general exclusion.¹²⁵ Article 30(1) addresses disclosures made against the will of the person having the right to obtain a patent and excludes those disclosures from the prior art for the purposes of both novelty and inventive step.¹²⁶ The revised provision addresses persons "having the right to obtain a patent," which is the same language used in the prior version of Article 30.¹²⁷ Accordingly, if a patent application is filed within six months of the date on which a disclosure of the inventor's own work was made against the rights holder's will, that disclosure is inapplicable for novelty and inventive step purposes.

The amended version of Article 30(2) addresses intentional disclosures by the rights holder. The provision covers disclosures by "an act of the person having the right to obtain a patent" and again applies only to publica-

¹¹⁸ *Id.* Under Japanese law, the time of filing is determined on a minute-to-minute basis. Examination Standards Office, Admin. Affairs Div., Japan Patent Office, *Examination Guidelines for Patent and Utility Model in Japan*, JPO, pt. II, ch. 2, § 1.2.1 (last updated July 1, 2013), http://www.jpo.go.jp/cgi/linke.cgi?url=/tetuzuki_e/t_tokkyo_e/1312-002_e.htm.

¹¹⁹ Patent Act (through amendments made by Act No. 63 of 2011), art. 29.

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Id.*

¹²³ *See* Patent Act (through amendments made by Act No. 109 of 2006), art. 30 (addressing exceptions to lack of novelty of an invention).

¹²⁴ *Id.*

¹²⁵ Patent Act (through amendments made by Act No. 63 of 2011), art. 30.

¹²⁶ *Id.*

¹²⁷ *Compare* Patent Act (through amendments made by Act No. 63 of 2011), art. 30, *with* Patent Act (through amendments made by Act No. 109 of 2006), art. 30.

tions made within six months of the priority date.¹²⁸ The Japan Patent Office (JPO) interprets this provision to cover acts of “person(s) having the right to obtain a patent at the time of the act causing the publication of the invention.”¹²⁹ In other words, the exclusion applies if the rights holder consented to the publication at the time of disclosure. Later rights holders cannot seek shelter under Article 30(2).

The revised provision is consistent with judicial interpretations of the prior version of Article 30. With respect to printed publications, the Tokyo High Court construed the prior version of the statute to require (i) that the publication be intentional and (ii) that it be by the rights holder.¹³⁰

The revised version of Article 30(3) goes on to impose an affirmative duty on the applicant to claim the exception under Article 30(2) at the time of filing and to provide a certificate explaining the disclosure within thirty days thereafter.¹³¹ As each of the exceptions under Article 30(2) address things done intentionally by the rights holder, the rights holder would be aware of them and should have no difficulty disclosing them to the JPO.¹³² This is analogous to a U.S. applicant’s duty under Rule 56 to alert the Examiner to any prior public use or offer of sale that might be material to patentability.¹³³

However, the requirement to disclose does not apply to acts made against the will of the rights holder.¹³⁴ This is reasonable because while an applicant can reasonably be presumed to have knowledge of his own actions, there is no reason to presume he knows of acts done against his will. Given that such acts could involve publication due to espionage,¹³⁵ it is possible that the misappropriation might not be detected until the publication is cited by the Examiner.

Even so, the disclosure requirement places a not insignificant burden on the applicant. In reviewing the revised version of Article 30, the JPO noted that “there are many cases where the certificates by the applicant alone are

¹²⁸ Patent Act (through amendments made by Act No. 63 of 2011), art. 30.

¹²⁹ Japan Patent Office, *Operational Guidelines for Applicants to Seek the Application of Exceptions to Lack of Novelty of Invention, Corresponding to the Patent Act Article 30 Revised in 2011*, JPO, § 3.4 (Sept. 2011), http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/pdf/e_pae_paa30/e_tebiki.pdf.

¹³⁰ HIROYA KAWAGUCHI, *THE ESSENTIALS OF JAPANESE PATENT LAW: CASES AND PRACTICE* 29 (2006).

¹³¹ Patent Act (through amendments made by Act No. 63 of 2011), art. 30.

¹³² *Id.*

¹³³ 37 C.F.R. § 1.56 (2013) (“Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section.”).

¹³⁴ Japan Patent Office, *supra* note 129, § 6 (“Where the invention has been published against the right holder’s will, the applicant is eligible for the application of paragraph (1) if he/she files a patent application within six months from the date of publication of the invention (the applicant is neither required to submit a document stating to the effect that he/she is seeking the application of paragraph (1) nor a ‘Proving Document’”).

¹³⁵ *Id.*

found to have a certain probative value if the matters to be proved are stated in detail.”¹³⁶ The JPO concluded that, where the applicant describes the prior disclosure in detail, third parties will not be placed at a disadvantage even if additional supplementary documentation is not provided.¹³⁷ Thus, it is incumbent on the applicant to affirmatively notify the JPO that disclosures occurred and describe those disclosures specifically in order to seek shelter under the revised version of Article 30(2).¹³⁸ Such a requirement necessitates careful planning and record keeping on the part of the applicant. If the applicant is not advised of these requirements prior to the earliest disclosure, it could be burdensome to reconstruct the details when the application enters the JPO.

It is also notable that, unlike the EPC, the exceptions protecting an inventor from his own disclosure in Japan’s Patent Act apply to acts and publications occurring six months prior to the priority date.¹³⁹ The filing date of the Japanese application is only relevant with respect to a required statement explaining those disclosures.¹⁴⁰

The novelty and obviousness exceptions for disclosures arising from the inventor in Japan are thus substantially more liberal than those available under the EPC in that (i) they protect the inventor against both misappropriation (as is available under the EPC) and voluntary disclosures regardless of the medium (which are prior art under the EPC) and (ii) are retroactive to the priority date instead of covering just the six-month window prior to the JPO filing date.¹⁴¹ However, the exceptions are substantially more restrictive than the grace period available under the new U.S. AIA because the grace period must be affirmatively claimed, lasts for only six months as opposed to twelve, and requires detailed explanations by the applicant.¹⁴²

¹³⁶ *Id.* § 3.1.

¹³⁷ *Id.*

¹³⁸ *See id.* §§ 3.2–3.4.2 (describing the level of specificity required by the JPO to claim protection for intentional disclosures).

¹³⁹ *See, e.g., id.* § 5.3 (discussing the application of the revised version of Article 30 to international applications filed under the Patent Cooperation Treaty).

¹⁴⁰ *See* Tokkyo hou [Patent Act], Act. No. 121 of 1959 (through amendments made by Act No. 63 of 2011), art. 30(3) (Japan), *translated at* http://www.wipo.int/wipolex/en/text.jsp?file_id=299486 (requiring that an applicant submit a document stating that any disclosures of the invention are accepted under Article 30).

¹⁴¹ *See generally* Japan Patent Office, *supra* note 129, § 1 (“Exceptions to Lack of Novelty of Invention is stipulated in the Patent Act Article 30 which treat an invention as one that does not lack novelty due to a previous publication, if the invention has been published under specific conditions and a patent application has been filed within 6 months from the date of publication.”).

¹⁴² *Compare* Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.), *with* Patent Act (through amendments made by Act No. 63 of 2011), art. 30.

4. Related Doctrines and Exceptions

Before further analyzing and comparing grace period policies, it is useful to discuss two related concepts: experimental use and U.S. provisional patent applications.

a. Experimental Use

In the United States, experimental use is an equitable doctrine that addresses situations in which an invention requires public testing to determine its efficacy.¹⁴³ Prior to the passage of the AIA, experimental use was largely a question of whether or not a given public use would bar patentability under 35 U.S.C. § 102(b).¹⁴⁴ The Federal Circuit has explained that if a patent challenger provides evidence of a public use occurring more than one year before the filing date, the patentee may come forward with evidence showing that the use qualified as experimental.¹⁴⁵ The duration of the testing period—both as an absolute measure and as compared to typical testing of similar products—whether payment was received,¹⁴⁶ confidentiality agreements, the number of tests that were performed, and the identity of the person performing the tests are all relevant to whether or not the use was experimental.¹⁴⁷ Two additional factors can be especially important in the determination: (i) the extent to which the inventor exercised control over the testing and (ii) the extent to which records of the testing were kept.¹⁴⁸ The exception, or in this case the negation of the § 102(b) bar, could apply to uses by the inventor and uses by an agent of the inventor under a confidentiality agreement and can also apply to sales made for experimental purposes.¹⁴⁹

¹⁴³ See *City of Elizabeth v. Am. Nicholson Pavement Co.*, 97 U.S. 126, 137 (1877) (concluding that it “cannot be said with justice” that a patentee receives an unfair advantage “when the delay [in filing a patent application] is occasioned by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended”). The foregoing case involved an improved wooden pavement that the inventor tested on a roadway available to the public prior to patenting. *Id.* at 133. The question faced by the Court was whether the testing was a pre-filing public use that barred patentability. *Id.* Given the nature of the invention, that the purpose of the use was testing to determine durability in real world conditions, and the level of control exercised by the inventor over the test, the Court determined that the testing was distinguishable from the type of prior public use that would unfairly extend the patent monopoly. *Id.* at 136–37.

¹⁴⁴ See, e.g., *Lough v. Brunswick Corp.*, 86 F.3d 1113, 1120 (Fed. Cir. 1996) (considering whether testing of prototype seals for marine out-drive engines taking place more than one year prior to filing barred patentability and noting that “[w]hether an invention was in public use prior to the critical date within the meaning of § 102(b) is a question of law”).

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1381 (Fed. Cir. 2006) (listing indicia to be considered in evaluating experimental use).

¹⁴⁸ *Lough*, 86 F.3d at 1120 (“The last factor of control is critically important, because, if the inventor has no control over the alleged experiments, he is not experimenting. If he does not inquire about the testing or receive reports concerning the results, similarly, he is not experimenting.”).

¹⁴⁹ See *City of Elizabeth v. Am. Nicholson Pavement Co.*, 97 U.S. 126, 134 (1877) (addressing experimental use by the inventor and stating that “[t]he use of an invention by the inventor himself, or of any other person under his direction, by way of experiment . . . has never been regarded as” a public use); *EZ Dock, Inc. v. Schafer Sys., Inc.*, 276 F.3d 1347, 1352–53 (Fed. Cir. 2002) (finding

However, care must be taken because the experimental use exception can be unavailable if the experiment was not evaluating a claimed feature of the invention.¹⁵⁰

Thus, it can be argued that, to the extent a prior disclosure by an inventor falls within the definition of an experimental use, there is no need for a grace period. But, there are difficulties with this position. First, the inquiry into whether a use is experimental is highly fact-specific and is usually based on facts in the inventor's possession but not available to the public. Accordingly, the rule creates uncertainties both for inventors who wish to take advantage of the doctrine—because they may have difficulty determining how a particular action will ultimately be viewed by a court—and for the public, which has no way of knowing if a particular public use qualifies as experimental until suit is filed and discovery is taken.

