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A Case for the Public Domain

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A CASE FOR THE PUBLIC DOMAIN

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Over the past several decades open license movements have proven highly successful in the software and content worlds. Such movements rely in part on the belief that greater freedom of use triggers innovative activity that is superior to what a restrictive IP approach produces. Ironically, such open license movements also rely on IP rights to promote their vision of freedom and openness. They do so through IP licenses that, while granting significant freedoms, also impose certain conditions on users such as the “copyleft” requirement in the software world. Such movements rely on this IP-based approach due to fears that, without IP rights and such conditions, a tragedy of the commons would ensue. This Article argues that this IP-based approach, while perhaps helpful in the beginning, is no longer necessary and in fact prevents the movements from reaching their full potential. The IP-based approach has this effect by causing significant transaction costs without offsetting benefits, resulting in a tragedy of the anti-commons. The IP-based approach also creates the risk of IP trolls in the future, especially in the copyright sphere. Furthermore, the resulting anti-commons is unnecessary to prevent the feared tragedy of the commons because most contributors to open movements do so for reasons that do not fit within the typical tragedy of the commons story. The Article then examines the benefits of a public domain approach and argues that such an approach would reduce the wasteful transaction costs, limit the possibility of IP trolls, still satisfy the purposes of those that contribute materials under open licenses, and better align with the normative tenets of such movements. To conclude, the Article assesses the merits of a “Public Domain Act” that would help address obstacles that currently exist in dedicating materials to the public domain and posits some theoretical implications relating to innovation based on the experiences of the open license movements and the arguments of this Article.

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INTRODUCTION

According to conventional wisdom, societies will under-produce inventions and other creative works without intellectual property (“IP”) rights.¹ IP regimes throughout the world reflect this belief,² including the United States Constitution.³ Over the last number of years, furthermore, countries across the globe have bolstered IP rights in response to technological changes.⁴ Doing so, the argument goes, is necessary to ensure that innovators keep on innovating.

In the past few decades, several “open” models of innovation have

¹ ROBERT P. MERGES, *JUSTIFYING INTELLECTUAL PROPERTY 2* (2011) (indicating that current convention postulates that IP law seeks to maximize the net social benefit by offering above-market rewards (i.e., IP rights) to creators of inventions and other works that would not be created, or not created as soon or as well, without such IP rights).

² Rochelle Cooper Dreyfuss, *Does IP Need IP? Accommodating Intellectual Production Outside the Intellectual Property Paradigm*, 31 *CARDOZO L. REV.* 1437, 1441 (2010).

³ROBERT P. MERGES, PETER S. MENELL, & MARK A. LEMLEY, *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 11 (6th ed. 2012) (Article I, Section 8 of the U.S. Constitution gives Congress the power to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries...”).

⁴Dreyfuss, *supra* note 2.

arisen in response to the increasingly expansive IP regimes throughout the world.⁵ These movements are based in part on an alternative theory of innovation, namely, that freedom of use fosters increased collaboration, which in turn spurs inventive and creative activity.⁶ Some have thus identified open models of innovation as anti-IP models of innovation, at least in the traditional utilitarian sense of IP.⁷ Ironically, however, these open movements rely on IP rights to promote their paths of innovation. They do so through IP licenses that essentially give users the freedom to do what they'd like with the licensed materials, subject to certain attribution requirements and in some cases granting the same expansive freedoms to any additional downstream users of the materials—the so-called “copyleft,” “viral,” “reciprocal,” or “share-alike” effect of such licenses.⁸

These open license movements have seen significant success in promoting inventive and creative activity, despite the utilitarian/economic incentives story that suggests such activity is unlikely.⁹ Popular consumer electronic products, such as Android-based phones and tablets, run largely on free and open source software (“FOSS”).¹⁰ The world’s web servers mostly do as well.¹¹ Popular web browsers such as Firefox are also built on FOSS.¹² Wikipedia content is available under a Creative Commons

⁵ See generally Creative Commons, *History*, <http://creativecommons.org/about/history> (last visited Oct. 17, 2012) (listing chronologically milestones that the Creative Commons has reached since its inception in 2001). See also CHRIS DIBONA & SAM OCKMAN, *OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION* (1999) (providing a comprehensive history of the beginnings of the free and open source software movement).

