

# THE NEED FOR SPEED (AND GRACE): ISSUES IN A FIRST-INVENTOR-TO-FILE WORLD

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## I. INTRODUCTION

“One is the loneliest number that you’ll ever do.”<sup>1</sup> This lyric applies to the United States which, since 1998,<sup>2</sup> stands alone among the world’s pa-

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1. HARRY NILSSON, *One, on AERIAL BALLET* (RCA Victor Europe 1968). The song was popularized by the group Three Dog Night in 1968.

2. In 1998, the Philippines switched from a FTI to a FITF regime. See ChanRobles Group, *Intellectual Property Code of the Philippines—An Overview*, <http://www.chanrobles.com/legal7code.htm> (last visited June 26, 2008); see also Rebecca C.E.

tent systems in awarding patents to the first person to invent a claimed invention (first to invent, or “FTI”) as opposed to the first inventor to file an application claiming the invention (“FITF”). But its lonely days may soon be over: a provision in pending patent reform legislation will (if passed) move the United States from FTI to FITF and end its solitary stance.

Some argue that the U.S. already has a de facto FITF system, since the first filer usually wins disputes regarding the priority of an invention.<sup>3</sup> Additionally, many U.S. inventors who file for patent protection in other countries with FITF systems have already conformed their practices accordingly. If a de facto FITF regime is already in place, and if many inventors are already adapting their practices to comply with such a system, the U.S. may have little to lose and much to gain from making the switch to FITF.

But then again, maybe not.<sup>4</sup> Much has been written about a U.S. move from FTI to FITF and its potential costs and benefits.<sup>5</sup> However, since this

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McFadyen, *The “First-to-File” Patent System: Why Adoption is NOT an Option!*, 14 RICH J.L. & TECH. 3, 14 (2007).

3. See Gerald J. Mossinghoff, *The U.S. First-To-Invent System Has Provided No Advantage to Small Entities*, 84 J. PAT. & TRADEMARK OFF. SOC’Y 425 (2002).

4. Two-thirds of patent applications filed by U.S. residents are only filed in the U.S., which means only a third are filed in other countries. See TRILATERAL COOPERATION, TRILATERAL STATISTICAL REPORT 26 (2006), [http://www.trilateral.net/tsr/tsr\\_2006/tsr\\_2006.pdf](http://www.trilateral.net/tsr/tsr_2006/tsr_2006.pdf); see also Letter from William Jones, CEO, Cummins-Allison Corporation, to Jon P. Santamauro, USPTO (Jun. 22, 2007), [http://www.uspto.gov/web/offices/dcom/olia/harmonization/w\\_jones.pdf](http://www.uspto.gov/web/offices/dcom/olia/harmonization/w_jones.pdf) (noting that only 36 percent of U.S. patent applications filed by U.S. inventors are also filed in other countries). WIPO, the World Intellectual Property Organization, reports slightly different statistics: 42% of US origin applications are filed abroad in addition to filing locally (information taken from 2000-2005). WORLD INTELLECTUAL PROP. ORG., WIPO PATENT REPORT 17 (2007), available at [http://www.wipo.int/export/sites/www/freepublications/en/patents/931/wipo\\_pub\\_931.pdf](http://www.wipo.int/export/sites/www/freepublications/en/patents/931/wipo_pub_931.pdf). This is not surprising since the U.S. has the largest economy in the world providing the largest market for a patent owner. See CIA, *The World Factbook: United States*, <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html> (last updated July 15, 2008). Moreover, in 2006, 89 percent of USPTO applicants received five or fewer patents, and 62 percent received only one patent. See TRILATERAL COOPERATION, *supra* at 40. This suggests that for the majority of U.S. patent applicants, a high level of comfort with a FITF system should not be assumed.

5. See, e.g., Donald W. Banner, *Discordant Aspects of Harmonization*, 85 J. PAT. & TRADEMARK OFF. SOC’Y 172 (2003); Peter A. Jackman, *Adoption of a First-to-File Patent System: A Proposal*, 26 U. BALT. L. REV. 67 (1997); Brad Pedersen & Vadim Braginsky, *The Rush to a First-to-File Patent System in the United States: Is a Globally Standardized Patent Reward System Really Beneficial to Patent Quality and Administrative Efficiency?*, 7 MINN. J. L. SCI. & TECH. 757 (2006); Karen E. Simon, *The Patent Reform Act’s Proposed First-to-File Standard: Needed Reform or Constitutional Blunder?* 6 J. MARSHALL REV. INTELL. PROP. L. 129 (2006).

Essay accompanies a symposium on intellectual property and entrepreneurship, it considers how a FITF regime change may impact small-entity inventors, particularly those from academic enterprises.<sup>6</sup> The patent system holds both promise and peril for this group of inventors, and their inventive efforts are becoming increasingly important to this country.<sup>7</sup>

Part II of this Essay surveys certain costs and benefits associated with both FTI and FITF systems, and the impact each may have on small entity inventors. Part III focuses on the one-year grace period for filing patent applications in the U.S. after public disclosure of an invention. This grace period, a device useful to both large and small entities, is especially important to independent and academic inventors but, unfortunately, is unavailable in most other countries. Additionally, Part III discusses why a move to FITF by the U.S. significantly challenges the usefulness of a grace period for small entity inventors. Part IV of the Essay concludes that in light of these challenges, U.S. adoption of FITF should only proceed in conjunction with the adoption of a one-year grace period by the other major patent-granting countries.<sup>8</sup>

## II. FTI VS. FITF: CERTAINTY, HARMONY, AND SMALL ENTITIES

Since at least as early as the 1967 *Report of the President's Commission on Patent Reform*, there have been sporadic efforts to pass legislation that would convert the U.S. from an FTI to a FITF regime.<sup>9</sup> A 2003 report

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6. 37 C.F.R. § 1.27 (2007) provides a detailed definition of the small entities that qualify to pay reduced fees for services at the USPTO. Such entities include independent inventors, nonprofit organizations, and small businesses with fewer than 500 employees. See 13 C.F.R. § 121.802. Not all inventors are entrepreneurs. Entrepreneurs seek to turn inventions into commercially viable innovations. EconEdLink, U.S. History: Inventors and Entrepreneurs (Dec. 28, 1999), <http://www.econedlink.org/lessons/index.cfm?lesson=EM62>. However, for purposes of this Essay, small entity inventors will be used as a proxy for small entity entrepreneurs.

7. See discussion *infra* at Section II.b.

8. For a fuller explication of some of the concepts relating to grace periods and academic research, see Margo A. Bagley, *Academic Discourse and Proprietary Rights: Putting Patents In Their Proper Place*, 47 B.C. L. REV. 217 (2006).

9. Subcomm. on Patents, Trademarks, & Copyrights of the Senate Comm. on the Judiciary, To Promote The Progress of Useful Arts: Report of the President's Commission on the Patent System, S. 1 Doc. No. 90-5, at 7 (15) (1967). For example, in 1992 alone two bills were introduced for that purpose, neither of which was enacted: Patent Harmonization Act of 1992, S. 2605, 102d Cong. (1992), and H.R. 4978, 102d Cong. (1992). Charles Gholz suggests a much earlier interest in such a move in the 1930s. Charles L. Gholz, *First-to-File or First-To-Invent*, 82 J. Pat. & Trademark Off. Soc'y 891, 892 (2000).

by the National Research Council of the National Academies helped to renew a push for the move by recommending it as a necessary part of a 21st century patent system.<sup>10</sup> A move to FITF is expected to create a “race” to the patent office: as between two true inventors claiming the same invention, the first to file an application is entitled to the patent. Some also expect the move to increase the certainty of patent rights and aid global patent harmonization, all without negatively impacting small entity inventors. But are these benefits hype or reality? And if these benefits are real, at what cost do they come?

#### A. Eliminating Uncertainty, Creating Harmony

It should be noted that the U.S. does not currently have a pure FTI system. Statutory bars tied to the filing date of a patent application already prevent an applicant from obtaining a patent if, for example, she fails to file an application for the invention within one year of exposing the invention to the public.<sup>11</sup> Consequently, when an invention has been publicly disclosed, there is already a need for speedy filing within the U.S. patent system.