The experimental use jurisprudence in the United States has not considered the new § 102 under the AIA, as that particular provision has only recently gone into effect. It is believed that Congress did not intend to unsettle long-held legal principles in passing the AIA.¹⁵¹ Accordingly, while the AIA does not expressly address the experimental use doctrine, it is likely that courts will continue to apply it in circumstances where there is a public use by the inventor or his agent. Notably, the inclusion of the grace period provisions in the new § 102 means that such inquiry will only apply in the limited circumstances where the public use or sale occurred more than a year prior to the application filing date.¹⁵² Whether or not the courts will continue to allow a patentee to assert experimental use to negate such earlier disclosures remains to be seen.

The experimental use exception in the United States is a creation of the courts and is not set forth in statutory language. Prior to the amendment to Article 30, Japan took a different approach and wrote experimental use into its statutes. The previous version of Article 30 stated:

In the case of an invention which has fallen under any of the items of Article 29(1) by reason of the fact that the person having the right to obtain a patent has conducted a test, . . . such invention shall be deemed not have fallen under any of the items of Article 29(1) for the purposes of Article 29(1) and (2) for the invention claimed in a patent application which has been filed by the said person within six months from the date on which the invention first fell under any of those items.¹⁵³

that the sale of a docking system was experimental and not commercial in nature and therefore did not invoke the § 102(b) bar.

¹⁵⁰ *EZ Dock, Inc.*, 276 F.3d at 1353 (supporting the proposition that experimental use is inapplicable where the testing does not involve a claimed feature of the invention).

¹⁵¹ See Armitage, *supra* note 4, at 45–46 (explaining that the legislative history of the AIA reflects that Congress intended to “leave as much settled law as possible untouched in the course of working the various reforms”).

¹⁵² 35 U.S.C. § 102(c) (2006 & Supp. 2011).

¹⁵³ Patent Act (through amendments made by Act No. 109 of 2006), art. 30.

As Article 29 addresses the novelty requirement, the old version of Article 30(1) excluded disclosure resulting from testing by the person having a right to obtain a patent from the prior art.¹⁵⁴ The six-month limitation still applied,¹⁵⁵ meaning that longer-term experimentation conducted outside the protection of a confidentiality obligation could be problematic.

The revised version of Article 30 eliminates the express statutory recognition of an experimental use exception.¹⁵⁶ Instead, experimental use would be presumably included in the exception for acts of the rights holder. Again, however, the six-month limitation restricts the exception to a relatively narrow window of time leading up to the priority date.¹⁵⁷

In contrast, the EPC does not recognize experimental use as an exception to public disclosure. Any use that makes the invention accessible to the public is prior art, unless it is an abuse or part of an authorized exhibition.¹⁵⁸ Thus, if an inventor desires to conduct experiments to test the efficacy or marketability of his invention, he must do so privately or under a confidentiality obligation or file an application prior to commencing the experiments.

The continuum thus presents itself again with the United States taking the most permissive position with respect to experimental use, the EPC taking the most restrictive, and Japan walking a middle ground.

b. Disclosure Requirements and U.S. Provisional Practice

In 1994 the United States enacted provisions allowing the filing of provisional patent applications in connection with its implementation of the Uruguay Round Agreements.¹⁵⁹ Provisional applications have fewer technical requirements than formal applications and are not examined.¹⁶⁰ As a result, provisional applications cannot by themselves result in a U.S. patent. However, they can serve as a priority document for a subsequent formal filing, provided that filing occurs within one year of the date of the provisional filing.¹⁶¹ In this way, provisional applications can be used as placeholders to preserve a priority date in the United States and abroad, without actually commencing the examination process.¹⁶²

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ Patent Act (through amendments made by Act No. 63 of 2011), art. 30.

¹⁵⁷ *Id.*

¹⁵⁸ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 55.

¹⁵⁹ *GATT Uruguay Round Patent Law Changes*, USPTO.GOV, <http://www.uspto.gov/web/offices/com/doc/uruguay/summary.html> (last modified Aug. 1, 2007); *see also* 35 U.S.C. § 111(b) (2006 & Supp. 2011) (defining provisional applications).

¹⁶⁰ *See* 35 U.S.C. § 111(b)(8) (excepting provisional applications from the formality requirements of § 115 and the examination requirements of § 131).

¹⁶¹ *Id.* § 119(e).

¹⁶² *Id.* § 111(b)(8).

To receive a filing date, a provisional application need only identify the inventors, provide a specification in compliance with 35 U.S.C. § 112, include drawings if needed to understand the invention, and identify itself as a provisional filing.¹⁶³ Notably, the provisional application does not require claims.¹⁶⁴ Filing costs are lower, formalities are fewer, and there is no requirement that the provisional application be identical to the formal application, or that it be drafted to meet the same technical standards.¹⁶⁵ There are jokes stating that a sketch on a cocktail napkin could be filed as a U.S. provisional application.¹⁶⁶

A U.S. formal application is permitted to claim priority to a provisional application.¹⁶⁷ Similarly, a provisional application can serve as a priority document for a foreign application and for international patent applications under the Patent Co-operation Treaty.¹⁶⁸ Provisional applications are thus seen as a low-cost alternative to filing a formal patent application that provides a twelve-month window of protection.¹⁶⁹ Therefore, if an applicant seeks protection in jurisdictions that are hostile to the U.S. grace period, she can file a provisional application prior to any public disclosure to preserve her rights. The applicant arguably can then engage in public market and product testing for a year before deciding to file a formal application. If the results of the testing are not promising, the applicant can simply allow the provisional application to go abandoned.¹⁷⁰ Given the lack of examination and the lower filing fees, this can be seen as a reasonable avenue for protecting rights in the absence of a multi-national grace period. Unfortunately, it is far less effective in practice and more often serves as a trap for the unwary than as an effective shield.

¹⁶³ 37 C.F.R. § 1.53(c) (2013).

¹⁶⁴ 35 U.S.C. § 111(b)(2).

¹⁶⁵ *See id.* § 111(b)(8) (excepting provisional applications from the formality and examination requirements).

¹⁶⁶ *See, e.g., Provisional Patent Applications: What's Not to Like? *Is a Provisional Patent Application Right for You? Part I*, IP FOR THE LITTLE GUY (Aug. 2, 2012), <http://ipforthelittleguy.wordpress.com/2012/08/02/provisional-patent-applications-whats-not-to-like-is-a-provisional-patent-application-right-for-you-part-i> (“Everyone loves those stories about the someone they know who detailed their invention on a paper napkin and then filed the napkin as a provisional patent application.”).

¹⁶⁷ 35 U.S.C. § 119(e).

¹⁶⁸ Paris Convention for the Protection of Industrial Property art. 4, Mar. 20, 1883, 25 Stat. 1372, T.S. No. 379 (discussing priority documents and the twelve-month requirement); Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 87 (discussing priority rights for European applications); Patent Co-operation Treaty art. 8, June 19, 1970, 28 U.S.T. 7645, 1160 U.N.T.S. 231 (discussing priority claims).

¹⁶⁹ *See* Office for Tech. Commercialization, *Provisional Patent Application*, U. OF MINN., http://www.research.umn.edu/techcomm/documents/Provisional_info.pdf (last visited Apr. 15, 2014) (“Provisional applications provide a ‘place holder’ to preserve patent rights if the invention will be publicly disclosed (i.e. in talks, posters, abstracts, or publications).”).

¹⁷⁰ 35 U.S.C. § 111(5).

The main issue involves the disclosure and enablement requirements. If a formal application claims priority to a provisional application, the provisional application must support the claims that issue from that formal application.¹⁷¹ Under U.S. law, this involves two primary requirements: (i) that the specification demonstrate that the inventor was in possession of the full invention at the time of the provisional filing and (ii) that the specification provide enough detail to enable one of ordinary skill in the art to practice the invention.¹⁷² Where “means plus” claiming style is used, the structures for performing the claimed function must also be disclosed in the provisional application.¹⁷³ If any requirement is not met, the provisional filing date is lost with respect to that claim, and the priority date will be the date on which the fully-compliant formal application was filed.¹⁷⁴

This requirement can be even more challenging for inventors seeking international protection because there are differences in the disclosure requirements in different jurisdictions.¹⁷⁵ To further complicate matters, the law in this area evolves periodically. In Japan, for example, the Intellectual Property High Court issued an en banc decision in 2005 interpreting the support requirements for patent applications differently than they were previously interpreted by the JPO and practitioners.¹⁷⁶ The High Court concluded that the description of the patent was sufficient if a person of ordinary skill in the art could use the invention by knowing the contents of the patent description—this means that information generally known to people with ordinary skill in the art does not need to be included in the patent description.¹⁷⁷ This is conceptually different from the U.S. standard, and

¹⁷¹ See *id.* § 111(b)(1) (requiring the specification of a provisional application to comply with the requirements of § 112).

¹⁷² *In re Barker*, 559 F.2d 588, 591 (C.C.P.A. 1977); *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1295 (Fed. Cir. 2002) (discussing the differences in the requirements).

¹⁷³ See *In re Donaldson Co., Inc.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) (discussing the interpretation of “means plus claims” during prosecution and litigation).

¹⁷⁴ See, e.g., *New Railhead Mfg., L.L.C.*, 298 F.3d at 1295 (finding that patentability was barred under § 102(b) based on a public use of the invention made more than twelve months before the formal application was filed but less than twelve months after a provisional application was filed because the provisional application did not fully meet the disclosure requirements of § 112).

¹⁷⁵ Compare U.S. PATENT & TRADEMARK OFFICE, *supra* note 87, §§ 2163–2164 (discussing guidelines for evaluating compliance with the written description and enablement requirements under U.S. law), with *Guidelines for Examination in the European Patent Office*, EUR. PAT. OFF., pt. F, ch. 3 (Sept. 2013), [http://documents.epo.org/projects/babylon/eponet.nsf/0/6c9c0ec38c2d48dfc1257a21004930f4/\\$FILE/guidelines_for_examination_2013_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/6c9c0ec38c2d48dfc1257a21004930f4/$FILE/guidelines_for_examination_2013_en.pdf) (discussing examination for “sufficiency of disclosure” in the EPO), and Examination Standards Office, *supra* note 118, at pt. 1, ch. 1, § 3 (providing guidelines for the Detailed Explanation of the Invention).