⁶ See, e.g., RICHARD M. STALLMAN, *FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN* 40-1, 45-56 (2d ed. 2010) (arguing that software “freedom” enables developers to share their improvements with each other more readily, which in turn leads to enhanced innovation). See also Creative Commons, *About*, <http://creativecommons.org/about> (last visited Oct. 17, 2012) (indicating that its goal is to develop legal and technical infrastructure that “maximizes digital creativity, sharing, and innovation”).

⁷ See generally Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183 (2004) (viewing open licensing movements as introducing new dynamics to the public domain, and thus the world of non-IP); Dan Hunter, *Culture War*, 83 TEX. L. REV. 1105, 1127 (2005) (indicating that open license movements “bypass the structural inequalities of the intellectual property system” and reject “the philosophical basis of copyright and patent laws”).

⁸ See *infra* Part II.

⁹ See generally MICHELE BOLDRIN & DAVID K LEVINE, *AGAINST INTELLECTUAL MONOPOLY* 17-21 (2008) (discussing the significant successes of FOSS); Steven Weber, *THE SUCCESS OF OPEN SOURCE* (2004).

¹⁰ See generally *Android Open Source Project*, <http://source.android.com/> (last visited Nov. 9, 2012).

¹¹ *Jacobsen v. Katzer*, 535 F.3d 1373, 1376 (Fed. Cir. 2008) (noting the many successes of open licensing movements).

¹² *Id.*

license.¹³ Millions of copyright holders authors have released content under Creative Commons licenses.¹⁴ And the list goes on.¹⁵

Given these counterintuitive results, commentators have devoted significant attention to analyzing why these movements have experienced such tremendous successes. Many commentators have focused on the reasons why people and firms contribute to open-licensed projects, despite lacking the typical economic incentives to do so.¹⁶ Others have explored the virtues of open models of innovation themselves in order to explain their successes.¹⁷ And yet others have championed expanding open models of innovation into other areas in order to generate the same types of benefits that more mature open-license movements have yielded.¹⁸

Yet little if any attention has focused on analyzing whether the original strategy of the most successful open models of innovation—that is, relying on IP rights to counter restrictive IP regimes and thereby promote innovation—is actually the right strategy. Some have argued against certain aspects of this IP approach, but no one has made a serious case for abandoning IP rights altogether.¹⁹ Most seem to take the IP approach as a

¹³ *Id.*

¹⁴ *Id.* (noting that by Creative Commons' estimates some 100,000,000 works have been licensed under Creative Commons licenses).

¹⁵ Gavin Newsom, *Why Open Source Is the New Software Policy in San Francisco*, MASHABLE TECH, Jan. 22, 2010, <http://mashable.com/2010/01/22/open-source-san-francisco/> (discussing the city of San Francisco's adoption of FOSS to serve critical IT needs).

¹⁶ *See infra* Part II.

¹⁷ *See generally* Yochai Benkler, *Coase's Penguin, Or, Linux and the Nature of the Firm*, 112 YALE L.J. 369 (2002) (articulating certain advantages of open, peer-to-peer production over traditional firm management of innovation, such as more efficient allocation of human capital to address innovation problems).

¹⁸ *See, e.g.*, M. Ryan Calo, *Open Robotics*, 70 MARYLAND L. REV. 101 (2011) (arguing that an open model of innovation in the field of personal robotics is necessary in order for the field to reach its potential); and John R. Ackermann, *Toward Open Source Hardware*, 34 U. DAYTON L. REV. 183 (2009) (discussing efforts to apply open license principles to hardware development generally).

¹⁹ There has been significant discussion about what types of open licenses serve the interests of the movements most ably. *See, e.g.*, Free Software Foundation, *Why Copyleft?* <http://www.gnu.org/philosophy/why-copyleft.html> (last updated June 10, 2012) (arguing in favor of reciprocal licenses over attribution-only licenses in the FOSS world); Eric S. Raymond, *The Economic Case Against the GPL*, Apr. 26, 2009, <http://esr.ibiblio.org/?p=928> (critiquing the need for reciprocity, but falling short of critiquing the overall IP approach); Greg R. Vetter, *"Infectious" Open Source Software: Spreading Incentives or Promoting Resistance?*, 36 RUT. L.J. 53 (2004) (arguing that reciprocal licenses do more harm than good); Miriam Bitton, *Modernizing Copyright Law*, 20 TEX. INTELL. PROP. L.J. 65 (2011) (advocating reforming copyright law to reflect many of the tenets of open license movements, including attribution and reciprocity). But few have advocated or even explored abandoning IP rights altogether and fully embracing a

given, while others have advocated bolstering it.²⁰ Many, including the founders of such movements, have argued that IP rights are necessary in order to prevent a tragedy of the commons.²¹ If open-licensed materials were left unprotected by IP rights, the argument goes, free riders would simply take from the commons while not contributing back into it.²² The commons would disappear. Others have come to similar conclusions.²³