Nevertheless, aside from the statutory bars, patentability before the United States Patent and Trademark Office (“USPTO” or “the Office”) is tied to an applicant’s invention date, relative to the prior art. If two inventors file applications in the USPTO claiming the same invention, the Office generally will initiate an interference proceeding to determine which applicant is the first inventor and thus entitled to a patent on the claimed invention.<sup>12</sup> Priority interferences are, of course, unique to U.S. patent law, since other countries award patents to the first person to file an application claiming the invention and not to the person first to invent.<sup>13</sup> Interference proceedings are priority contests: if a claimant can prove that she is the first inventor of the disputed subject matter and has not abandoned, suppressed, or concealed the invention, then she is entitled to a patent.<sup>14</sup> Alternatively, interference proceedings can be used to show that, for some

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10. See Nat’l Research Council, *A Patent System for the 21st Century* 126 (Stephen A. Merrill et al. eds., 2004).

11. See 35 U.S.C. § 102(b), (d) (2000). Other activities that trigger the one-year clock include selling or offering the claimed invention for sale, or disclosing the claimed invention in a patent or printed publication. See § 102(b); see also MARTIN J. ADELMAN ET AL., *CASES AND MATERIALS ON PATENT LAW* 179-80 (2d ed. 2003) (discussing differences between a pure FTI system and the U.S. system’s incorporation of statutory bars).

12. 35 U.S.C. § 135 (2000 & Supp. II 2002).

13. Gerald J. Mossinghoff & Vivian Kuo, *World Patent System Circa 20xx A.D.*, 38 *IDEA* 529, 548 (1998).

14. 35 U.S.C. § 102(g) (2000).

reason other than priority of invention, another party is not entitled to a patent.<sup>15</sup>

Eliminating interferences and the uncertainty associated with them appears to be a prime motivation for the FITF legislation.<sup>16</sup> Interferences tend to be expensive and complex, with burdensome requirements for record keeping.<sup>17</sup> The second applicant in an interference must show that not only was she the first to conceive the invention, but also that she diligently worked to reduce the invention to practice during the relevant time period. These proofs generally take the form of documentary evidence such as dated and witnessed laboratory notebooks. Any gaps of time in reducing the invention to practice must be accounted for or excused. However, interferences are relatively rare: less than 0.1 percent of applications filed result in interferences, which hardly seems to qualify them as a huge drain on the system.<sup>18</sup> Moreover, a FITF system will still have interferences, but they will be known as Derivation Proceedings (“DP”).<sup>19</sup> Since a patent is to be awarded only to a true inventor, if, for example, a junior applicant claims that a senior filer derived the invention from her work, that dispute will have to be resolved with a DP.<sup>20</sup> This will require the same types of documentary proofs of invention that interferences re-

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15. For example, an applicant can seek to show that an opponent derived the invention from someone else and is thus not a true inventor, or that the subject matter is unpatentable and that no one is entitled to a patent on it. *See* 37 C.F.R. § 41.208 (2007). Interferences are not limited to two parties or to pending applications. As long as at least one pending application is involved and the same subject matter is being claimed, there can be multiple applications or even patents involved in the interference. If only patents are involved in a priority dispute, the dispute is beyond the jurisdiction of the USPTO and must be resolved in federal district court. *See* 35 U.S.C. § 291 (2000).

16. *See, e.g.,* NAT’L RESEARCH COUNCIL, *supra* note 10, at 126 (discussing the costs and complexity of interference proceedings as a reason to move to FITF); Gholz, *supra* note 9, at 891 (describing the drain on inventors involved in establishing priority information for use in interference proceedings).

17. 35 U.S.C. § 102(g)(2) (2000). *See, e.g.,* Sandt Tech., Ltd. v. Resco Metal & Plastics Corp., 264 F.3d 1344, 1350-51 (Fed. Cir. 2001) (discussing importance of documentary corroboration of inventor testimony); Griffith v. Kanamaru, 816 F.2d 624 (Fed. Cir. 1987) (reviewing cases on excuses for inactivity including ill health and daily job demands); Kendall v. Searles, 173 F.2d 986, 993 (C.C.P.A. 1949) (noting diligence requires that applicants must be specific as to dates and facts).

18. *See* Mossinghoff, *supra* note 3, at 425 (reporting that from 1983 to 2000, the number of two-party decisions in interference cases amounted to less than 0.1 percent of the applications filed).

19. In fact, pending legislation in the House actually renames some of the current interference provisions of US patent law “Derivation Proceedings.” *See* Patent Reform Act of 2007, H.R. 1908, 110th Cong. § 135 (2007).

20. *See* § 135(a)(1).

quire.<sup>21</sup> While there may be fewer DPs than interference proceedings, they still will engender the uncertainty associated with interference proceedings, which diminishes the benefit of switching to FITF.

Many aspects of the current patent procurement process involve uncertainty that a move to FITF will not eliminate. For example, because most applications are not published until eighteen months after their filing date, a third party seeing a disclosed invention must wait to discover the existence and scope of patent protection; even then the claims can be changed until the end of prosecution and beyond.<sup>22</sup> In addition, the pending Senate patent reform bill would make oral disclosures, which are ephemeral by definition, qualify as prior art, adding uncertainty to the process of obtaining a patent.<sup>23</sup>

Another argument advanced in favor of a FITF system is the creation of efficiency through harmonization.<sup>24</sup> Patent law is territorial and patentability requirements differ from country to country.<sup>25</sup> Harmonizing these laws is expected to advance the laudable goal of reducing both costs and the complexity of obtaining a patent for inventors.<sup>26</sup> However, a move to FITF will only bring the U.S. into nominal harmony with the rest of the world on the issue of invention versus application priority. As will be discussed below, most FITF countries also provide prior user rights; pending legislation will not.<sup>27</sup> The handling of derivation proceedings and other interference issues that arise in a FITF system will not be harmonized.<sup>28</sup> FITF countries even differ on how to handle two applications claiming the same invention that are filed on the same day. In Japan, for example, the

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21. See § 135(j) (2007); *Sandt Tech.*, 264 F.3d at 1350-51.

22. See, e.g., IPR HELPDISK, GRACE PERIOD AND INVENTION LAW IN EUROPE AND SELECTED STATES 5 (2006), [http://www.ipr-helpdesk.org/documentos/docsPublicacion/pdf\\_xml/8\\_GracePeriodinventionLaw\[0000004514\\_00\].pdf](http://www.ipr-helpdesk.org/documentos/docsPublicacion/pdf_xml/8_GracePeriodinventionLaw[0000004514_00].pdf); 35 U.S.C. § 251 (2007).

23. See Patent Reform Act of 2007, S. 1145, 110th Cong. § 3 (2007). S. 1145 provides: "A patent for a claimed invention may not be obtained if (1) the claimed invention was patented, described in a printed publication, or in public use, on sale, *or otherwise available to the public.* . ." (emphasis added).

24. See American Innovation at Risk: The Case for Patent Reform: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 110th Cong. 15 (2007) (statement of Mark B. Myers, Co-Chair, National Academy of Sciences' Report) (discussing the costs of lack of patent harmonization among the U.S., Europe, and Japan); see also Pedersen & Braginsky, *supra* note 5, at 764 ("A move to a first-to-file standard is also urged as a step toward the desired goal of global harmonization of patent laws.").

25. See Mossinghoff & Kuo, *supra* note 13, at 529.

26. *Id.*

27. See discussion *infra* at Section III.a.

28. See Gholz, *supra* note 9, at 894.

patent office requires competing applicants to consult among themselves to determine who receives the patent; the patent is awarded to nobody if a determination of ownership is not made.<sup>29</sup> In contrast, the European Patent Office might issue two patents on the same invention where neither is prior art to the other.<sup>30</sup> Moreover, a move to a FITF system will not harmonize a host of other significant differences between U.S. and foreign patent laws.<sup>31</sup> The subject matter eligible for patenting, the definitions of prior art for novelty and nonobviousness determinations, the standard of nonobviousness, the availability of prior user rights, patent enforcement standards, and more all will remain unharmonized if either patent reform bill currently under consideration by Congress were to pass.<sup>32</sup> While the idea of incremental improvements in harmonization is conceptually appealing, FITF is not an ideal candidate for piecemeal adoption without addressing, at a minimum, prior user rights and grace period implementation.