¹⁷⁶ Chiteki Zaisan Kōtō Saibansho [Intellectual Prop. High Ct.] Nov. 11, 2005, Hei 13 (gyō ke) no. 10042, SAIKŌ SAIBANSHO SAIBANREI JŌHŌ [SAIBANREI JŌHŌ] 1, http://www.ip.courts.go.jp/eng/hanrei/g_panel/pdf/g_panel/2005-10042.pdf (Japan) (commonly referred to as the Polarizing Film Case).

¹⁷⁷ *Id.*

commentators appear to disagree on how this ruling should be interpreted.¹⁷⁸ To further illustrate the issue, a trilateral study was performed in which the United States Patent and Trademark Office (USPTO), JPO, and EPO each answered questions relating to their interpretations of respective patentability requirements.¹⁷⁹ At least one commentator concluded that the study illustrates that the JPO takes the strictest view of the three with respect to the disclosure requirement.¹⁸⁰ It therefore seems possible that an inventor could unwittingly file a provisional application in the United States that meets the requirements of U.S. law as a priority document but fails to meet the disclosure requirements of the EPC or Japanese law.

As a result, relying on a hastily drafted provisional application, filed while the inventor is still refining the details of a commercial product and evaluating marketability of that product, is at best a risky proposition. Disclosures made between the filing of the provisional application and the filing of a later formal application could be treated as prior art if the provisional application is not sufficient under a given country's disclosure rules. Whereas that inventor can rely on the protection offered by the new grace period in § 102 in the United States, the more limited grace period in Japan and the lack of any meaningful grace period under the EPC mean that the inventor is well advised to forego reliance on any provisional filings unless those filings are drafted in a way that will meet all the formal requirements in each jurisdiction in which protection will be sought. This limitation dramatically undercuts the usefulness of both the U.S. provisional filing option and the U.S. grace period for any inventor that desires protection outside of the United States.

III. Grace Period Impacts on Academic/Commercial Partnerships and Disclosure

To illustrate the practical implications of policy choices made in each of the three systems, consider the following hypothetical scenario.

Event	Date

¹⁷⁸ Compare Yuriko Hamada, "Support Requirement" in Japan: A Private Practitioner's View, in PATENT PRACTICE IN JAPAN AND EUROPE: LIBER AMICORUM FOR GUNTRAM RAHN 95 (Bernd Hansen & Dirk Schüssler-Langeheine eds., 2011), with Toshiaki Imura, *Current State of Disclosure Requirements in Japan: A Judge's View*, in PATENT PRACTICE IN JAPAN AND EUROPE: LIBER AMICORUM FOR GUNTRAM RAHN, *supra*, at 107.

¹⁷⁹ *Report on Comparative Study Carried Out Under Trilateral Project 24.2*, JPO, https://www.jpo.go.jp/shiryou_e/toushin_e/kenkyukai_e/repo242.htm (last visited Apr. 15, 2014). While this report focuses on biotechnology, an area in which different jurisdictions have come to different conclusions on various aspects of patentability, the questions relating to interpretation of disclosure requirements illustrate some of the differences in how each office interprets their respective requirements.

¹⁸⁰ Hamada, *supra* note 178.

<p>1. Professor <i>A</i> at a U.S. research university publishes a paper in a scientific journal on a discovery (Initial Publication). The Initial Publication describes the structure and properties of a new semiconductor material and suggests that it may be useful in solar cells. The Initial Publication is important to Professor <i>A</i> both because he is seeking tenure and because he knows that others in the field are working in the same area and he wants to establish that he was the first one to discover this material. On the same day the Initial Publication comes out, the university's technology-transfer organization files a U.S. provisional patent application disclosing what has been published but no more (First Provisional).</p>	1/10
<p>2. The university's technology-transfer organization arranges a meeting between Professor <i>A</i> and Entrepreneur <i>E</i>, who is interested in commercializing new discoveries in green technologies. In answering Entrepreneur <i>E</i>'s questions about potential applications of his discovery, Professor <i>A</i> explains certain details regarding use of the semiconductor material in solar cells. The details were not disclosed in the Initial Publication. Entrepreneur <i>E</i> signs a confidentiality agreement at the meeting.</p>	1/15
<p>3. About one week after the meeting, Entrepreneur <i>E</i>'s startup entity enters into a license agreement with the university. The license agreement gives the startup entity the exclusive worldwide right to develop products incorporating inventions set forth in the First Provisional.</p>	1/23
<p>4. Over the next several weeks, Entrepreneur <i>E</i> works with some of his engineers and Professor <i>A</i>. Under the direction of Entrepreneur <i>E</i> and Professor <i>A</i>, the engineers develop a prototype commercial solar cell (First Prototype). Testing reveals that, while expensive to produce, the First Prototype appears to be at least 20% more efficient than competing cells. To make it work, the engineers create a sophisticated electronic controller that monitors and regulates the cell output.</p>	3/1
<p>5. Entrepreneur <i>E</i> shows the First Prototype to Customer <i>C</i>, a solar cell distributor that Entrepreneur <i>E</i> had dealings with in the past. Customer <i>C</i> is intrigued by the efficiency improvements but is concerned about the manufacturing cost. Customer <i>C</i> also suggests changes in the form factor that would make it easier to integrate the prototype with other products he sells. There is no formal confidentiality agreement with Customer <i>C</i>, but Entrepreneur <i>E</i> has worked with Customer <i>C</i> before and be-</p>	3/15

believes Customer <i>C</i> will be discreet.	
6. Entrepreneur <i>E</i> directs the engineers to make a new prototype (Second Prototype) that incorporates changes suggested by Customer <i>C</i> . Entrepreneur <i>E</i> shows the Second Prototype to Investor <i>I</i> . Investor <i>I</i> is interested but decides not to provide funding until she is comfortable that there will be sufficient product demand and a way is found to lower the manufacturing cost. As Investor <i>I</i> is active in the green-technology area, she sees many business plans and prototype products. She also sits on the boards of many startup companies that develop products in this area. She strongly prefers not to sign confidentiality agreements because she believes they are litigation traps, but she has a good reputation, and Entrepreneur <i>E</i> is confident that Investor <i>I</i> would not share details of the refined prototype with anyone else without his consent.	4/1
7. The engineers, working with Professor <i>A</i> and Entrepreneur <i>E</i> , further refine the prototype. The result is another prototype (Third Prototype) that is very similar in principle to the first two, but has a more marketable form factor and will be less costly to manufacture.	4/21
8. Entrepreneur <i>E</i> displays the Third Prototype at a small conference on green energy technologies and generates substantial interest. There are still concerns about the manufacturing cost, however. Investor <i>I</i> is impressed with the response and agrees to provide initial funding for the company to work with a manufacturing partner to determine if the product can be manufactured cost effectively. Another provisional application that describes the Third Prototype is filed the day the conference begins (Second Provisional).	5/1
9. Entrepreneur <i>E</i> , Professor <i>A</i> , and Manufacturing Partner <i>M</i> work together over the next two months to further refine the design and do a short manufacturing run. A formal confidentiality agreement is in place. They are confident that if it is manufactured in quantity, the refined design can be manufactured for only 10% more than the cost of current offerings. Testing of the initial units confirms that they perform at least 15% better than currently available cells.	9/1
10. Based on the test results and a business plan developed by Entrepreneur <i>E</i> , Investor <i>I</i> commits to fund the company. A public launch is planned for an international tradeshow in December. The day the tradeshow opens, the university files formal	12/15

<p>patent applications with the USPTO, the EPO, and the JPO. The applications fully describe the semiconductor material and the latest commercial embodiments of the solar cell. Claims are directed to the solar cell as a device and the semiconductor as a material. All three applications claim priority to both provisional applications. The company is convinced that competitors will quickly copy its product if it is not protected.</p>	
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A. Patentability in the United States

There is nothing in the above scenario that would likely preclude patentability of the claims in the formal application in the United States, particularly under the AIA—the filing of the formal U.S. application was made less than one year from the earliest disclosure.¹⁸¹ Because the first disclosure, and each subsequent disclosure, was derived from the work of the inventor, none would be considered prior art due to the U.S. grace period.¹⁸² Therefore, there is no need to rely on experimental use, abusive disclosure, or any other exception to remove those events from the prior art.

Nor is there any concern regarding the sufficiency of the First Provisional or Second Provisional under U.S. disclosure rules. Assume the worst-case scenario, in which both the First Provisional and Second Provisional are found lacking in terms of the requirements imposed by 35 U.S.C. § 112. In the United States, the priority date against which prior art is measured would then revert to the filing date of the formal application.¹⁸³ That change expands the prior art against which the claims are evaluated to include publications, uses, sales, and demonstrations occurring between the filing of the First Provisional and the filing of the formal application.¹⁸⁴ Those pieces of prior art fall into two categories: (i) those that were disclosed by the applicant (in particular, the Initial Publication, the disclosures to Customer *C*, Investor *I*, and Manufacturing Partner *M*, and the disclosures at the first conference and the International Trade Show) and (ii) those that were disclosed by third parties.

With respect to category (i) disclosures, each was disclosed “1 year or less before the effective filing date” and was “made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.”¹⁸⁵ Therefore, they are not

¹⁸¹ See 35 U.S.C. § 102 (2006 & Supp. 2011) (stating that if filing of a formal application is made less than one year from earliest disclosure, the disclosure is not considered prior art).

¹⁸² *Id.*

¹⁸³ See, e.g., *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1295 (Fed. Cir. 2002) (applying the date of the filing of the formal application as the correct priority date when the corresponding provisional application did not adequately support the claims in the issued patent).

¹⁸⁴ *Id.*

¹⁸⁵ 35 U.S.C. § 102(b)(1)(A).

prior art under the definition of § 102.¹⁸⁶ With respect to category (ii) disclosures, the analysis is more nuanced.

If the third-party prior art in question is a public disclosure, then to the extent the “subject matter disclosed” was publicly disclosed by Professor A or Entrepreneur E before the disclosure in question, it would be excluded from the prior art.¹⁸⁷ This creates a strong incentive for inventors to publicly disclose innovations early so that the disclosure can be used to pre-date later disclosures by third parties. This is consistent with the academic need for early publication. To the extent the subject matter of the third-party public disclosure was similar, but not identical, to the subject matter disclosed by the inventor, it could potentially be considered prior art under an obviousness analysis. This further strengthens the incentive to disclose as it encourages the inventor to make each public disclosure as full and complete as possible to maximize the chances that third-party disclosures will not include subject matter not previously disclosed by the inventor. To the extent a third party discloses genuinely new subject matter, it is justifiably prior art available for use against the applicant.