This Article makes the case for a public domain approach to innovation. Despite the successes of the IP approach, this Article argues that the FOSS, Creative Commons, and other open license movements would be better served by abandoning IP rights altogether and fully embracing a public domain approach to innovation. Several arguments, as laid out more fully below, support this conclusion. First, in the corporate setting, the presence of IP rights introduces wasteful transaction costs, without offsetting benefits, and these costs slow innovation, a primary objective of such open license movements. A “tragedy of the anti-commons” results. Second, and importantly, dedicating such materials to the public domain in most cases still satisfies the complex set of motivations of actors that choose to contribute to open-licensed projects, at least to the same extent that the IP approach does. In short, IP rights do not appear to be a primary motivation of contributors to open-licensed projects. This is yet another reason to doubt that abandoning the IP approach will lead to less innovation in open movements, or that a tragedy of the commons would occur without IP rights.

Third, the rationales for the IP approach no longer appear persuasive in light of actual experience. The successes of attribution-only licensed projects and the rise of Cloud computing—where the reciprocal effect of open licenses is generally not in play—provide just two, yet powerful, examples. Fourth, dedicating such materials to the public domain would

public domain approach. For one such movement, see <http://unlicense.org/> (advocating a public domain approach to software, at least with respect to copyright).

²⁰ Jason Schultz & Jennifer M. Urban, *Protecting Open Innovation: A New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J. L. & TECH. (2012) (proposing a model defensive patent license in order to protect open license movements from the threat of patents); Lydia Pallas Loren, *Building a Reliable Semicommons of Creative Works: Enforcement of Creative Commons Licenses and Limited Abandonment of Copyright*, 14 GEO. MASON L. REV. 271 (2007) (advocating the adoption of a doctrine of limited abandonment of copyright in order to ensure that users of open licensed materials continue to retain the public benefits of such materials in perpetuity).

²¹ See *infra* Parts III.c and IV.d

²² *Id.*

²³ David McGowan, *Legal implications of Open-Source Software*, 2001 U. ILL. L. REV. 241, 287-8 (2001) (arguing that without IP rights, the FOSS movement would likely founder due to free rider issues and contributors to the FOSS movement lacking assurance that their contributions would not be “stolen” by such free riders).

help eliminate the possibility of IP trolls using open-licensed materials against “violators” in the future. Such a possibility seems especially perverse given the purposes of open models of innovation in the first place—that is, promoting as broad use of the materials as possible. And finally, clinging to an IP approach only reinforces the legitimacy of expansive IP rights in the software and content arenas. Conversely, promoting freedom through public domain dedications better helps create a true commons and norms of free access and use.

This is not to say that IP rights were not vital in helping establish the open license movements. To the contrary, IP rights played a role, especially in the early years of such movements, in helping users see the advantages and potential of an open model of innovation. But in the majority of cases the IP approach’s time has come and gone. As this Article will argue, open models of innovation continue to thrive in spite of IP rights, not because of them. That these movements would do even better without IP rights suggests that open models of innovation can and should become viable on their own. But the crutch of IP rights has prevented these movements from reaching their full potential. They should thus be abandoned.

This Article proceeds as follows. Part I provides an open licensing primer, including an overview of the general categories of open licenses and the literature regarding why people and firms contribute to open-licensed projects. Part II then examines the costs such an IP approach has in the corporate setting which, this Article argues, no longer serve any purpose other than stifling innovation, resulting in a tragedy of the anti-commons. Part III explores the merits of a fully public domain approach and contends that such an approach eliminates many of these wasteful transaction costs, satisfies the motivations of most contributors to open-licensed projects, reduces the possibility of IP trolls, and better aligns—both in theory and in practice—with the goals of open license movements, all without resulting in a tragedy of the commons. Part IV explores challenges that a public domain approach might present, as well as possible solutions to such challenges in the form of a federal Public Domain Act. Part V concludes by positing some theoretical implications relating to innovation based on the experiences of the open license movements and the arguments of this Article.