## B. FITF and Small Entity Inventors

In an influential 2002 article, former USPTO Commissioner Gerald Mossinghoff attacked one of the primary arguments against a U.S. move to FITF: that it would negatively impact small entities, which seem less likely to win the race to the patent office.<sup>33</sup> Mossinghoff's analysis of USPTO data suggests that virtually the same number of small entities were advantaged<sup>34</sup> by the FTI system as were disadvantaged by it.<sup>35</sup> On the surface, this does appear to suggest small entities have little to lose with a U.S. move to FITF, and this study has been frequently used to sup-

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29. Tokkyo Ho [Patent Law of Japan], Law No. 121 of 1959, amended by Law No. 220 of 1999, art. 39, *translated in* [http://www.wipo.int/clea/docs\\_new/pdf/en/jp/jp036en.pdf](http://www.wipo.int/clea/docs_new/pdf/en/jp/jp036en.pdf).

30. *See* Convention on the Grant of European Patents [European Patent Convention], art. 54, Oct. 5, 1973, 1065 U.N.T.S. 199 [hereinafter E.P.C.], *available at* <http://www.epo.org/patents/law/legal-texts/html/epc/2000/e/ma1.html> (stating that an application is only prior art to a different application if it is filed before the filing date of the other application).

31. *See* World Intellectual Prop. Org. [WIPO], Standing Comm. on the Law of Patents, *Summary by the Chair*, at 2, 4 WIPO Doc. SCP/12/4 Rev. (Jun. 23, 2008) (listing areas for patent harmonization discussion).

32. *Id.*; *see also* Tokkyo Ho [Patent Law of Japan], art. 28 (defining prior art); E.P.C., art. 54 (defining prior art).

33. *See* Mossinghoff, *supra* note 3, at 425. Of course, some small entities may be nimbler and move faster than large multinationals, in which case FITF could be more favorable to them than FTI.

34. *Id.* The later filing small entity won the interference 203 times, the earlier filing small entity lost the interference 201 times.

35. *See id.*

port such a move.<sup>36</sup> However, a response article by James White highlighted several problems with Mossinghoff's analysis and conclusion.<sup>37</sup> In particular, White notes that Mossinghoff has presented only statistics related to interference decisions, excluding instances where a party withdrew its application or settled with another party before or after the declaration of an interference. Moreover, the study seems to assume an equal value for all interference decisions. Mr. White takes issue with that assumption:

What if, in any given year, there were 97 \$1 million profit invention ownership decisions made by interference decisions and there were 3 \$10 billion profit invention ownership decisions made the same way? What if it were shown that for the past 18 years those 3 ownership decisions a year all went to independent inventors while the rest were generally split proportionally between small entities and large entities . . . to me the independent inventor wins of \$540 billion in profits would make the comparatively small \$1.75 billion of other "winners" seem irrelevant.<sup>38</sup>

White also notes the benefits of the lack of a race to the patent office under FTI that can be particularly important for small entities that need time to decide whether a particular invention merits the costs of filing a patent application and the effort of securing funding for prosecution.<sup>39</sup> Mossinghoff's statistics suggest that only 1 in roughly 37,000 independent inventors per year were disadvantaged in interference proceedings.<sup>40</sup> Thus, an independent inventor's or small entity's risk of being disadvan-

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36. *See, e.g.*, Committee Print Regarding Patent Quality Improvement: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. 6, at 6-7 (2005) (statement of J. Jeffrey Hawley, Legal Division Vice President & Director, Eastman Kodak Company, on behalf of Intellectual Property Owners Association (IPO)) ("Recent studies by former PTO Commissioner Mossinghoff have shown that the benefits of the first to invent system do not justify its costs"); Perspectives on Patents: Hearing Before the Subcomm. on Intellectual Prop. of the S. Comm. on the Judiciary, 109th Cong. (2005) (statement of Michael K. Kirk, Executive Director, American Intellectual Property Law Association), available at [http://judiciary.senate.gov/testimony.cfm?id=1475&wit\\_id=4232](http://judiciary.senate.gov/testimony.cfm?id=1475&wit_id=4232) (discussing Mossinghoff study); Perspectives on Patents: Harmonization, and Other Matters: Hearing Before the Subcomm. on Intellectual Prop. of the S. Comm. on the Judiciary, 109th Cong. 3 (2005) (statement of Gerald J. Mossinghoff, Former Comm'r of Patents and Trademarks) (discussing his study).

37. *See generally* James E. White, The U.S. First-To-Invent System, the Mossinghoff Conclusion, and Statistics, 85 J. PAT. & TRADEMARK OFF. SOC'Y 357 (2003).

38. *Id.* at 361-62, 364.

39. *Id.*

40. *Id.* at 364.

taged in an interference may be well worth the advantages of avoiding expensive and frequent races to file patent applications for every promising idea.

Additionally, William Jones, CEO of Cummins-Allison Corp., concluded that the Mossinghoff study actually supported U.S. retention of FTI because it showed such a small number of interference cases each year and that only 17.6% of interferences involved small entities despite the fact that small entities generate 45% of all patent applications.<sup>41</sup> Mr. Jones also inferred that since a virtually equal number of small entities are disadvantaged as advantaged, the USPTO is ably managing the interference process.<sup>42</sup>

Perhaps then the bare numbers regarding interference decisions do not tell the whole story of the benefits and drawbacks of FTI for small entity inventors. A study by Mark Lemley and Colleen Chien provides some support for Mossinghoff's argument that FTI is not helping small entities.<sup>43</sup> It found that individuals or small businesses comprised 18% of parties initiating an interference but 43% of parties responding to an interference. This data suggests that large entities use interferences to challenge the patent validity of small entities more often than the other way around.<sup>44</sup> Nevertheless, Lemley and Chien also concluded that while the U.S. FTI system did not necessarily provide systematic benefits to small entity inventors, it did make a difference:

Advocates of a first to file system claim that priority disputes waste significant time and money without changing outcomes. These claims are incorrect. Interference proceedings . . . do affect the results in a significant number of cases. Further, while the percentage of patent applications that involve a priority dispute is quite small, it is no smaller—and indeed is somewhat larger—than the percentage of patents that are ever enforced. One cannot say that the small number of priority disputes does not matter any more than one would argue that litigated cases of infringement do not matter to the patent system.<sup>45</sup>

Another important benefit provided by a FTI system is the ability to antedate or “swear behind” a prior art reference using an affidavit under 37 C.F.R 1.131 and showing an earlier date of invention outside of the in-

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41. Jones, *supra* note 4, at 2.

42. *Id.*

43. Mark A. Lemley & Colleen V. Chien, *Are the U.S. Patent Priority Rules Really Necessary?*, 54 HASTINGS L.J. 1299 (2003).

44. *Id.* at 1323.

45. *Id.* at 1331.

interference context. Neither the Mossinghoff nor Lemley and Chein studies considered the frequency with which such affidavits are used by inventors to obtain patents. Clearly a FTI system does provide meaningful benefits to small entity inventors in terms of temporal and financial flexibility and the chance to obtain a patent. These benefits seem sufficiently worthwhile to not be lightly discarded for the questionable advances in certainty and harmonization offered by FITF.

Small entity inventors include those in universities and other nonprofit organizations. The patenting activity of university inventors is of particular interest not only because it is increasing but also because it is associated with entrepreneurship. According to the Association of University Technology Managers (AUTM), its members, more than 80% of whom are colleges and universities, received over \$45 billion in research support, filed 15,908 U.S. patent applications (compared to 10,687 in 2001), received 3255 patents, and launched 553 start-up companies in 2006 alone.<sup>46</sup> In fact, since 1980, when the Bayh-Dole Act supporting university-industry technology transfer was passed, AUTM members have founded over 5,724 new companies, or more than one company every two days.<sup>47</sup>

The Bayh-Dole Act, which facilitated this entrepreneurial activity by allowing universities to elect to take title to inventions developed with federal funds without having to request permission to do so, is widely considered a success, not just in the U.S., but in other countries as well.<sup>48</sup> Many of these countries are considering, or are in the process of, reforming their laws to emulate Bayh-Dole.<sup>49</sup> The impetus behind Bayh-Dole

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46. ASS'N OF UNIV. TECH. MANAGERS, AUTM LICENSING SURVEY: FY 2006 SURVEY SUMMARY 5 (Dana Bostrom & Robert Tieckelmann eds., 2007) [hereinafter *AUTM FY 2006 SURVEY*], available at [http://www.autm.org/events/file/AUTM\\_06\\_US%20LSS\\_FNL.pdf](http://www.autm.org/events/file/AUTM_06_US%20LSS_FNL.pdf).

47. *Id.*

48. Pub. L. No. 96-517, 94 Stat. 3015-28 (codified as amended at 35 U.S.C. §§ 200-211, 301-307 (1994)) (commonly known as the Bayh-Dole Act); see also Stevenson-Wydler Technology Innovation Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311-2320 (codified as amended at 15 U.S.C. §§ 3701-3714 (1994)) (extending the benefits of Bayh-Dole to national laboratories).