If the prior art in question is a patent application filed after the Initial Publication but before the filing of the formal application, the same result is obtained. If “the subject matter disclosed” in a patent application “was obtained directly or indirectly from the inventor or a joint inventor,” then the patent application would be excluded from the prior art.¹⁸⁸ If the patent application discloses subject matter “publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor” prior to the filing of the earlier application, the patent application would also be excluded from the prior art.¹⁸⁹ This protects the inventor from third parties who learn of the inventor’s work but beat the inventor in a race to the patent office. At the same time, it allows for third parties who add to the inventor’s work (i.e., disclose subject matter that is not disclosed by the inventor) to obtain patents on those extensions. That risk not only incentivizes the original inventor to make full and complete disclosure as early as possible, it also encourages prompt subsequent disclosure of improvements by the inventor and prompt patent filings by the inventor to cover those improvements.

B. Patentability in Japan

The situation is more precarious under Japanese law. The maximum grace period allowed in Japan is six months.¹⁹⁰ Momentarily putting aside the provisional filings, consider Events 1–8 (Initial Publication, meeting

¹⁸⁶ *Id.*

¹⁸⁷ *Id.* § 102(b)(1)(B).

¹⁸⁸ *Id.* § 102(b)(2)(A).

¹⁸⁹ *Id.* § 102(b)(2)(B).

¹⁹⁰ Tokkyo hou [Patent Act], Act. No. 121 of 1959 (through amendments made by Act No. 63 of 2011), art. 30 (Japan), *translated at* http://www.wipo.int/wipolex/en/text.jsp?file_id=299486.

with Entrepreneur *E*, meeting with Customer *C*, meeting with Investor *I*, and first conference). All were voluntary acts by the rights holder—all are ineligible for protection under the amended version of Article 30(2) because each occurred more than six months before filing.¹⁹¹

While the Initial Publication is eligible prior art as a publication, it did not describe the commercial embodiment of the solar cell. Therefore, as it should be possible to include elements in the claims directed to the solar cell that were not discussed in the Initial Publication, it is unlikely to defeat novelty in Japan to the extent that those elements are part of the invention.¹⁹² The Initial Publication did suggest the potential for using the newly discovered material in a solar cell, so there is a possibility that it renders broad claims to the solar cell obvious and may preclude patentability in Japan on that basis.¹⁹³ The answer to that question would focus on the refinements made by Entrepreneur *E*, Professor *A*, the engineers, and Manufacturing Partner *M* after the Initial Publication issued. While that does offer some hope for the applicant, it is important to note that the core innovation that led to the development of the technology was not those improvements; it was the material discovered by Professor *A*. To the extent the material itself was disclosed or rendered obvious by the Initial Publication, the claims to the material are likely to be rejected.¹⁹⁴ Therefore, even though patentability of a commercial embodiment of the solar cell that includes those improvements may be possible, such a patent would not reward the real innovation behind the discovery.

The remaining events that took place prior to the six-month window could also preclude patentability under Japanese law to the extent that they made the invention publicly known.¹⁹⁵ The confidentiality agreements with Entrepreneur *E* and Manufacturing Partner *M*, and the employee-like relationship of the engineers, would likely shield those particular disclosures.¹⁹⁶ The meetings with Customer *C* and Investor *I* are more problematic, and a fact-based inquiry would be needed to determine if the circumstances of those disclosures were sufficient to create an obligation of secrecy.¹⁹⁷ In the case of Investor *I*, as she is in the business of making investments in tech-

¹⁹¹ *Id.* This statement intentionally disregards the filing of the First Provisional and confidentiality obligations, both of which are addressed later.

¹⁹² *Id.* art. 29.

¹⁹³ *See id.* (“(2) Where, prior to the filing of the patent application, a person ordinarily skilled in the art of the invention would have been able to easily make the invention based on an invention prescribed in any of the items of the preceding paragraph, a patent shall not be granted for such an invention . . .”).

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *See* Patent Act (through amendments made by Act No. 63 of 2011), art. 29 (requiring in essence that the disclosure be one that makes the information available to the public).

¹⁹⁷ *See id.* (negating novelty only when the invention is known to the public); KAWAGUCHI, *supra* note 130, at 26 (“The concept of ‘public’ is interpreted to mean a state where the technical contents of the invention are known to a person without a secrecy obligation.”).

nology companies and such discussions are ordinarily considered confidential by both parties, the chances are good that an implied confidential relationship will be found. In the case of Customer C, the situation may be more difficult, as it is less common for communications with potential customers to be treated as confidential and it may be impossible to demonstrate that sufficient obligations of secrecy were in place at the time of the disclosure. Under Japanese law, disclosure to a single individual can constitute making the invention publicly known, so the first prototype itself is likely to be prior art for both novelty purposes and obviousness purposes.¹⁹⁸

The first conference is more problematic still. Here there is no obligation of confidentiality with respect to the attendees and, since the conference occurred more than six months prior to the formal filing, there is no opportunity to argue that one of the exceptions in Article 30 should apply.¹⁹⁹ Therefore, the Second Prototype would also likely be considered prior art under Article 29(1).²⁰⁰ Had that conference taken place one month later, it would be eligible for the exception as a voluntary act of the rights holder.²⁰¹

The international tradeshow would more likely fit within the exception. Here, however, timing becomes an issue. If the tradeshow opened even one minute before the application was filed, it would be necessary to claim an exception when entering examination before the JPO.²⁰² If the JPO application was filed before the tradeshow opened, the show would be irrelevant.²⁰³ If it opened before the filing was completed, a claim of entitlement to protection under Article 30(2) and a subsequent proving document would be required.²⁰⁴ Again, without experienced counsel analyzing the circumstances of each disclosure in detail prophylactically, it is unlikely this issue will be considered prior to the disclosure itself, so the opportunity to claim the exception could be lost.

The foregoing analysis intentionally disregards the First Provisional and Second Provisional. As has been noted, if a priority document does not adequately support the claims under the relevant law, it is disregarded. Under Japanese law, adequate support requires at least that the disclosure is such that a person of ordinary skill in the art could use the invention by knowing the contents of the patent description along with any generally held

¹⁹⁸ Patent Act (through amendments made by Act No. 63 of 2011), art. 29.

¹⁹⁹ See *id.* art. 30(1)–(2) (addressing exceptions to lack of novelty of inventions).

²⁰⁰ *Id.* See also KAWAGUCHI, *supra* note 130, at 27 (noting that, in terms of publications, prior art is considered to be distributed when “the public may have access to [it]”).

²⁰¹ See Patent Act (through amendments made by Act No. 63 of 2011), art. 30(2) (discussing voluntary disclosures up to six months prior to filing).

²⁰² Examination Standards Office, *supra* note 118.

²⁰³ *Id.*

²⁰⁴ Patent Act (through amendments made by Act No. 63 of 2011), art. 30(2).

knowledge relating to the art.²⁰⁵ In this hypothetical, the Initial Publication would likely suffice with respect to the patent claims for the material itself. This could save the applicant. Problematically, it does not describe any of the later-developed commercial embodiments and only suggests the use of the material in a solar cell. Accordingly, it is unlikely to provide sufficient support for claims directed to the solar cell. For those claims, the First Provisional is unlikely to be adequate and the Initial Publication would be prior art as discussed above. But if the material itself is ultimately patented, there would be little negative impact on the applicant by losing coverage for devices that use that material.

The Second Provisional, which describes the second prototype in detail, is more likely to be sufficient for claims directed to the solar cells. This has a number of implications. For one, the first conference would be potential prior art to the extent that it opened before the Second Provisional was filed. If it was filed after the opening, it may be possible to claim protection under Article 30(2), provided the issue was noted in time to claim the exception.

The purpose of the foregoing discussion is to illustrate the complexity of the decisions and analyses required when notice conditions are placed on grace periods, as Japan has done, and how even slight variations in facts can lead to different results. As can be seen, under Japanese law, it is possible to make some pre-filing disclosure without forfeiting patent rights. But, that disclosure must be carefully planned so that it fits within the six-month window, and the exception must be timely claimed and specifically described.²⁰⁶ Care must also be taken that the applicable priority document meets the evolving Japanese disclosure requirements, which appear to be stricter than those of the United States. This implies that provisional applications are likely to provide a false sense of security unless they are drafted as complete patent applications that take into account the disclosure requirements of each target country. The cost and complexity of doing that seems to undercut the objective of provisional applications, which is to provide a quick, low-cost entry into the patenting process.²⁰⁷ The necessity of preparing such detailed applications is also likely to delay disclosure and force the applicant to file applications describing early prototypes as opposed to refined and tested commercial embodiments.

²⁰⁵ Chiteki Zaisan Kōtō Saibansho [Intellectual Prop. High Ct.] Nov. 11, 2005, Hei 13 (gyō ke) no. 10042, SAIKŌ SAIBANSHO SAIBANREI JŌHŌ [SAIBANREI JŌHŌ] 1, 12–13, http://www.ip.courts.go.jp/eng/hanrei/g_panel/pdf/g_panel/2005-10042.pdf (Japan).

²⁰⁶ See Patent Act (through amendments made by Act No. 63 of 2011), art. 30(4) (discussing the written claim requirement).

²⁰⁷ See *GATT Uruguay Round Patent Law Changes*, *supra* note 159 (“The provisional application provides a mechanism whereby applicants can quickly and inexpensively (\$150/\$75) establish an early effective filing date in a patent application which establishes a constructive reduction to practice for any invention described in the provisional application. The filing of a provisional application also provides up to twelve months to further develop the invention, determine marketability, acquire funding or capital, seek licensing or seek manufacturing.”).

C. Patentability under the EPC

Unsurprisingly, the situation under the EPC is the most restrictive. The disclosures to Entrepreneur *E* and Manufacturing Partner *M* were made under express confidentiality obligations, and the disclosures to the engineers and Investor *I* would likely be considered to have been made under at least implied obligations of confidentiality under EPC law. Therefore, none of those events made the invention available to the public and none should impact patentability. The disclosure to Customer *C* could be more problematic as it may or may not be seen as having been made under a condition of secrecy. If it is found not to be protected by a condition of secrecy, then that disclosure would make the first prototype prior art unless the First Provisional was deemed sufficient disclosure. Because the First Provisional did not disclose the structure of any solar cell, that result is unlikely.²⁰⁸ Therefore, with respect to claims directed to a solar cell as opposed to the semiconductor material, it is unlikely the First Provisional would be sufficient.²⁰⁹ As a result, the Initial Publication is arguably prior art with respect to those claims, and the second prototype may be prior art with respect to those claims to the extent Customer *C* did not have an obligation of secrecy.