I. OPEN LICENSING

A. Open Licensing 101

The Creative Commons and FOSS movements constitute the two largest and most successful open license movements in the world. The

Creative Commons licenses are generally intended for content such as literary works, music, and other creative works subject to copyright.²⁴ The FOSS licenses are primarily intended for software.²⁵ Both licensing movements rely on IP rights to promote their causes.²⁶ Rather than disclaiming IP rights, licensors of open-licensed materials retain them while granting downstream users significant rights in the source code²⁷ in the case of FOSS licenses and the content in the case of Creative Commons licenses.²⁸

What do the licensors require in return? In both movements, two general categories of licenses exist.²⁹ The first are what might be called “attribution-only” licenses. These licenses basically grant downstream users a license to all of the creators’ rights in copyright—and sometimes patent rights in the FOSS world—subject to downstream users including relevant IP notices and a copy of the applicable open license in the documentation of any additional distribution to third parties.³⁰

The attribution-only licenses are the most permissive type of open licenses.³¹ In many ways they are quasi-public domain dedications since

²⁴ See Creative Commons, *supra* note 6.

²⁵ See generally Free Software Foundation, *About*, <http://www.fsf.org/about/> (last visited Oct. 18, 2012) and Open Source Initiative, *About the Open Source Initiative*, <http://opensource.org/about> (last visited Oct. 18, 2012).

²⁶ *Id.* (indicating that Creative Commons licenses “are not an alternative to copyright. They work alongside copyright and enable you to modify your copyright terms to best suit your needs”); Stallman, *supra* note 9, at 129 (stating that “since proprietary software developers use copyright to stop us from sharing, we cooperators can use copyright to give other cooperators an advantage of their own: they can use our code” via FOSS licenses such as the General Public License).

²⁷ That is, the human-readable version of the software that is ultimately translated into object or binary code, which the relevant device then executes.

²⁸ The Creative Commons movement does include a public domain dedication tool that users are free to adopt, which will be discussed in more detail *infra* Part IV.

²⁹ The Creative Commons movement includes other license variations based on prohibitions against commercial use and making derivative works, which conditions can be mixed and matched with the attribution and share-alike requirements to come to the preferred set of license requirements. The most widely used FOSS licenses do not include any such limitations, and so this paper will not focus on these license variations, although the basic conclusion of this paper—that a better approach to open models of innovation would be to abandon IP rights altogether—applies equally to these license variations.

³⁰ For examples of such a license in each movement, see <http://opensource.org/licenses/BSD-2-Clause> (providing the general template of the BSD 2-Clause FOSS license, one of the more popular and widely used attribution-only licenses in the FOSS movement) and <http://creativecommons.org/licenses/by/3.0/legalcode> (providing the general template of the Creative Commons Attribution 3.0 Unported license).

³¹ See Creative Commons, *About the Licenses: Attribution Creative Commons BY*, <http://creativecommons.org/licenses/> (last visited Oct. 18, 2012) (indicating the attribution-

subsequent users have no obligations other than providing the required attribution. Indeed, any third party is entitled to sell the open-licensed materials under its own brand and license terms, so long as providing the relevant attribution.³² Doing so in most cases is unrealistic, since potential purchasers can also obtain the software or content themselves under the terms of the attribution-only open license directly from the original licensor, so long as the original licensor continues to license the material accordingly. But if sellers of the attribution-only software or content modify the software or content, they need not offer that modified version under the terms of the original attribution-only license. They can “close” that modified version and charge for it. In essence, they are free to take from the commons, but they need not contribute back into it.

The second general category of open licenses dictates the opposite result. These licenses are generally referred to as “viral,” “reciprocal,” or “copyleft” licenses in the FOSS context, and “share-alike” licenses in the Creative Commons world. For ease of reference, this Article will use one term going forward: “reciprocal” or “reciprocity.” Reciprocity requires downstream users, upon modifying the content or software and further distributing it, to make that modified version available to downstream users under the terms of the original open license.³³ Any unmodified version that the downstream user distributes must also remain under the original open license terms.