49. See, e.g., Patent Act of 2005: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. (2005) (statement of Carl E. Gulbrandsen, Managing Director, Wisconsin Alumni Research Foundation (WARF)) (noting that "at WARF, we receive numerous visitors each year from around the world. Invariably our foreign visitors ask about Bayh-Dole and express the wish that their own countries would adopt such forward-thinking legislation"); ASS'N OF UNIV. TECH. MANAGERS, AUTM LICENSING SURVEY: FY 2003 SURVEY SUMMARY (Ashley J. Stevens & Frances Toneguzzo eds., 2004), available at <http://www.autm.net/>

was the belief that a wealth of basic, useful research developed in universities was languishing in the ivory towers of academia, as it took an average of fifteen to twenty years for basic research disclosed in publications to result in marketed products.<sup>50</sup> The reluctance of private companies to invest in commercializing federally funded research without exclusive rights is a common reason given for the delay.<sup>51</sup> Such reluctance created a “death valley” between publicly funded research and its commercialization by the private sector. The Bayh-Dole Act provided a “bridge” over this valley by allowing universities to elect to take title to inventions developed with federal funds and grant exclusive licenses to entities willing to commercialize such technology.<sup>52</sup>

The Bayh-Dole Act was designed, in part, to facilitate the patenting and licensing of technology developed by university researchers because of the perceived importance of such activity to the U.S. economy.<sup>53</sup> How-

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surveys/dsp.surveyDetail.cfm?pid=16 (citing announcements by the United Kingdom, Canada, Germany, and Japan of investment programs and statutory changes to enhance the commercialization of research from academic institutions as foreign countries “continue to strive to emulate U.S. success in harnessing the intellectual output of its academic institutions”).

50. See generally David C. Mowery et al., *Ivory Tower and Industrial Innovation: University-Industry Technology Before and After the Bayh-Dole Act* 9-34 (2004).

51. *Id.* While the funding agency could make the decision to allow licensing, such decisions were rare and were made on a case-by-case basis resulting in significant uncertainty regarding the likelihood of a favorable result. It was well understood, of course, that commercialization was well beyond the mission, resources, and expertise of university researchers and should be handled by the private sector.

52. Bayh-Dole is not without controversy as it raises concerns regarding a corruption of the core mission of universities by overly commercial concerns. However, a discussion of the merits of Bayh-Dole and its role in increasing university patenting activities is beyond the scope of this Essay.

53. The Cooperative Research and Technology Enhancement Act of 2004 (“the CREATE Act”), which facilitates the patenting of inventions created as a result of research collaborations between unrelated entities, has a similar purpose. See Cooperative Research and Technology Enhancement (CREATE) Act of 2004, Pub. L. No. 108-453, 118 Stat. 3596 (codified as amended at 35 U.S.C. § 103) (statement of Sen. Orrin Hatch). In his remarks introducing the CREATE Act, Senator Orrin Hatch (R-UT) explicitly related the new legislation to the goals of Bayh-Dole:

This bill makes a narrow but important change in our patent laws to ensure that the American public will benefit from the results of collaborative research efforts that combine the erudition of great public universities with the entrepreneurial savvy of private enterprises . . . [W]e must encourage—not discourage—public institutions and private entrepreneurs to combine their respective talents in joint research efforts. Indeed Congress committed itself to this principle when it passed the Bayh-Dole Amendments to the Patent Act. The CREATE Act will

ever, the need for additional speed in filing applications engendered by a U.S. move to FITF is expected to create difficulties for many universities for at least two reasons: the nature of university inventions and the costs of patenting.

Because academic researchers have traditionally focused on basic research, as opposed to applied research, inventions generated in universities and disclosed to Technology Transfer Offices (“TTOs”) for patent protection are often embryonic and have only speculative commercial value.<sup>54</sup> University TTOs, having limited funds and an increasing number of invention disclosures, must decide which inventions to prosecute with little information on potential commercialization success. For example, in 2006, AUTM members received 18,874 new invention disclosures from researchers but filed only 11,622 new patent applications.<sup>55</sup>

A move to FITF arguably complicates this calculation for university TTO personnel. As the American Association of Universities, the American Council on Education, the Association of American Medical Colleges, and the Council on Governmental Relations explained in a joint statement:

University inventors typically are faculty members who first publish in academic journals and later consider whether to file to obtain a patent . . . Before filing a patent application, universities often need time to consider the potential commercial application of a basic research discovery, which may not be obvious at the point of discovery, and to assess the receptivity with the commercial sector to licensing any resultant patent for development. *All such practices are accommodated in a first-to-invent system but could be compromised in a first-inventor-to-file system.*<sup>56</sup>

Interestingly, university researchers in Europe have lauded the U.S. FTI regime as beneficial to their U.S. counterparts. According to ProTon Europe, the pan-European network of knowledge transfer offices and

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simply conform the present language of the Patent Act to the intent that has always animated it.

*Id.*

54. See Jerry G. Thursby et al., *Objectives, Characteristics and Outcomes of University Licensing: A Survey of Major Universities*, 26 J. TECH. TRANSFER 59, 63 (2001) (“Products and processes based on early stage technologies are often years away from commercialization . . . [I]t is difficult to specify royalty income based on sales . . . for very early stage technologies since the nature of the final product is often unknown”).

55. AUTM FY 2006 SURVEY, *supra* note 46, at 24-25.

56. Bethany Halford, *First to File*, 15 ASEE PRISM 38 (2005) (emphasis added), available at [http://www.prism-magazine.org/nov05/feature\\_first.cfm](http://www.prism-magazine.org/nov05/feature_first.cfm).

companies affiliated with universities and other public research organizations:

European universities and other public research organizations still file on average 5 times *less* patent applications than their U.S. counterparts, although the total research budgets are comparable. The lower propensity to patent is attributable to 2 main factors: . . .

[2] The fact that the U.S. patent system is much more favourable to universities than the European system. In addition to lower cost and single language, the U.S. universities are taking advantage of the protection of inventors by the *first-to-invent principle*, a grace period of one year, the continuation-in-part system, provisional applications, 50% reduction in filing and maintenance fees, no maintenance fees before grant, wider patentable inventions, etc. *There is no question that the U.S. universities could not have achieved the reported benefits for the U.S. economy in terms of new products, new companies, and new jobs with the patent system available in Europe.*<sup>57</sup>

In the statement above, ProTon Europe cites the FTI principle as one of several U.S. patent system features beneficial to university researchers. Another cited benefit, a one-year grace period, is arguably just as (if not more) important to this group of inventors. As discussed in the next Part, its adoption outside the U.S. should be intimately tied to any move to FITF within the U.S.

### III. THE NEED FOR GRACE

There is no way to know for certain whether adoption of FITF by Congress in 1967 would have improved or hurt the U.S. patent system. According to the American Bar Association Intellectual Property Law section, a FITF system represents a “best practice” approach: superior to FTI, critically necessary, and in the best interest of the U.S.<sup>58</sup> There is little

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57. ProTon Europe, ProTon Europe Recommends Improvements to the Patent System in Europe in Order to Facilitate Knowledge Transfer from Public Research 2-3 (2007) (citations omitted, italic emphasis added), [http://www.protoneurope.org/Files/PatentPolicyStatement/attachment\\_download/file](http://www.protoneurope.org/Files/PatentPolicyStatement/attachment_download/file).

58. *See, e.g.*, Committee Print Regarding Patent Quality Improvement: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. 36, at 42 (2005) (statement of William L. LaFuze, Chair, Section of Intellectual Property Law, American Bar Association) [hereinafter LaFuze, Patent

doubt that removing unnecessary complexity from the U.S. patent system would be a beneficial change, but at what cost? Moreover, what is the best way to implement such a change?<sup>59</sup>

### A. Prior User Rights

The sweeping patent reform legislation currently pending in both houses of Congress would bring the most significant changes to U.S. patent law in fifty years.<sup>60</sup> However, the risk of unintended consequences from the confluence of numerous moving parts is substantial, and a failure to get the right mix of FITF-related provisions could prove very problematic. The issue of prior user rights provides a prime example. Most countries that have a FITF system also provide prior user rights.<sup>61</sup> Prior user rights allow a party to continue to use a patented invention after a patent issues, on a royalty-free basis, as long as the party was using the invention, nonpublicly, for some period of time before the patent application was filed.<sup>62</sup> Prior user rights are personal and often nontransferable, but dilute the exclusivity and thus the value that a patent normally provides by allowing someone other than the patent owner to practice the invention.<sup>63</sup>

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Quality Improvement] (“[I]t is now apparent that adoption of a first-inventor-to-file principle represents a “best practice” for operating a harmonized patent law”).