Assuming such an obligation was present, the second prototype displayed at the first conference would arguably be protected by the Second Provisional, as the Second Provisional is said to have fully described the second prototype. However, because changes were made between the second prototype and the final commercial version described in the formal application filed with the EPO, the result would depend on whether or not the applicable claims met the “same invention” standard. If not, each would be prior art for inventive step and novelty purposes, as each was clearly available to the public. Regardless, because the Initial Publication did not address solar cells in detail, it would be available as prior art against those claims and may, conceivably, render them un-patentable based on the lack of an inventive step.²¹⁰

In sum, patentability in the EPO is suspect for all claims. If the First Provisional is sufficient to support claims to the semiconductor material, then the applicant may receive adequate protection for that but not for the solar cell claims. All hope rests on the adequacy of the First Provisional.

²⁰⁸ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 87 (requiring that the original application be “in respect of the same invention” described in the earlier application for a priority claim to be valid).

²⁰⁹ *Id.*

²¹⁰ *See id.* art. 52(1) (stating that “European patents shall be granted for any inventions, in all fields of technology, provided that they are new, [and] involve an inventive step”); *id.* art. 56 (“An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art.”).

D. Biases and Competing Pressures in Technology-Transfer Partnerships

The above scenario is not unrealistic. According to the Association of University Technology Managers, U.S. universities executed 4,899 license agreements, filed 19,905 U.S. patent applications, and earned \$2.5 billion in licensing income in 2011.²¹¹ The importance of academic-commercial partnerships was highlighted by the passage of the Bayh-Dole Act in December of 1980.²¹² One of the primary purposes of the legislation was to encourage academic institutions to work with commercial entities, especially small businesses, to commercialize inventions arising from federal funding.²¹³ The hypothetical is not only realistic, it is an example of a major force driving innovation and commercialization of new discoveries today.²¹⁴

The hypothetical also exhibits a U.S.-centric economic focus on entrepreneurship and small business, highlighting issues that can be more challenging for partnerships with small, early-stage companies than for partnerships with large, well-established commercial entities. Perhaps most importantly, the need for outside funding and the lack of established customer networks and product development procedures can force smaller organizations to disclose their work to third parties in order to obtain funding, receive market feedback, determine manufacturing costs, and validate their business plans. Such organizations can also be less experienced with intellectual property law nuances and unable or unwilling to engage experienced counsel at the early stages. As a result, such organizations are more likely to make potentially damaging disclosures than are more established companies. Such companies also have less access to experienced legal counsel and are likely to have less bargaining power when developing partnerships than large organizations.

Further issues arise from the fact that academic culture is different than corporate culture. Advancement in academia is largely driven by publications, thus creating a strong incentive for researchers to publish results as quickly as possible.²¹⁵ Conversely, corporate culture may prefer to delay widespread disclosure until product launch. The result is a unique combination of competing pressures and interests:

²¹¹ Ass'n of Univ. Tech. Managers, *AUTM U.S. Licensing Activity Survey Highlights*, AUTM, http://www.autm.net/AM/Template.cfm?Section=FY_2011_Licensing_Activity_Survey&Template=/CM/ContentDisplay.cfm&ContentID=8731 (last visited Apr. 15, 2014).

²¹² 35 U.S.C. §§ 200–212 (2006).

²¹³ *Id.* § 200; see also *Bayh-Dole Act*, AUTM, http://www.autm.net/Bayh_Dole_Act/11606.htm (last visited Apr. 15, 2014) (summarizing the history of the legislation and the major provisions of the statute).

²¹⁴ See generally Dov Greenbaum, *Academia to Industry Technology Transfer: An Alternative to the Bayh-Dole System for Both Developed and Developing Nations*, 19 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 311 (2009) (discussing university technology-transfer issues).

²¹⁵ *Id.*

Interest	Researcher	Corporate Partner	Venture Capitalist
Early disclosure	Pressure to publish early in widely distributed journals.	Potential for competition encourages delayed disclosure.	Fiduciary duties and wise investment practices require disclosure to validate business plans.
Patent protection	Research results are often unpatentable subject matter. Research often does not focus on commercialized embodiments.	Cost/benefit analysis is required for each patent filing. Patent applications may not be filed until after business plans are solidified. Access to sophisticated IP counsel may be limited for early-stage entities.	Patent applications are seen as potential security for investors.
Confidentiality agreements	Utility is limited to portions of research not published.	May be difficult to obtain as third parties can see such agreements as a source of liability. Can be especially difficult for early-stage entities without proven track records. Engaging counsel to draft and negotiate agreements can strain resources of early-stage entities.	Create liability issues on a number of fronts, especially where the investment strategy focuses on a particular industry or technology. Imbalance in negotiating power with companies seeking funding can make it impossible for such companies to obtain documents to evidence confidentiality obligations.
Market validation	Tend to leave to commercial partner.	Important for business planning and fund raising but can create disclosure risks.	Fiduciary duties and wise investment practices require at least anecdotal testing to determine market potential.

E. Conclusion

It can be argued that if the facts were changed slightly or interpreted differently, other outcomes could be achieved. Such arguments do not detract from the core argument that the liberal, unrestricted grace period implemented under the AIA encourages and protects early disclosures such as those described in the foregoing hypothetical, while the qualified grace period of Japan and the absolute novelty rule of the EPC both create substantial risks and ultimately discourage such disclosures. While careful planning in light of specific requirements of each jurisdiction's laws can sometimes allow these types of disclosures, such planning requires substantial knowledge of patent law details in each nation. Simple mistakes can result in a loss of patent rights.

Based on risks such as these, it is common for patent attorneys to advise applicants to withhold any public disclosure until formal applications can be drafted that cover commercial embodiments and comply with the laws of each jurisdiction in which protection is sought.²¹⁶ That approach is likely to impose significant disclosure delays and may well also delay the acquisition of venture funding as there will be fewer opportunities to market test and refine the invention. As a result, (i) large organizations with experienced patent counsel and sufficient resources to self-fund research and development have a meaningful advantage over smaller, less sophisticated organizations and organizations requiring outside funding to bring products to market, (ii) academic researchers who require the ability to publish research results as early as possible and the technology-transfer organizations that work with them to commercialize their discoveries are at a disadvantage due to the tension between the academic pressure to publish and the patent system's incentive to withhold publication until the detailed requirements of the patent laws in each applicable jurisdiction are satisfied, and (iii) the pro-small-business benefits of the disclosure policies implemented under U.S. law are undermined by the contrary provisions outside the United States whenever

²¹⁶ See, e.g., *Provisional Patent Applications: What's Not to Like? *Is a Provisional Patent Application Right for You? Part I*, supra note 166 (discussing the risks inherent when new matter is inserted into a formal application claiming priority to a provisional application); U.S. Patent & Trademark Office, *Provisional Application for Patent*, USPTO.GOV (Feb. 2011), http://www.uspto.gov/patents/resources/types/provisional_appRevised.pdf (recommending that the disclosure in a provisional application be as complete as possible and cautioning that the formal application must be fully supported by the provisional); Shelley M. Cobos, *The Risks of Provisional Patent Applications for Inventors and Startups*, L.A. LAW., Oct. 2009, at 9 (commenting on the U.S.-based risks of provisional filings); *Provisional Patent Applications*, ARNOLD, KNOBLOCH & SAUNDERS, L.L.P., http://usptclaw.com/child_2/provisional_patent_applications.htm (last visited Apr. 15, 2014) (commenting on the risks of provisional applications, particularly in Europe, and the challenges faced by early-stage companies with respect to such filings); Micah D. Stolowitz, *Patents: The Secret Is Out – Publication of Pending U.S. Patent Applications and Five Patent Pitfalls for the General Business Lawyer*, STOEL RIVES LLP, <http://www.stoel.com/files/stolowitz.pdf> (last visited Apr. 15, 2014) (discussing disclosure requirements and risks outside of the United States).

an innovator seeks protection abroad. Finally, while the foregoing risks may be understood by patent attorneys, that does not mean that they are well understood by the innovators themselves. As a result, they are likely to do more to create litigation and loss of rights by deserving inventors than to serve the patent system's goal of promoting disclosure in support of innovation.

IV. Analysis and Proposal

The analysis of the foregoing hypothetical suggests that implementation of a harmonized grace period would promote faster dissemination of information on new discoveries and help even the playing field for smaller entities and academic/commercial partnerships. At least three questions remain, however: (i) what exactly would such a grace period look like, (ii) what are the arguments against implementing a multinational grace period, and (iii) what political and other hurdles need to be overcome?

A. Proposed Grace Period Characteristics

To achieve the benefits of promoting earlier disclosure of innovation and leveling the playing field for smaller entities and academic/commercial collaborations, individual nations with strict novelty rules or restricted grace periods should instead implement open grace period provisions that can be used affirmatively. The affirmative use aspect is important. As opposed to grace periods designed merely to allow applicants to correct mistakes and avoid loss of rights due to abuses, the goal of an affirmatively used grace period is to encourage early disclosure of innovations and enable applicants to collaborate more freely for a reasonable period of time in order to refine and market test inventions prior to filing formal applications. More specifically, a grace period designed for affirmative use should (i) eliminate risks for inventors who make early disclosures of foundational information relating to their inventions, (ii) provide a sufficient opportunity to test and refine commercial embodiments prior to filing, and (iii) remove traps for those who require investors and feedback from customers in early stages of product development.

A grace period with the following characteristics should meet those objectives: a duration of twelve months, no restrictions on type of disclosure protected or formalities to claim protection, and reasonable protections against third-party applications and filings made between the applicant's initial public disclosure and his filing of a formal application.

1. Duration of Twelve Months

The U.S. grace period under the AIA applies for disclosures occurring up to twelve months before the priority date.²¹⁷ To the extent that the purpose of the grace period is to promote affirmative use by applicants, having

²¹⁷ 35 U.S.C. § 102(b) (2006 & Supp. 2011).

a full year is more desirable than a shorter time frame, such as a six-month window. Product refinement, prototype development, and market testing require time. Those activities are also often prerequisites to obtaining financing or determining if cost-effective manufacturing is feasible. Given the effort required, twelve months is not an unreasonable time period. Quantitative research is needed to confirm that twelve months truly is an appropriate timeframe. Studies to determine what percentage of technology-transfer startups are in a position to launch products within twelve months of their formation, or within twelve months of initial discussions relating to a new offering, would be instructive on this point, as would additional research on the time required to secure venture funding.