One of the basic purposes of reciprocal licenses, therefore, is to prevent downstream users from taking from the commons while not contributing back into it. In the words of Eben Moglen, long a leading figure in the FOSS movement, reciprocity serves to prevent “defections” from the FOSS movement.³⁴ The FOSS and Creative Commons movements thus use reciprocal IP licenses to lock software and content into their versions of openness and freedom.

Reciprocal licenses in the FOSS world also often explicitly—and, in

only license as its “most accommodating of licenses offered”).

³² See Open Source Initiative, *Frequently Asked Questions: Can Open Source Software Be Used for Commercial Purposes?*, <http://opensource.org/faq#commercial> (last visited Oct. 18, 2012) (indicating that FOSS can be used for commercial purposes, while cautioning that reciprocal licenses might prevent subsequent users from imposing additional restrictions on the FOSS, which attribution-only licenses do not do).

³³ See, e.g., Free Software Foundation, *What Is Copyleft?*, <http://www.gnu.org/copyleft/> (last updated Oct. 6, 2012) (providing a general overview of how copyleft works) and Creative Commons, *Attribution-ShareAlike 3.0 Unported (Creative Commons BY-SA 3.0)*, <http://creativecommons.org/licenses/by-sa/3.0/> (last visited Oct. 18, 2012) (providing a definition of “share-alike”).

³⁴ Eben Moglen, *Anarchism Triumphant: Fee Software and the Death of Copyright*, June 28, 1999, at 22, available at <http://emoglen.law.columbia.edu/publications/anarchism.pdf>.

other cases, some have argued, implicitly³⁵—grant downstream users a patent license while also requiring anyone that contributes to and further distributes the software to similarly grant patent licenses to downstream users.³⁶ The patent licenses in FOSS reciprocal licenses vary in scope and form, but the general patent license concept appears in a number of important reciprocal FOSS licenses.³⁷ Such patent reciprocity precludes patent suits from users and distributors of FOSS, thus keeping the FOSS commons open and free to use, at least with respect to those that benefit from it.³⁸ For instance, such patent reciprocity would preclude a corporate entity from taking FOSS, modifying it, distributing it, and then asserting patent rights with respect to its modifications to the FOSS against any downstream users.³⁹

Directly monetizing reciprocal-licensed materials is difficult. In many reciprocal licenses there is nothing explicitly forbidding using the materials for commercial purposes. In fact, some founders of the open license movements suggest commercial use is encouraged.⁴⁰ However, because the reciprocal licenses dictate that the materials and any modified versions thereof remain under the original open license terms, charging royalties for such materials becomes impossible because anyone that receives a copy receives it under the terms of the original reciprocal license terms and is thus free to distribute additional copies to any other third

³⁵ See, e.g., Florian Mueller, *GPLv2's Implicit Patent License and Dalvik*, June 6, 2011, LWN.NET, <http://lwn.net/Articles/446323/> (noted FOSS activist confirming the industry understanding that the second version of the General Public License includes an implicit patent license).

³⁶ See, e.g., Clark D. Asay, *The General Public License Version 3.0: Making or Breaking the FOSS Movement?*, 14 MICH. TELECOMM. TECH. L. REV. 265, 288-91 (2008) (summarizing the patent provisions of the newest version of the General Public License).

³⁷ Some reciprocal licenses have additional requirements. For instance, in 2007 the Free Software Foundation released version three of the General Public License (“GPL3”), one of the FOSS world’s most popular licenses. In addition to its controversial patent provisions, GPL3 imposes significant requirements on users of GPL3-licensed software with respect digital rights management technology used in connection with such GPL3-licensed software. The Creative Commons movement includes a slate of six different license options, some of which prohibit commercial use of the Creative Commons-licensed content, while another option simply prohibits modifications. Though providing such options, Creative Commons designates these as not “Free Culture Licenses.”

³⁸ Asay, *supra* note 36.

³⁹ Asay, *supra* note 36.

⁴⁰ See Moglen, *supra* note 34 (indicating that FOSS enables competitors of proprietary software companies to more ably compete, and in response to suggestions that FOSS is anti-commercial, “[n]othing could be further from the truth”); Stallman, *supra* note 6, at 4 (indicating that FOSS does not mean “noncommercial” and that commercial FOSS is “very important”).

party.⁴¹ Consequently, any attempts to charge royalties will likely fail because once a copy is distributed under the reciprocal license, costless copies will almost certainly become available.