59. Simplifying interferences and other aspects of the FTI system is also an alternative to wholesale abandonment of the current regime. *See, e.g.*, Lemley & Chien, *supra* note 43, at 1333 (advocating a focus on proof of reduction to practice in interferences); Sean T. Carnathan, *Patent Priority Disputes—A Proposed Redefinition of “First-to-Invent,”* 49 ALA. L. REV. 755 (1998) (advocating a similar approach).

60. *See* The Patent Reform Act of 2008, S. 3600, 110th Cong., at § 2 (2008); The Patent Reform Act of 2007, H.R. 1908, at § 2; S. 1145, 110th Cong., at § 2 (2007); *see also* Posting of Dennis Crouch to Patently-O, Patent Reform Act of 2007, [http://www.patentlyo.com/patent/2007/04/patent\\_reform\\_a.html](http://www.patentlyo.com/patent/2007/04/patent_reform_a.html) (April 18, 2007).

61. *See* Gary L. Griswold et al., Letters to the Editor, *Prior User Rights: Neither a Rose nor a Thorn*, 2 U. BALT. INTELL. PROP. L.J. 233, 235-236 (1994); *see also* Tokkyo Ho [Patent Law of Japan] art. 79 (providing prior user rights); AM. INTELLECTUAL PROP. LAW ASS’N [AIPLA], AIPLA INTERNATIONAL PATENT LAW HANDBOOK – EUROPE, available at <http://www.aipla.org/html/Patent-Handbook/countries/europe/EUgeneral.html> (last visited Jun. 30, 2008) (noting prior user rights vary by country in Europe).

62. *See* Chizai Kanri, *Changes in Company Economic Activity and Prior User Rights*, 56 INTELL. PROP. MGMT. 1007, 1008 (2006), available at <http://www.jjpa.or.jp/content/english/activities/committee/pdf/200607tokkyo2.pdf>; *see also* David H. Hollander, Jr., *The First Inventor Defense: A Limited Prior User Right Finds Its Way Into U.S. Patent Law*, 30 AIPLA Q.J. 37, 39 (2002) (“Many of the world’s most important patent systems allow a prior user of an invention that is subsequently patented by another to continue to use that invention, subject to certain qualifications and limitations, notwithstanding the patent.”).

63. Hollander, *supra* note 62, at 40, 46; *see also* Robert L. Rohrback, *Prior User Rights: Roses or Thorns?*, 2 U. BALT. INTELL. PROP. L.J. 1, 13 (1993) (noting that “the

Prior user rights also risk reducing the incentive to obtain a patent because an inventor can keep her invention secret and continue to practice it after another entity obtains a patent.<sup>64</sup> For these reasons it is unclear whether combining prior user rights with FITF would help or hurt small-entity inventors.

In the U.S. FTI system, there is a default preference for inventors to seek patents and disclose inventions rather than to keep inventions as trade secrets.<sup>65</sup> The only prior user rights currently in U.S. patent law cover business method patents and were introduced in the American Inventor's Protection Act of 1999 due to concerns about this new patent-eligible subject matter.<sup>66</sup> However, in advocating a move to FITF in the Patent Reform Act of 2005, Professor Mark Lemley noted: "The section only works if the bill continues to include the provisions . . . requiring publication of all patent applications and expansion of prior user rights. *If these provisions are not included, Congress should oppose the move to first inventor to file.*"<sup>67</sup> The House patent reform bill, H.R. 1908 provides neither of these features and neither Senate bill, S. 1145 or S. 3600, meaningfully expands prior user rights.<sup>68</sup> Another commentator, litigator, and interference practice expert Charles Gholz, is in favor of U.S. adoption of FITF

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adverse consequences of prior user rights which may be visited upon a patentee or applicant far outweigh any possible benefit derived from protecting prior users").

64. See Hollander, *supra* note 62, at 42; see also Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92 (2006) ("The main potential drawback associated with prior user rights is that they may encourage inventors to keep their inventions secret rather than disclosing them in patent applications.").

65. See Shapiro, *supra* note 64, at 95 ("[T]he current patent system rewards applicants who are most aggressive in seeking patents over those who simply use their own inventions internally as trade secrets.").

66. 35 U.S.C. § 273 (2000). The First Inventor Defense Act is Subtitle C of the American Inventors Protection Act. See Consolidated Appropriations Act of 2000, Pub. L. No. 106-113, § 4302, 113 Stat. 1536 (codified at 35 U.S.C. § 273 (2000)), *cited in* Hollander, *supra* note 62, at 39.

67. *Patent Law Reform: Injunctions and Damages: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. (2005) (statement of Mark A. Lemley, Professor, Stanford Law School) (emphasis added), available at [http://judiciary.senate.gov/testimony.cfm?id=1535&wit\\_id=4352](http://judiciary.senate.gov/testimony.cfm?id=1535&wit_id=4352); see also Mossinghoff & Kuo, *supra* note 13, at 549 (advocating U.S. adoption of prior user rights along with FITF).

68. See Intellectual Prop. Owners Ass'n, *Patent Reform (110th Cong.): A comparison of H.R. 1908 as passed by the House and S. 1145 as reported out of the Senate Judiciary Committee, highlighting primary differences 2-3* (2008), [http://www.ipo.org/AM/Template.cfm?Section=Legislative\\_Action\\_Center&template=/CM/ContentDisplay.cfm&ContentID=15580](http://www.ipo.org/AM/Template.cfm?Section=Legislative_Action_Center&template=/CM/ContentDisplay.cfm&ContentID=15580). Both bills call for a comparative study of prior user rights. See H.R. 1908, 110th Cong. § 5 (2007); S. 1145, 110th Cong. § 4 (2007); see also The Patent Reform Act of 2008, S. 3600, 110th Cong. § 2 (2008).

in exchange for Europe and Japan improving their handling of FITF-related interference issues.<sup>69</sup> Again, neither the House nor Senate bill contains a provision tying FITF to Europe and Japan's accommodation of these concerns.<sup>70</sup> Consequently, a U.S. move to FITF without prior user rights and without addressing FITF interference issues will not bring true harmonization with other patent systems on these important issues. Moreover, moving to FITF without fully analyzing the pros and cons of whether the U.S. should adopt prior user rights seems premature and ill-advised. These are just two of several reasons for using caution when moving forward with FITF at this time.

## B. The Grace Period

Many countries have been pushing the U.S. to switch to FITF for decades and have intimated that they would be willing to provide valuable consideration in exchange by adopting a six-month or one-year grace period.<sup>71</sup> A "grace period" is a length of time in which a patent application can be filed after public exposure of an invention without impairing its novelty for patentability purposes.<sup>72</sup> Inventors must file patent applications in the USPTO within one year of disclosing the invention to the public; otherwise they forfeit the right to patent the invention.<sup>73</sup>

In the U.S., prior art that defeats patentability includes printed publications from anywhere in the world, public knowledge or use of the invention in the U.S. before the applicant's date of invention, or public use or sale in the U.S. more than one year before the patent application filing date.<sup>74</sup> In particular, an academic researcher can lose the right to obtain a potentially lucrative patent on an invention by publicly disclosing her invention (through public presentation, publication, etc.) more than one year before filing a patent application.

The definition of "printed publication" is very broad; courts have interpreted the term to include microfilm, microfiche, internet postings, vi-

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69. Gholz, *supra* note 9, at 894 ("Those issues are (1) derivation, (2) inventorship disputes among former colleagues, (3) interfering cases naming the same inventive entity but filed by different real parties in interest, (4) cases involving interleaving priorities, and (5) improvidently issued junior patents.").

70. See H.R. 1908; S. 1145.

71. See JOSEPH STRAUS, EUROPEAN PATENT ORGANISATION, EXPERT OPINION ON THE INTRODUCTION OF A GRACE PERIOD IN THE EUROPEAN PATENT LAW 48 (2000), available at [http://documents.epo.org/projects/babylon/eponet.nsf/0/243CB98A4282E993C125723D0057562E/\\$File/straus\\_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/243CB98A4282E993C125723D0057562E/$File/straus_en.pdf).