The six-month time period in Japan's revised grace period provisions,²¹⁸ the EPC abuse provision, and the very limited EPC exhibition provision²¹⁹ are likely to prove too short to be effective. While having a shorter time period may be effective for correcting ill-conceived and abusive disclosures, it is likely to be ineffective if the purpose of the grace period is to promote affirmative use and collaboration with less sophisticated early-stage organizations. Were the window limited to six months, the pressure to withhold disclosures for at least some period would remain for all but the most sophisticated and well-funded companies that already had the necessary funding, resources, and market expertise.

2. *No Formalities or Restrictions on the Type of Disclosure Protected*

Unless the purpose of the grace period is to promote and support certain venues or disclosure methods, there seems little reason to place restrictions on how or where disclosure is made.²²⁰ Given ongoing innovations in virtual meeting technologies and the delivery of online and mobile information, it also seems unlikely that all future information dissemination methods could be addressed preemptively. The lack of a strong policy reason to favor some venues and disclosure methods over others and the difficulty in accounting for new technological developments provides little justification to restrict

²¹⁸ Tokkyo hou [Patent Act], Act. No. 121 of 1959 (through amendments made by Act No. 63 of 2011), art. 30 (Japan), *translated at* http://www.wipo.int/wipolex/en/text.jsp?file_id=299486.

²¹⁹ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 55.

²²⁰ One counter-argument to this assertion is that certain disclosures that are provable (e.g. publications in journals or presentations at conferences that require submission of written articles) would be preferable as they would ameliorate some of the proof issues involved in proving derivation. However, any such restriction would eliminate disclosures in other forums, such as to prospective customers or investors and would thereby weaken the protection offered by the grace period. While it is true that such disclosures are less public than publications or large conferences, they are often critical in reducing a new discovery to a marketable product.

the types of communications that would be eligible for grace-period protection.²²¹

Additionally, there seems to be little justification for requiring affirmative claims of grace-period protection such as are necessary under Japanese law²²² and the EPC,²²³ particularly in jurisdictions where the examining authority does not impose a general disclosure obligation on the applicant. If such disclosures are not required for ordinary applications, the implication is that the examining authority does not rely on applicant disclosure statements in the examination process. As such, there is no cost saving achieved by requiring disclosure to the examination authority beforehand. There may be a benefit to requiring applicants to identify disclosure events that are not easily found by others, such as communications to small groups, but these disclosures are irrelevant to the extent that they occur during a protective grace-period window.

For jurisdictions such as the United States that do impose a disclosure obligation, disclosure of information regarding events occurring within a grace period would fit under the general disclosure obligation and should not be treated differently.²²⁴ In fact, the filer has an incentive to make such disclosures as they then become part of the prosecution record and are less likely to be problematic in later litigation.²²⁵

Accordingly, the benefits gained by requiring formalities such as affirmative claims of grace-period protection over and above pre-existing disclosure requirements—or by restricting the types of disclosures eligible for grace-period protections—would seem to be outweighed by the chilling effect such restrictions might have on other useful disclosures and the risk that inequitable penalties will be imposed for inadvertent mistakes.

²²¹ It is also likely that drawing a bright line requiring all communications to be protected would cut down on future litigation costs because there would be no need to prove facts relating to the nature of the communication during opposition or litigation proceedings. Disclosures occurring during the grace period would be irrelevant and those occurring prior to the window would all be prior art. Therefore, the need to prove the circumstances of particular disclosures would be greatly reduced.

²²² Patent Act (through amendments made by Act No. 63 of 2011), art. 30 (discussing the requirement under Japanese law that a claim to the grace period be submitted to the JPO and that it contain information about any disclosures made by the applicant).

²²³ Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 55(2) (requiring that any display of the invention at an approved exhibition be disclosed at the time of filing).

²²⁴ See 37 C.F.R. § 1.56 (2013) (imposing a generalized disclosure obligation).

²²⁵ See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 426 (2007) (noting in dicta that the rationale for presuming validity of a patent is diminished when a relevant reference was not considered during examination); *but see* *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2252 (2011) (concluding that failure to consider a reference during examination does not alter the presumption or the need for clear and convincing evidence to overcome it).

3. *Protections against Third-Party Disclosures and Filings*

Perhaps the most difficult characteristic of a grace period is determining exactly what impact a pre-filing disclosure will have when third parties also make public disclosures of similar information or file competing patent applications. When a third party makes a disclosure of similar subject matter during the grace period or files a competing patent application prior to the applicant's filing date, either (i) the disclosure or filing was derived in whole or in part from information provided by the later applicant, or (ii) the disclosure or filing was created independently. In the case of independently developed material, it would be inequitable to protect the later applicant against the earlier public disclosure, and any such disclosure would justifiably be prior art against the first filing.²²⁶ However, in the case of derived material, the first-filing applicant should not be rewarded for claiming credit for another's innovation. In such cases, the earlier discloser would need to prove derivation.²²⁷

A system that requires proof of derivation is likely to lead to difficult, fact-intensive inquiries. More importantly, it creates risk every time an applicant makes a pre-filing disclosure. The risk is that a third party will beat the applicant to the applicable patent office, and the applicant will be forced to prove both the content and date of his earlier disclosure as well as that the later disclosure or application was derived from it. To the extent that the purpose of the grace period is to create a reliable safe harbor exception that can be affirmatively used to promote early disclosures, creation of such risk is counterproductive. Therefore, a bright-line first-to-file or first-to-disclose rule is desirable in terms of limiting litigation costs, but it creates fairness concerns.

U.S. law under the AIA takes an extreme first-to-disclose position by effectively presuming derivation once public disclosure of the same subject matter has been made.²²⁸ This is not dissimilar to the approach taken in U.S. copyright law in which copying may be presumed if it is shown that an alleged infringer had access to a prior work and then created something substantially similar.²²⁹ The difficulty here is that it raises fairness concerns where a third party, unaware of the prior disclosure, separately invents and files a competing application. Perhaps more troubling is the fact that the presumption rule could apply in cases where disclosure is made to a small number of people to the same extent that it applies to wide-spread publica-

²²⁶ See *supra* Part II.B.2 (discussing the operation of the U.S. grace period under the AIA).

²²⁷ 35 U.S.C. § 102(b) (2006 & Supp. 2011).

²²⁸ See *id.* (excluding disclosures from prior art where the inventor, or one who has derived from the inventor, has previously disclosed the same "subject matter").

²²⁹ See *Baby Buddies, Inc. v. Toys R Us, Inc.*, 611 F.3d 1308, 1316 (11th Cir. 2010) (discussing the substantial-similarity standard in copyright law); *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984) (analogizing patent law to copyright law in the context of infringement litigation).

tions. The rationale for allowing a presumption of derivation is severely undercut to the extent it applies to disclosures that are not widely available.

The opposite alternative is to implement a strict first-to-file rule in which the later applicant loses patent rights when a third party beats him to the relevant patent office, regardless of the later applicant's prior public disclosures. In such a system, the first patent application would likely fail because the earlier disclosure would be prior art against it. Without the benefit of a derivation exception, the second application would also likely fail because the earlier filing would be prior art against it. As a result, nobody would receive patent protection, a harsh result that seems counterproductive to the patent system's goal of encouraging investment in research and development.

A further difficulty with such a rule is that it creates the same strong disincentive for early disclosures that is created by absolute novelty rules. Any pre-filing disclosure could result in a third party winning the race to the patent office and thereby divesting the true inventor of the right to obtain a patent. The presumption rule under the AIA is superior in this regard as it strongly promotes the earliest possible public disclosure by allowing the earlier discloser to use such disclosures to defeat later filers without risking a loss of rights.²³⁰ While this does raise a fairness issue in the case of a competing filer who did not derive his work from that of the first discloser, it seems a better compromise because the prior disclosure is prior art likely to negate or severely limit any patent protection that would result from the first application anyway.

In light of the fact that both bright-line rules raise meaningful fairness concerns, a middle ground approach may prove the best alternative. In such a system, derivation would be presumed where another party makes a pre-filing disclosure that is likely to reach a wide audience. Otherwise, derivation would have to be proven.²³¹ This option would appear to mitigate the fairness concern under the AIA system that arises when a limited-audience

²³⁰ See *supra* Part II.B.4.b (discussing the issue of how a priority document is treated when it is found not to be fully supporting of a later application). If the priority document is treated as having no effect, there is no advantage to the inventor in making a partial disclosure in an early filing. Under such a system, a presumed derivation rule seems the preferable alternative. If a partial disclosure in an early filing were not entirely discounted, but instead treated as prior art against a later application, then a strict first-to-file approach could be more palatable. In such a system, the earlier disclosure would provide a defense against third-party prior art and filings, but only to the extent of what it disclosed. If it disclosed enough to anticipate or render the third-party application or disclosure obvious, it removes the disclosure from the prior art with respect to the filer's later application. In other words, even if it does not fully support the ultimate patent claims, it can still remove a piece of prior art that it anticipates or renders obvious. Substantial further research would be needed before such a system could be seriously proposed.

²³¹ Note that this is different than limiting the types of disclosures that an applicant can make with impunity within the grace period. The distinction is that the applicant's disclosures, regardless of type, cannot be used against the applicant, but only certain of those disclosures may be used against a third party.

disclosure creates a presumptive effect without truly making the innovation publicly available. It would also further incentivize making disclosures in a way that is likely to reach more people. While an independent third-party inventor who did not disclose her innovation could be unfairly denied protection under such a rule, that inventor would still have an opportunity to prove derivation in fact. Even though this would create the prospect of expensive litigation, the costs would be borne by either the inventor who chose to withhold disclosure unwisely or by a misappropriator in the event that derivation is proven and cost shifting is available. Therefore, the allocation of risk does not seem unreasonable if the goal is to promote early dissemination of new discoveries.

Regardless of which approach is selected, some level of presumption appears to be desirable to avoid disincentivizing early disclosures. However, it does not have to be the broad presumption offered under the AIA.

B. Previous Criticism of Grace Periods

While the benefits of affirmatively used grace periods have not been widely considered, the concept of a harmonized international grace period is not a new proposal.²³² Germany, the United Kingdom, and other nations have had grace periods in the past.²³³ In fact, the idea of a harmonized grace period has been debated, particularly in Europe, for decades and has been proposed by American commentators as well.²³⁴ In 2001, the Max Planck Institute published a detailed review of the prior consideration of grace periods, particularly in Europe, written by Joseph Straus.²³⁵ In that work, he ultimately came down in favor of a unified grace period similar to the one

²³² Earlier proposals largely focused on shorter timeframes and did not discuss the derivation issue in detail. *See, e.g.*, Straus, *supra* note 31, at 51–54 (discussing examples of such proposals prior to 2000); Margo A. Bagley, *The Need for Speed (and Grace): Issues in a First-Inventor-To-File World*, 23 BERKELEY TECH. L.J. 1035, 1057–58 (2008) (advocating the United States putting pressure on other countries to adopt a grace period).