B. Explaining the Open Licensing Paradox

Why do creators contribute software and content under open licenses? Prevailing legal theory suggests that without direct economic interests, such creators will not have the right set of incentives to create and innovate. Consequently, no significant innovative activity will occur. And in the case of the FOSS and Creative Commons movements, finding direct economic motivations for the owners of such materials is often difficult since downstream users have such expansive rights in the open-licensed materials.

Commentators have provided a number of explanations for this apparent paradox. Studies suggest that parties that contribute to FOSS projects do so based on a complex mix of intrinsic and extrinsic motives. For instance, contributors may participate in FOSS projects due to the “signaling effects” of their development activity: though not gaining direct economic remuneration, they may profit from reputational benefits and gain useful experience that improves their future career opportunities.⁴² Other surveys suggest that some contributors participate simply because they enjoy the sense of creativity that comes with their participation and sharing knowledge with others.⁴³ Indeed, Eben Moglen suggests that creativity by

⁴¹ See, e.g., Free Software Foundation, *The GNU General Public License, Version 3, Preamble*, June 29, 2007, available at <http://www.gnu.org/licenses/agpl-3.0.html> (stipulating that “if you distribute copies of...a program [licensed under the General Public License], whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received...[and] that they, too receive or can get the source code).

⁴² See Josh Lerner & Jean Tirole, *The Simple Economics of Open Source*, 14-8, (2000), available at http://papers.ssrn.com/paper.taf?abstract_id=224008 (discussing the “signaling incentives” that motivate software programs to participate in FOSS projects); Josh Lerner & Jean Tirole, *The Economics of Technology Sharing: Open Source and Beyond*, 7-11 (2004), available at <http://www.nber.org/papers/w10956> (postulating many of the same signaling incentives that motivate software programmers while also reviewing extant surveys that confirm that such incentives do in fact motivate programmers to contribute time and resources to open-licensed projects); and Sebastian V. Engelhardt, *What Economists Know About Open Source Software: Its Basic Principles and Research Results*, 10-2 (2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1759976 (providing a literature review of relevant studies done on the motivations of programmers in contributing to open licensed projects). In addition to these surveys and studies specifically addressing the FOSS context, recent academic work has also analyzed the non-pecuniary reasons that people and firms innovate more broadly. See Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745 (2013).

⁴³ See Engelhardt, *supra* note 42.

and large explains why individual contributors participate in FOSS development.⁴⁴

The Free Software Foundation and its constituents, copyright holder of a number of important FOSS projects, are primarily motivated by idealism and a strong sense of what is “right” in the software world—that is, that software wants and deserves to be “free.”⁴⁵ Though tolerating attribution-only licenses in limited cases, the FSF licenses most of its projects under reciprocal licenses and claims doing so has been a great success at pushing software into the FOSS commons that otherwise would have remained “closed.”⁴⁶ Similar rationales have influenced other IP rights holders in adopting reciprocal licenses for their content or software.⁴⁷

Firms may contribute to open-licensed projects in order to promote an alternative to their rivals’ products.⁴⁸ This rationale helps explain why so many corporate actors participated in the FOSS movement early on: in order to promote an alternative—Linux—to Microsoft’s dominant operating system.⁴⁹ It also explains in part Google’s sponsorship of the Android OS as an alternative to Apple’s iOS.⁵⁰ Relatedly, firms often contribute to open-licensed projects because they use and benefit from the projects and therefore seek to improve and influence them.⁵¹ If the project adopts their contributions, for instance, this can mean less engineering efforts required later on to implement those same changes with each new version of the

⁴⁴ Moglen, *supra* note 34, at 7, 23-6.

⁴⁵ Stallman, *supra* note 6, at 40-1.

⁴⁶ *Id.* at 129-31 (listing specific examples of where the reciprocity requirement allegedly forced companies to contribute to the FOSS commons).

⁴⁷ See Josh Lerner & Jean Tirole, *The Scope of Open Licensing*, 12-4 (2002), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=354220 (indicating that the possibility of third parties “hijacking” non-reciprocal-licensed FOSS projects leads some projects to adopt reciprocal licenses). For examples of IP rights holders adopting or advocating reciprocal licenses for their materials, along with their rationales for doing so, see Dylan Harris, *Why Copyleft*, 2003, <http://dylanharris.org/prose/gal/ycl.shtml>; and Linux Reviews, *Why Copyleft Is Important for the Human Species as a Whole*, LINUXREVIEWS.ORG (last visited Oct. 19, 2012), http://linuxreviews.org/features/copyright_vs_copyleft/index.html.en (indicating that reciprocity helps ensure that the commons remains open and robust).