72. See IPR HELPDESK, *supra* note 22, at 2-3.

73. 35 U.S.C. § 102(b) (2000).

74. *Id.*

deotapes, and most recently slides affixed to poster boards, as long as they are publicly accessible.<sup>75</sup> Thus, if researchers who engage in early public data-sharing do not track and control the timing, nature, and circumstances of disclosure, they may jeopardize their ability to later patent findings.<sup>76</sup>

In countries without a meaningful grace period, an inventor is precluded from patenting her invention if she discloses the invention to the public before filing a patent application.<sup>77</sup> Thus, inventors whose discoveries will require patent protection abroad to fulfill their commercial potential do not enjoy the benefit of the U.S. grace period in other countries. The grace period is an important policy tool that recognizes an inventor's need to assess the commercial potential of an invention or to engage in public academic discourse before deciding to seek patent protection.<sup>78</sup>

Access to a meaningful grace period also can be important to independent inventors who often need to disclose their inventions to the public in order to assess the invention's commercial potential and need time to finance the patent procurement process.<sup>79</sup> Moreover, the one-year grace period provides important flexibility to university researchers, many of whom become entrepreneurs through commercializing research initiated in an academic setting.<sup>80</sup>

### C. Disclosure in Academia

University research often progresses in stages; the traditional model of scholarly discourse involves the presentation and publication of research conclusions and insights at these various stages. The unforgiving nature of

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75. *In re Klopfenstein*, 380 F.3d 1345, 1352 (Fed. Cir. 2004); see also *In re Hall*, 781 F.2d 897, 898 (Fed. Cir. 1986) (holding that public accessibility, not published form, determines what constitutes a "printed publication"); *In re Wyer*, 655 F.2d 221, 226 (C.C.P.A. 1981) (qualifying patent application kept on microfilm as a printed publication); *Regents of Univ. of California v. Howmedica, Inc.*, 530 F. Supp. 846, 860 (D.N.J. 1981) (finding that projected slides can qualify as printed publications); *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 743 (S.D.N.Y. 1966) (holding that printed publications can reflect modern day methods so long as they are accessible to the public).

76. *In re Klopfenstein*, 380 F.3d at 1352; *In re Hall*, 781 F.2d at 898; *In re Wyer*, 655 F.2d at 226; *Howmedica*, 530 F. Supp. at 860; *I.C.E.*, 250 F. Supp. at 743.

77. E.P.C., art. 54.

78. See *Baxter Int'l, Inc. v. COBE Labs., Inc.*, 88 F.3d 1054, 1058 (Fed. Cir. 1996) (noting that policies underlying § 102(b) include "allowing the inventor a reasonable amount of time following sales activity to determine the potential economic value of a patent").

79. See generally *Statement in Favor of the Grace Period: Hearing of the European Comm'n on the Grace Period* (1998) [hereinafter "Moussa"] (statement of Farag Moussa, President, International Federation of Inventor's Associations (IFIA)), available at [http://www.invention-iffia.ch/byFaragMoussa\\_GracePeriod.htm](http://www.invention-iffia.ch/byFaragMoussa_GracePeriod.htm).

80. See discussion *supra* at Section II.b, note 46.

patent novelty rules conflicts with this norm of disclosure and encourages a culture in which researchers delay the dissemination of even very embryonic research, sometimes no more than a proof of concept, while the university TTO prepares a provisional patent application.<sup>81</sup> Seemingly, secrecy is on the rise among academic researchers (particularly in the life sciences) with some university scientists choosing to limit or delay disclosures of their work in order to obtain patents.<sup>82</sup> For example, in 1966, fifty percent of surveyed experimental biologists felt safe in sharing information on current research with others; only twenty-six percent felt that way by 1998.<sup>83</sup> In a separate study of geneticists, thirty-five percent perceived academic scientists as somewhat or much less willing to share information and data than a decade ago, fifty-eight percent reported adverse effects of data withholding on their own research, and fifty-six percent reported adverse effects of data withholding on the education of students and post-doctoral researchers.<sup>84</sup>

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81. Provisional applications offer applicants a lower filing fee and an additional twelve months beyond the grace period in which to determine whether to file a regular nonprovisional application for a patent. Provisional applications also protect an applicant's right to file in other countries as long as the provisional is filed before the invention is disclosed to the public. Also, the provisional application is not examined by the USPTO, will simply lapse after twelve months, and will have no further effect unless a regular nonprovisional application is filed in time. Provisional applications are attractive to TTOs precisely because of the embryonic nature of most university inventions. *See* 35 U.S.C. §§ 111(b), 119(e) (2000 & Supp. II 2002). The filing fee for a provisional application is \$105 as compared to \$515 for a nonprovisional (regular) utility application. *See Fiscal Year 2007 Revised Fee Schedule*, 71 Fed. Reg. 32285 (proposed June 5, 2006) (to be codified at 37 C.F.R. pt. 1 & 41). The \$515 includes filing, search, and examination fees, all of which are required for nonprovisional applications. Of course, most of the expense associated with filing a patent application derives from the cost for an attorney to draft the application for filing (in the new schedule, a provisional application is \$210; a regular filing is \$310; and the search fee is \$510).

82. *See, e.g.*, Jeremy M. Grushcow, *Measuring Secrecy: A Cost of the Patent System Revealed*, 33 J. LEGAL STUD. 59, 82 (2004) (presenting data on the increased secretiveness of university researchers between 1980 and 1990); John P. Walsh & Wei Hong, Correspondence, *Secrecy is Increasing in Step with Competition*, 422 NATURE 801, 802 (2003). Of course, there are other reasons for increasing secrecy among researchers such as scientific competition. Nevertheless, the increasing prevalence of proprietary incentives cannot be ignored.

83. Walsh & Hong, *supra* note 82, at 802.

84. Eric G. Campbell et al., *Data Withholding in Academic Genetics*, 287, J. AM. MED. ASS'N 473, 478 (2002). This is not to suggest that increasing secrecy is solely, or even predominantly, the result of the patent novelty rules. There are a variety of contributing factors, such as the widespread inclusion of secrecy clauses in industry sponsorship agreements, and the increasingly competitive nature of academic research in general.

In addition, an analysis of the presentation, publication, and patenting patterns of university scientists in 1980 and 1990 revealed a troubling trend: an increase in the number of scientists withholding presentation of their data in order to seek patents.<sup>85</sup> The analysis considered the difference in the “publication gap,” the delay between a scientist’s presentation of data at a scientific conference and formal publication of that data in a peer-reviewed journal, as well as the increase in meeting abstracts associated with patents. In 1980, 4.5 percent of meeting abstracts examined were associated with a patent; by 1990, the corresponding number was 19.2 percent.<sup>86</sup> Moreover, eighty-eight percent of patents associated with meeting abstracts were filed before the conference presentation. The author of the study observed that:

Consistent with the incentive to withhold data when seeking patents, the lag between abstract presentation at the meeting and the formal publication in a peer-reviewed journal was shorter for university and NIH scientists<sup>87</sup> who sought patents than for their peers who did not seek patents. University scientists who sought patents presented meeting abstracts only on work that was complete, on average publishing in the same year as the meeting abstract, whereas university scientists who were not seeking patents published on average 1.21 years after their data were presented as a meeting abstract.<sup>88</sup>

The author concludes the data indicates that “scientists who seek patents are more secretive, withholding publication or presentation of their data so as not to jeopardize patentability.”<sup>89</sup>

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Nevertheless, the potential of the patent novelty rules to encourage this kind of behavior cannot be ignored.

85. Grushcow, *supra* note 82, at 60.

86. *Id.* at 73.

87. The Stevenson-Wydler Act applied the Bayh-Dole Act provisions to researchers in government labs, such as the NIH. Consequently, such researchers also have increased incentives to patent and commercialize their work. *See* Stevenson-Wydler Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311-2320 (codified as amended at 15 U.S.C. §§ 3701-3714 (1994)).

88. Grushcow, *supra* note 82, at 74 (data omitted). However, ninety percent of meeting abstracts were followed up with a formal publication. This indicates that even though university researchers may withhold early data, they still seek the benefits ultimately associated with publication.