²³³ The German grace-period provision in the German Patent Act (revised in 1936) reads “any description or use within six months prior to the filing of the application shall not be taken into account if it is based upon the invention of the applicant or his predecessor in title.” Straus, *supra* note 31, at 15. The U.K. grace-period protections of the time were more detailed and covered various situations, including abusive disclosure (in which event the patent had to have been filed “as soon as reasonably practicable” after the inventor learned of the disclosure), anything done in consequence of a communication to the government, publications and disclosures occurring six months prior to filing, and testing occurring one year prior to filing. *Id.* at 17. Germany currently provides a grace period for industrial designs as well. Gesetz über den rechtlichen Schutz von Design [Law on the Legal Protection of Design], Mar. 12, 2004, BUNDESGESETZBLATT, TEIL I [BGBL. 1] at 390, § 6 (Ger.). As late as the early 1960s, grace periods were also available in Ireland and Italy. Straus, *supra* note 31, at 87.

²³⁴ *See generally* Straus, *supra* note 31, at 51–72 (discussing pre-2001 European consideration of grace periods); Bagley, *supra* note 232 (noting the benefits of grace periods for academic collaborations and smaller entities); Erin Shinneman, *Owning Global Knowledge: The Rise of Open Innovation and the Future of Patent Law*, 35 BROOK. J. INT’L L. 935 (2010) (noting the positive effect of grace periods on collaborative partnerships).

²³⁵ Straus, *supra* note 31.

proposed herein but did not address promoting its affirmative use to improve the patent system's disclosure function.²³⁶ In doing so, he cataloged the common criticisms of grace periods, which are summarized and answered in turn below.

1. Abuse of Deadlines, Sloppy Practice, and Risk to the Inventor

One set of objections center on the idea that grace periods erode the certainty provided by first-to-file systems by allowing inventors to extend patent monopolies by delaying filing deadlines or promoting sloppy practice by enabling inventors to make ill-considered disclosures instead of filing patent applications.²³⁷ A corollary to this criticism is a concern that such disclosures put the inventor at risk by increasing the chances that others will misappropriate the inventor's work after an early disclosure has been made.²³⁸

With respect to this criticism, it is significant to note that countries have had grace periods in the past and did not experience such abuses. Supporters of grace periods have commented that actual experience under the old German grace period did not result in this type of abuse, and that the seemingly complex three-tiered grace period previously available in the United Kingdom also appeared to work well and required little refinement from the courts.²³⁹ Nor has there been criticism that the pre-AIA U.S. system was subject to meaningful abuses in this regard. Given that there has been substantial multinational historical experience with grace periods and little documented abuse, this concern appears to be more academic than practical.

The more difficult concern is that such disclosures will act as a disservice to the inventor as they increase the risk that others will misappropriate the inventor's work.²⁴⁰ This argument has merit, particularly in light of surveys that have shown that many innovators believe secrecy and first-mover status are as or more important than patents to their ability to appropriate the benefits of their research and development investment.²⁴¹ However, the ar-

²³⁶ *Id.* at 109.

²³⁷ *See id.* at 87 (arguing that Articles 54 and 55 of the EPC arose primarily from the Strasborg Convention and that the primary reason grace periods were not adopted at that time was the concern that they would promote sloppy practices).

²³⁸ *Id.* at 62.

²³⁹ *Id.* at 18, 71.

²⁴⁰ *Id.* at 58; *see also supra* Part IV.A.3 (discussing treatment of prior disclosures, particularly by third parties, under the proposed system).

²⁴¹ *See* Wesley M. Cohen et al., *R&D Spillovers, Patents and the Incentives to Innovate in Japan and the United States*, 31 RES. POL'Y 1349, 1355 (2002) (concluding based on survey data that "secrecy is more central to the appropriability strategies of the US firms," while "patents appear to be more heavily featured in the appropriability strategies of Japanese firms"); James Bessen, *Patents and the Diffusion of Technical Information*, 86 ECON. LETTERS 121 (2005) (generally discussing companies' decision-making strategies for deciding between patents and trade secrets); Christian Helmers & Mark Rogers, *Does Patenting Help High-Tech Start-Ups?*, 40 RES. POL'Y 1016, 1018 (2011) (considering data relating to start-up companies in the U.K. and noting that the data suggests patents provide limited actual value in commercializing inventions but are generally desira-

gument disregards at least two important considerations. First, to the extent the patent system is intended to foster rapid dissemination of information on new developments, patent disclosures help achieve that goal, despite any negative impact on the inventors.²⁴² Second, it is the inventor who remains in control, even when grace periods are available. If an inventor has sufficient resources to develop an invention and prepare it for commercialization using just internal resources, the existence of a grace period does not inhibit his ability to do so. Instead, it opens the benefits of the patent system to those inventors who do not have such resources by making it easier and less risky for them to use early disclosures to help finalize their inventions and obtain needed financing.

Furthermore, this criticism appears to reflect a questionable assumption. At their core, absolute novelty systems used in first-to-file jurisdictions such as Europe appear to view invention as a discrete event that occurs privately and is identifiably complete at a moment in time.²⁴³ If this assumption is true, then the objection that grace periods promote sloppy practice would appear reasonable, as there would be no reason not to require immediate filing of patent applications once the inventive moment has been achieved. However, if commercialization of an invention requires refinement, collaboration, and validation with third parties who may not be willing to enter secrecy agreements, or takes place over a period of time during which publication of research must be withheld, then requiring immediate filing prior to any disclosure is out of step with the realities of how development occurs. While the former situation may be achievable by large and well-funded entities, the latter is more likely to be the case for smaller, early-stage companies, particularly when they attempt to partner with academic researchers.²⁴⁴ Therefore, this criticism results in part from a lack of understanding of

ble for reputational reasons); Ronald J. Mann & Thomas W. Sager, *Patents, Venture Capital, and Software Start-Ups*, 36 RES. POL'Y 193, 207 (2007) (noting that data suggests that the ability to use patents to appropriate value from innovation varies significantly among companies, even within a single industry); Wesley M. Cohen, Richard R. Nelson & John P. Walsh, *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (Or Not)* 14–24 (Nat'l Bureau of Econ. Research, Working Paper No. 7552, 2000) (discussing reasons for and against patenting based on survey data).

²⁴² See *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) (discussing the overall policy justifications underlying the patent system and noting that from as far back as the time of Thomas Jefferson it has been understood that “[t]he patent monopoly was not designed to secure to the inventor his natural right in his discoveries” but was instead “an inducement, to bring forth new knowledge” that furthered human understanding).

²⁴³ See, e.g., Convention on the Grant of European Patents (European Patent Convention), *supra* note 49, art. 54 (establishing that any disclosure occurring prior to filing is prior art). Note also that Europe, unlike the United States, has no “continuation-in-part” practice that allows inventors to incrementally expand the disclosure of patent applications after filing. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 87, § 201.08 (discussing continuation-in-part practice in the United States).

²⁴⁴ See Bagley, *supra* note 232, at 1047 (concluding that the U.S. grace-period provisions are more favorable to smaller companies and academic institutions than patenting rules implemented under the EPC).

small-business entrepreneurship and an undue focus on the abilities and resources of larger entities.

2. *Legal Uncertainty*

A further series of objections to grace periods is based on the idea that they foster legal uncertainty.²⁴⁵ The concern here is that a competitor will learn of an innovation through a public disclosure but will not know whether that innovation can be freely copied since there is no way of knowing if a patent application will be filed until well after the grace period expires. This argument does not hold up under closer scrutiny.

To begin with, the period of uncertainty foretold by this objection is already present in the system. Patent applications are generally maintained in secrecy until they are published eighteen months after the initial filing, thereby creating at least a year and a half of uncertainty in many situations.²⁴⁶ That uncertainty does not evaporate upon publication of a patent application. Given that examination periods for applications are typically several years—and continuation practice can last substantially longer—the issue date of a patent is typically long after the publication date.²⁴⁷ Considering that claims are commonly amended during prosecution and that the scope of protection granted depends on the claims that issue as opposed to the claims that publish, it is likely in the current system that prospective competitors will remain uncertain as to the scope of protection available for a given innovation for several years. Therefore, the idea that adoption of grace periods will substantially add to uncertainty seems somewhat overblown given how much uncertainty is already present in the system.

It must be conceded that inclusion of a grace period could extend the period of uncertainty to some extent where applicants intentionally delay filings until the end of the grace-period window. However, such uncertainty is mitigated by the pro-disclosure pressure created by derivation presumptions and is otherwise not necessarily detrimental to the goals of the patent system. Even though, as Thomas Jefferson pointed out, the primary goal of the

²⁴⁵ See Straus, *supra* note 31, at 58 (suggesting that people who are aware of a disclosure may assume the information is free for the taking).

²⁴⁶ See generally Tegernsee Experts Grp., *Study Mandated by the Tegernsee Heads: 18-Month Publication*, USPTO.GOV (Sept. 2012), http://www.uspto.gov/ip/global/18_months_publication.pdf (discussing the state of the eighteen-month publication rule in different countries).

²⁴⁷ In 2012, the average total pendency of applications at the USPTO was 32.4 months with 1,157,147 applications in prosecution. U.S. Patent & Trademark Office, U.S. Dep't of Commerce, *Performance and Accountability Report: Fiscal Year 2012*, USPTO.GOV, 17, 177 tbl.3, <http://www.uspto.gov/about/stratplan/ar/USPTOFY2012PAR.pdf> (last visited Apr. 15, 2014). In 2011, average pendency at the EPO and JPO was 40.5 and 34.0 months respectively. Eur. Patent Office, Japan Patent Office, Kor. Intellectual Prop. Office, State Intellectual Prop. Office of China & U.S. Patent & Trademark Office, *IP5 Statistics Report 2011 Edition*, FIVEIPOFFICES, 72 tbl.4 (Dec. 2012), <http://www.fiveipoffices.org/stats/statisticalreports/ip5-statistics-2011.pdf>. The total numbers of applications pending at the EPO and JPO in 2011 were 355,803 and 448,123 respectively. *Id.*

patent system is to increase the body of human knowledge, a secondary objective is to provide an incentive for research and development investment.²⁴⁸ Free riding occurs when one party reaps economic benefits by copying an innovation developed through the research and development investment of another.²⁴⁹ The concerns regarding legal certainty focus on legal certainty for potential free riders.²⁵⁰ Since assisting free riding is contrary to the patent system's goal of encouraging investment in research and development by ensuring investors will have an opportunity to reap the rewards of their investment,²⁵¹ the idea that grace periods should be avoided because they create uncertainty for free riders is not a compelling argument. On the contrary, to the extent that such uncertainty has any impact, it could easily encourage third parties to enter into license agreements with first movers instead of merely copying their innovations. If there is a possibility that patent protection will be granted, entering into a license arrangement is the only comparatively certain way of mitigating that risk.