89. *Id.* at 82. The author also noted that over time, secrecy increased among non-patent-seeking university researchers as well, suggesting an overall deterioration in academic sharing norms after Bayh-Dole. It is important to note that not all of these results are due to patents. Difficulties in obtaining research materials requested in material transfer agreements (MTAs) is perhaps an even larger problem for researchers and is likely

Preliminary results from a new study by Chiara Franzosi and Giuseppe Scellato further suggest a link between the lack of a robust grace period and delayed publication.<sup>90</sup> The authors analyzed a database of 1047 patents applied for in 2000 that were assigned to an academic institution; 371 were matched to a scientific paper to determine the patent-publication lag.<sup>91</sup> The results indicate that a patent system with a grace period reduces the amount of time between publication and patenting.<sup>92</sup> For applications originally filed in the U.S. and then later filed in the EPO (which has no meaningful grace period), the time lag between patent application filing and article publication increased by six to seven months.<sup>93</sup> The authors note that for patents with global commercial potential, the lack of a grace period in many markets may nullify its effect even in countries with a grace period. However, because the data is preliminary, it is unclear whether factors other than a grace period may be responsible for the results.<sup>94</sup>

Given the realities of academic research and TTO practices, even a one-year grace period is often not long enough to accommodate the needs of many researchers.<sup>95</sup> It is not uncommon for more than a single year to pass before academic research progresses to the point where a TTO can effectively assess the research's commercial potential.<sup>96</sup> As noted earlier, university inventions tend to be embryonic when they are first disclosed to TTO personnel who generally have limited resources and sparse data to determine which inventions to patent.<sup>97</sup> Nevertheless, a grace period of even one year provides needed time for both academic publication activity and TTO commercialization assessment to take place.<sup>98</sup>

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influenced more by competitive pressure and the burden of complying with the request than patent concerns. See John P. Walsh et al., *View from the Bench: Patents and Material Transfers*, 309 SCI. 2002, 2003 (2005).

90. Chiara Franzosi & Giuseppe Scellato, *Estimating the Determinants of Patent-Publication Lags in Europe and USA*, PROCEEDINGS OF THE ACADEMY OF INNOVATION AND ENTREPRENEURSHIP CONFERENCE (2008) (copy on file with the author).

91. *Id.*

92. *Id.* at 21.

93. *Id.*

94. For example, the results may have been affected by the difference in patent subject matter eligibility between the U.S. and the European Union. Moreover, there may be different publication cultures in various fields in the U.S. and the European Union because of different subject matter rules.

95. See Bagley, *supra* note 8, at 264.

96. *Id.*

97. See Thursby et al., *supra* note 54, at 63.

98. A proposal for addressing this issue made by the author elsewhere would involve injecting more flexibility into the patent system by creating an opt-in extended

#### D. The Grace Period in Europe

For several years there has been a vigorous debate over the introduction of a meaningful grace period in Europe.<sup>99</sup> The European Patent Convention (EPC) operates on an absolute-novelty basis, with limited (and virtually meaningless) exceptions for certain types of disclosures occurring within six months of the application filing date.<sup>100</sup> This stands in stark contrast to the one-year grace period within the U.S.<sup>101</sup> Many European countries had grace period provisions before joining the EPC, and at least two still retain varying types of grace periods in national law.<sup>102</sup> In a detailed opinion favoring adoption of a general grace period in Europe, Professor Dr. Joseph Straus noted the growing significance of academic and research institutes as diffusers of innovative knowledge and as patent applicants.<sup>103</sup> He also highlighted the need for early publication of academic research results; a need that is not met by publishing simultaneously with

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grace period, which would provide more time for academic researchers to publish and present early stage research before having to file a patent application. Such an extension, coupled with early application publication (i.e. publication of designated applications immediately after filing, instead of after an eighteen-month delay), would allow researchers to engage in traditional academic discourse while retaining the ability to obtain proprietary rights necessary for commercialization of their inventions. Importantly, it would also provide early disclosure of discoveries for other scientists to build upon. However, it would have the negative effect of putting the U.S. further out of step with other countries who have not even adopted a twelve-month grace period. *See* Bagley, *supra* note 8, at 256-66.

99. *See, e.g.*, IPR HELPDESK, *supra* note 22, at 2-3; Moussa, *supra* note 79, at 45.

100. The six-month grace period is only available where the invention was disclosed as a result of an evident abuse or was disclosed at an international exhibition, like a World's Fair. E.P.C., art. 54.

101. *See* 35 U.S.C. § 102(b). For example, the European Patent Convention only provides a narrow six-month grace period for disclosures resulting from an "evident abuse" or display in a qualified international exhibition. *See* E.P.C. art. 54(2). Moreover, the grace period dates from the filing of the actual European patent application, not a priority application, effectively eliminating the benefit of the grace period for foreign applicants who choose to take advantage of the Paris Convention right of priority after filing a first application in their home country. *See* Case G03/98, University Patents, Inc. v. Smith-Kline Beecham Biologicals SA, 2000 E.P.O.R. 33 (EPO Enlarged Bd. App. 2000). The Japanese Patent Act also provides a six-month grace period that covers the same items as the EPC provision as well as disclosures made by the patent applicant. *See* Tokkyo Ho [Patent Law of Japan] art. 30.

102. *See* IPR HELPDESK, *supra* note 22, at 2-3 (describing grace periods in Portugal, Spain, Russia, China, Canada, Japan, and other countries). Grace periods in Spain and Portugal are a derogation from the EPC and thus do not apply to European patents issued for those countries, but inventors seeking only national patents may benefit from them. *Id.*

103. Straus, *supra* note 71, at 61.

or after filing a patent application due to the disclosure norms of academia and the often embryonic nature of the invention.<sup>104</sup>

Information supplied by the European Commission IPR Helpdesk shows an awareness of the dangers to university researchers who contribute to scientific discourse through presentations and publications before seeking patent protection. It cites this problem as a main reason why inventions generated at European universities are rarely patented even though they are valuable and capable of being commercialized.<sup>105</sup>

ProTon Europe, in its Patent Policy statement, urges the European Commission to adopt a grace period for Europe. Its explanation of the problem is insightful:

[M]ost inventions are based to some extent on discoveries made by public research institutions. In Europe, if such discoveries are made public before filing a patent application, then the practical applications of these discoveries can no longer be protected by a patent, . . . Few university patents can resist this test.

In the USA, this is not so. The inventors have up to one year from the time of discovery to figure out all possible applications, and even speak with potential licensees, before filing a well constructed patent application. The public disclosures made during this period cannot be opposed to the patent application filed by the inventors or their assignees. This is referred to as a “grace” period of one year . . . [U]niversities are expected to publish their discoveries as soon as possible and to share them with their fellow scientists in the “Open Science” paradigm. Rapid public disclosure of discoveries is not avoidable, nor should it be avoided. The problem is that those applications that cannot be protected by patents as a result of such disclosure may never be developed for lack of protection of the required investments.<sup>106</sup>

Despite such statements from academics and proposals by EU member states in WIPO Substantive Patent Law Treaty negotiations, the European Commission and European Patent Organization have shown little interest in adopting a grace period due to significant resistance from industry.<sup>107</sup> Mr. Jan Galama of Philips International, author of a position paper arguing against the adoption of a grace period in Europe, expressed the view of many in industry: “[I]f scientists, universities, etc. wished to become play-

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104. *Id.*

105. IPR HELPDESK, *supra* note 22, at 1-2.

106. PROTON EUROPE, *supra* note 57, at 5-6.

107. *See id.*; *see also* IPR HELPDESK, *supra* note 22, at 2-3.

ers in the economic world they would have to disregard some old habits.”<sup>108</sup>

### E. The FTI Bargaining Chip

With the increasing European and Asian interest in technology transfer, the U.S.’s retention of FTI could serve as a bargaining chip that creates the necessary incentives for the adoption of a one-year grace period by other countries. Such a move would benefit entrepreneurs and researchers both in the U.S. and abroad and aid in the global diffusion of knowledge through both publication and patenting.