Accordingly, the conclusions that uncertainty will be meaningfully increased by wider adoption of grace periods and will have a net negative impact on the objectives of the patent system are questionable at best.

3. *The Paris Problem*

In *University Patents*, the Enlarged Board of Appeal referred to another objection relating to the adoption of a grace period under the EPC.²⁵² Citing notes from the 1962 proceedings of the fifth meeting of the Patents Working Party held in Brussels, the Board pointed out that the committee had considered the adoption of a broader grace-period provision under the EPC but rejected the idea citing the Paris Convention.²⁵³ In the minds of the committee members, the only proper way to implement a multinational grace period would be to amend the Paris Convention to require its signatory countries to implement the grace periods.²⁵⁴ Absent such a requirement, the committee felt that unilateral adoption of a grace period in the EPC would lead to a false sense of security among filers.²⁵⁵ The fear was that filers would become comfortable with the idea of a grace period in Europe and assume that it applied to all of their filings, not just those in the EPO.²⁵⁶ Therefore, the

²⁴⁸ See *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) (discussing the primary objective of disclosure).

²⁴⁹ See Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1032 (2005) (discussing free riding in detail and concluding that the goal of eliminating free riding is not compatible with intellectual property rights).

²⁵⁰ See, e.g., Straus, *supra* note 31, at 58 (characterizing the issue in terms of "uncertainty for others").

²⁵¹ See *Graham*, 383 U.S. at 9 (discussing the objectives of the patent system).

²⁵² *Univ. Patents, Inc. v. SmithKline Beecham Biologicals SA*, Case No. G 3/98, 2001 OJ EPO 62, 75 (Enlarged Bd. of Appeal July 12, 2000).

²⁵³ *Id.*

²⁵⁴ *Id.*

²⁵⁵ *Id.*

²⁵⁶ *Id.*

committee concluded that the Paris Convention would need to be amended to provide a grace period in all signatory countries before the EPC should adopt such a provision.²⁵⁷

It is reasonable to assume that different jurisdictions having different grace-period provisions could lead to mistakes and uncertainty. That is precisely the case today, in fact. Filers are faced with very liberal grace-period provisions in the United States, limited grace-period provisions in Japan, and virtually no protection for pre-filing disclosures in Europe.²⁵⁸ As has been pointed out, this dramatically undermines the benefits of the U.S. grace period and the number of cautionary articles citing this risk, particularly in connection with U.S. provisional practice, bolsters the concerns raised by the committee.²⁵⁹

That said, given the recent amendment to U.S. law and the amount of effort required to make it happen, it is extraordinarily unlikely that the United States will reverse its position on grace periods. Therefore, the cited risk will remain for all U.S. filers, and it is unlikely that other nations adopting grace periods would add meaningfully to the problem. On the contrary, given that the United States, Japan, and the EPO account for approximately half of the world's patent filings, having similar grace periods in at least these three jurisdictions would be a substantial step toward alleviating the committee's concerns by creating a greater degree of uniformity in three of the most important economic regions.²⁶⁰

Additionally, as is evidenced by the different positions taken in these jurisdictions, the Paris Convention does not create a legal impediment to an incremental adoption of grace-period provisions. Accordingly, the objection that it must be amended prior to individual Paris Convention signatory countries considering grace periods does not withstand close consideration.

4. *First-to-Invent*

One of the early objections raised in opposition to grace periods, particularly in Europe, was that such a change should only be considered in connection with a move by the United States to a first-to-file system.²⁶¹ Straus

²⁵⁷ *Id.*

²⁵⁸ See *supra* Part II.B (discussing each jurisdiction's pre-filing disclosure provisions).

²⁵⁹ See sources cited *supra* note 216 (listing sources of warnings of similar concerns raised in connection with U.S. provisional practice).

²⁶⁰ See World Intellectual Prop. Org., *2012 WIPO IP Facts and Figures*, WIPO, at 17, http://www.wipo.int/export/sites/www/freepublications/en/statistics/943/wipo_pub_943_2012.pdf (last visited Apr. 15, 2014) (reporting that in 2010, the United States led the world in patent filings with 24.8% of the filings, Japan was third with 17.4% of the total, and the EPO was fifth with 7.6%). The report further notes that the top three countries, the United States, China, and Japan, accounted for about 62% of filings, meaning that a unified grace period across just the United States, China, Japan, and the EPO would create harmonization impacting nearly 70% of all filers.

²⁶¹ *Id.*
Straus, *supra* note 31, at 55.

goes so far as to argue that the first major period of European commentary on grace periods “became nearly entirely controlled by a ‘package deal’ ideology, namely to accept the grace period in exchange of [sic] the introduction of the first-to-file system in the United States of America.”²⁶² When that effort failed, the dispute between supporters and detractors of grace periods “became even more emotional and controlled by dogmatic thinking.”²⁶³

As previously discussed, the adoption of the AIA signaled a monumental change to U.S. patent law, moving the United States from a first-to-invent system to a first-inventor-to-file system.²⁶⁴ This change was made unilaterally and not as part of any package deal. As such, this objection to grace periods is no longer applicable. More to the point, the adoption of the AIA by the United States could now serve as the impetus for revitalizing the discussion of grace periods because the United States has now removed what was seen by many as the crucial roadblock to adoption of grace periods internationally.²⁶⁵

C. The Disclosure Function

This paper argues that adoption of grace periods that can be affirmatively used supports the patent system’s disclosure function by encouraging earlier dissemination of information about new discoveries. This raises the issue of how well the patent system currently supports the disclosure function and whether adoption of a multinational grace period will help or harm the present situation.

A number of commentators have recently questioned whether or not patents provide useful information.²⁶⁶ Such commentators rely on surveys in which participants are asked where they receive information on new innovations and what role those sources play in their investment-backed decisions.²⁶⁷ One thing the underlying studies have in common is that researchers report that journals, conferences, and reverse engineering are as important or more important sources of information than patents.²⁶⁸

²⁶² *Id.*

²⁶³ *Id.*

²⁶⁴ See Armitage, *supra* note 4, at 4 (“In a nutshell, the AIA completes a 30-year journey to remake, in their entirety, each of the foundational assumptions underlying the operation of the U.S. patent system.”).

²⁶⁵ This point has also been made by a federal circuit judge. Randall Rader, Chief Judge, U.S. Court of Appeals for the Fed. Circuit, The Growing Imperative to Internationalise the Law at the IBIL 4th Annual Sir Hugh Laddie Lecture (June 27, 2012), available at http://www.ucl.ac.uk/laws/ibil/index.shtml?events_past.

²⁶⁶ See Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 601 (2012) (summarizing the literature criticizing the usefulness of patent disclosures and concluding that (i) the criticism of the usefulness of such disclosures is likely overstated, (ii) the literature suggests that many patents fail to meet existing disclosure rules, and (iii) the switch to a first-to-file system will result in races to file that will further exacerbate the existing problems with the quality of patent disclosures).

²⁶⁷ See *id.* at 562 (discussing surveys on the use of patents as a source of information).

²⁶⁸ *Id.* at 562–63.

To the extent that conferences, journals, and reverse engineering are more important sources of information for researchers, the patent system should promote such disclosures instead of inhibiting them. Whereas a strict novelty approach discourages such disclosures and restricted grace periods constrain them, open grace periods encourage exactly the types of disclosures thought to be the most useful. Therefore, implementation of grace periods that are affirmatively used to allow for and encourage early dissemination of information through journals, conferences, and product demonstrations are likely to be more supportive of the disclosure function than the current system.

V. Conclusion

This paper compares three very different approaches to grace periods and illustrates their application through a hypothetical example of an academic/commercial partnership involving a small business. Based on that analysis, it concludes that the current availability of open grace periods in the United States, but not outside the United States, has several drawbacks including (i) forcing applicants to forego the potential advantages of affirmative disclosure provided under the U.S. system, (ii) providing an unfair advantage to large self-funded research and development organizations that can bring innovations to commercial fruition without the need to seek third-party assistance or open market testing, and (iii) posing challenges to partnerships between academic researchers, who are under strong pressure to publish early, and commercial partners, who are incentivized to withhold such disclosures until just prior to commercialization in order to maximize potential patent rights. An open multinational grace period could address those deficiencies. The proposed grace period largely follows the model set forth in the recently enacted AIA but notes potential alternatives relating to the treatment of third-party disclosures made during the grace-period window. Several classic objections to grace periods were then discussed. Each objection was found wanting in light of the conclusion that affirmatively used grace periods are more supportive of the disclosure function of the patent system, particularly in light of evidence that many researchers find journals, conferences, and competitive product analysis to be important information sources in addition to patent publications.

Ultimately, the premise of this paper, that a multinational grace period based on the U.S. model would strengthen the patent system overall, appears to be borne out. However, grace periods remain controversial. The primary opposition still appears to come from Europe and to the extent that a grace period is adopted under the EPC, it is likely to be more restrictive than the model proposed herein. As noted in the above analysis, a more restrictive grace period is unlikely to achieve the disclosure benefits because it will be riskier to use affirmatively. Commentators in Europe remain sharply divided on the issue and at least one court has concluded that it is infeasible for

the EPC to incorporate such a change without a substantive amendment to the Paris convention.

Despite the evident political challenge, there is hope since the United States has made a monumental step toward patent law harmonization with the adoption of a first-inventor-to-file system. Given that unilateral move toward harmonization, it seems appropriate to challenge European policy makers and those influenced by them to consider the question of grace periods anew and reengage in the debate about whether multinational adoption of open grace periods would help or hurt the global patent system's goal of encouraging innovation by supporting investment in research and development and encouraging rapid dissemination of information on new innovations. In fact, the unilateral move by the United States may signal that the chances of achieving agreement on a multinational grace period are better today than they have been at any time since the adoption of the EPC.