So why “give away” FTI for free when we can use it to seek a grace period that will benefit not only small entities in the U.S. but also those in other countries and thus contribute to the prompt dissemination of global knowledge?<sup>109</sup> Moreover, a grace period’s potential benefit would not be limited to small entities. Japan has a six-month grace period that must be explicitly invoked when filing a patent application. According to one commentator:

In this connection, the delegation of Japan indicated that only about 0.2% of all patent applications filed in Japan invoked the provisions of the Japanese law concerning the grace period; The [sic] percentage was somewhat higher in respect of applications which were published after substantive examination. Among those applications, *about half were filed by large Japanese corporations*, one third by the Japanese Government and national research institutes, 10% by Japanese individual inventors and small-sized corporations, and less than 5% by foreign applicants. As regards the reasons for which the grace period was invoked, about three quarters of all cases concerned disclosure to a scientific meeting and almost one quarter printed publications; Unlawful disclosure was invoked only in about 1% of all cases, and

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108. Jan E.M. Galama, European Patent Organisation, Expert Opinion on the Case for and Against the Introduction of a Grace Period in Europe 23 (2002), *available at* <http://www.european-patent-office.org/news/pressrel/pdf/galama.pdf>; *see also* Commission of the European Communities, An Assessment of the Implications for Basic Genetic Engineering Research of Failure to Publish, or Late Publication of, Papers on Subjects Which Could be Patentable as Required under Article 16(b) of Directive 98/44/EC on the Legal Protection of Biotechnological Inventions (2002), *available at* <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0002:FIN:EN:PDF>.

109. For a view that FTI should not be used as a bargaining chip in international patent treaty negotiations, see LaFuze, *Patent Quality Improvement*, *supra* note 58, at 3 (positing that because a move to FITF is in our best interest, “our possible willingness to abandon our current system no longer serves as a potential negotiating chip in international patent harmonization discussions”).

disclosure at an exhibition was not invoked in any of the cases.<sup>110</sup>

Thus large corporations may also benefit from the flexibility a grace period offers. While the two patent reform bills introduced in Congress in 2007 both contain provisions to switch the U.S. from FTI to FITF, the House bill, H.R. 1908, contains an interesting caveat for adoption of FITF not found in the Senate version. Under the section on effective dates, H.R.1908 states:

The amendments made by this section . . . shall take effect 90 days after the date on which the President issues an Executive order containing the President's finding that major patenting authorities have adopted a grace period having substantially the same effect as that contained under the amendments made by this section[.]<sup>111</sup>

The Act further defines "Major Patenting Authorities" to include "at least the patenting authorities in Europe and Japan."<sup>112</sup> In other words, the section of the Act moving the U.S. from FTI to FITF would not take effect until at least the European Patent Convention and the Japanese Patent Act are amended to provide for a one-year grace period.<sup>113</sup> This seems like a creative way to ensure the quid pro quo of a grace period that the U.S. has long sought in exchange for the adoption of FITF. But what does a grace period look like in a FITF world?

#### F. FITF and the Grace Period: An Awkward Fit

As discussed above, a one-year grace period is beneficial and important for small entity inventors, including academic researchers. The current U.S. grace period embodied in 35 U.S.C. § 102(b) insulates an inventor against personal or third party patents, printed publications, or geographically specific public uses or sales of the claimed invention that take place up to one-year before she files her patent application.<sup>114</sup> In combina-

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110. Straus, *supra* note 71, at ¶ 12 (emphasis added).

111. H.R. 1908, 110th Cong. § 146 (k)(1)(a) (2007).

112. *Id.* That list should include China and Korea. According to the WIPO, the five offices that received the most patent applications in 2007 were Japan, the U.S., China, Korea, and the European Patent Office, in that order. WORLD INTELLECTUAL PROP. ORG., WIPO PATENT REPORT 12 (2007), available at [http://www.wipo.int/export/sites/www/freepublications/en/patents/931/wipo\\_pub\\_931.pdf](http://www.wipo.int/export/sites/www/freepublications/en/patents/931/wipo_pub_931.pdf).

113. See H.R. 1908, at § 146 (k)(1)(a); WIPO PATENT REPORT, *supra* note 112, at 12.

114. § 102(b) states that 'A person shall be entitled to a patent unless . . . the invention was patented or described in a printed publication in this or a foreign country, or in

tion with FTI, this means that a U.S. inventor can safely sell products she has invented or publish a paper on the invention up to a year before filing an application without losing the right to a patent.<sup>115</sup> If, for example, a competitor sees the inventor's disclosure during this period and develops an obvious variation of it (or comes up with it independently) and files a patent application before the first inventor, the first inventor still would be able to obtain her patent through an interference and prevent a patent from issuing to the first filer.

Conversely, the grace period provided in pending FITF patent reform legislation only provides protection against disclosures made by or derived from the applicant and does not impact priority.<sup>116</sup> So what happens if an inventor publishes an article disclosing her invention during the grace period, and a second independent inventor files an application first on the same invention? The wording of the proposed legislation suggests a similar result to that which would be obtained in, for example, Korea: the first inventor would not be entitled to a patent because she was not the first inventor to file.<sup>117</sup> But the second inventor also would not be entitled to the patent because the first inventor's publication would be novelty-precluding prior art to her since the proposed grace period does not protect against third party disclosures.<sup>118</sup> This illustrates just one issue that pending FITF legislation does not clearly address. The situation is further complicated by the issue of prior user rights and creates a question of whether (and in what form) pending legislation should include them.<sup>119</sup>

The H.R. 1908 approach of tying a switch to FITF to Japan and Europe's adoption of a one-year grace period is a good start. An even better approach would be to remove FITF from pending legislation until international negotiations are complete and a treaty is signed that addresses priority and the grace period in a comprehensive, harmonized manner.<sup>120</sup> In

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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." 35 U.S.C. § 102(b) (2000).

115. *Id.*

116. See The Patent Reform Act of 2008, S. 3600, 110th Cong., at § 2 (2008); The Patent Reform Act of 2007, H.R. 1908, at § 2; S. 1145, 110th Cong., at § 2 (2007).

117. See Man-Gi Paik & Jae-Choon You, *Korea: What Korea's Patent Reforms Mean for You*, MANAGING INTELLECTUAL PROP. (SUPPLEMENT—ASIA-PACIFIC IP FOCUS 2006), Oct. 2006, available at <http://www.managingip.com/Article.aspx?ArticleID=1321299>.

118. *Id.*

119. See discussion *supra* at Section III.a.

120. The WIPO Standing Committee on the Law of Patents recently reconvened and began renewed efforts toward negotiation of a substantive patent law treaty that would likely include FITF and grace period provisions, as they have been part of this body's previous discussions. See WORLD INTELLECTUAL PROP. ORG., *supra* note 31; see also

addition, a move to FITF should be delayed until domestic consensus is reached on the necessary complements to FITF, such as the scope of prior user rights, the breadth of the grace period, and the impact of the grace period on priority.

#### IV. CONCLUSIONS

The U.S. FTI system may be unique in the world but it offers significant benefits to small entity entrepreneurs and others. Through a robust grace period, it allows time for commercialization assessments, revenue generation, and academic discourse. It also obviates the need for a prior user rights system with its potential to dilute the value of exclusive patent rights. Yet, as evidenced by pending legislation, there is considerable pressure for the U.S. to discard FTI for FITF.

A U.S. move to FITF is unlikely to signal the end of the world for small entity inventors, but it does not seem to offer enough benefits, as currently proposed, to justify its potential harms. Nevertheless, if the U.S. is to move to a FITF patent regime, when should it do so? Only when such a move will provide a clear advantage for small entities by facilitating the adoption of a one-year grace period outside of the U.S.

As discussed above, a move by the United States to a FITF system will likely have negative ramifications for small entity inventors. Delaying a move to FITF until it can be used to facilitate the adoption of a one-year grace period in other countries will allow the United States to make the bitter pill of the race to the patent office considerably easier for many researchers and entrepreneurs to swallow by providing them with something very useful in return. The adage “haste makes waste” surely applies here:

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World Intellectual Prop. Org, Substantive Patent Law Harmonization, <http://www.wipo.int/patent-law/en/harmonization.htm> (last visited July 1, 2008). As USPTO Director Jon Dudas explains:

It should be noted that U.S. conversion to first-to-file is an overriding consideration in ongoing substantive patent law harmonization discussions with foreign patent offices. . . . In this regard, we believe that any U.S. commitment to convert to first-to-file should be contingent on significant progress and international agreement in those harmonization discussions. In particular, the United States seeks a standardized one-year international grace period to protect American inventors who might disclose their invention prior to filing for a patent.

*Patent Reform: The Future of American Innovation: Hearings Before the S. Comm. on the Judiciary*, 110th Cong. 3 (2007) (statement of Jon W. Dudas, Under Secretary of Commerce for Intellectual Property & Director of USPTO), available at [http://judiciary.senate.gov/testimony.cfm?id=2803&wit\\_id=6506](http://judiciary.senate.gov/testimony.cfm?id=2803&wit_id=6506).

a hasty move to FITF may waste our best hope for obtaining from other countries the grace period that is so critical for small entity innovation, academic discourse, and prompt dissemination of information.