⁴⁸ See Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 192-93 (2004); and Ronald J. Mann, *Commercializing Open Source Software: Do Property Rights Still Matter?*, 20 HARV. J.L. & TECH 1, 23 (2006).

⁴⁹ Merges, *supra* note 48.

⁵⁰ See, e.g., Jack Whalen, *10 Things Android Phones Do Better Than the iPhone*, TECHREPUBLIC, Nov. 3, 2009, <http://www.techrepublic.com/blog/10things/10-things-android-phones-do-better-than-the-iphone/1131> (indicating that one of the advantages of Android compared to Apple’s iOS is that the Android operating system is FOSS and therefore available to all developers to improve and modify).

⁵¹ See Merges, *supra* note 48 and Mann, *supra* note 48, at 21-2.

open-licensed project, as well as triggering innovation in a direction that benefits the firm.⁵²

Some firms, such as Red Hat, have also found ways to indirectly monetize open-licensed materials by selling services related to such open-licensed materials.⁵³ Indeed, many firms do not use FOSS as a profit center per se, but instead use it in connection with complementary products such as hardware, premium versions of the software, services such as maintenance, and so forth.⁵⁴

Conversely, IP rights do not appear to strongly motivate contributors to open-licensed projects, at least in the traditional utilitarian/economic incentives sense.⁵⁵ If they did, one might expect IP rights holders to enforce their rights more diligently and collect damages when available. While some case law surrounding open licenses exists, it is extremely limited,⁵⁶ despite some evidence suggesting that open license compliance is often rather weak.⁵⁷ In situations where rights holders have brought cases, they have typically done so simply in order to enforce the open standards of the licenses, not in order to obtain monetary damages.⁵⁸ For instance, in the FOSS world, the Free Software Foundation's stated purpose is not to collect money damages, but to ensure that FOSS remains "free."⁵⁹

This result seems unsurprising given that the motivation of most

⁵² See, e.g., Kevin McEntee, *Why We Use and Contribute to Open Source Software*, THE NETFLIX TECH BLOG, Dec. 10, 2010, <http://techblog.netflix.com/2010/12/why-we-use-and-contribute-to-open.html> (indicating that one of the reasons that Netflix contributes to FOSS projects is because "[b]y sharing our bug fixes and new features back out into the community, the community then in turn continues to improve upon bug fixes and new features that originated at Netflix and then we complete the cycle by bring those improvements back into Netflix").

⁵³ Mann, *supra* note 48, at 35.

⁵⁴ Mann, *supra* note 48, at 25.

⁵⁵ Amy Kapczynski, *The ACreative Commonsness to Knowledge Mobilization and the New Politics of Intellectual Property*, 117 YALE L.J. 804, 869-70 (2008) (noting that innovation in the FOSS world does not "rely on the incentivizing effect of IP rights").

⁵⁶ Heather J. Meeker, *Open Source and the Age of Enforcement*, 4 HASTINGS SCI. & TECH. L.J. 267 (2012) (providing a catalogue of FOSS-related lawsuits).

⁵⁷ Mark A. Lemley & Ziv Shafir, *Who Chooses Open-Source Software?*, 78 U. CHI. L. REV. 139, 151-2 (2011) (suggesting that, according to their survey results, users of FOSS often fail to meet some of the basic obligations of FOSS licenses).

⁵⁸ Meeker, *supra* note 56, at 286-7 (indicating that most FOSS-related suits up until now have focused largely on "advocacy" for the FOSS cause, while noting that a new type of litigant is emerging in the FOSS space that brings suits based on the same types of rationales as traditional IP rights holders).

⁵⁹ Free Software Foundation, *License Violations and Compliance*, <http://www.fsf.org/licensing/compliance> (last visited Oct. 19, 2012) (indicating that [m]any copyright holders seek monetary damages when their license is violated. We do not — we only want violators to come back into compliance, and help repair any harm done to the free software community by their past actions").

parties in contributing to open-licensed projects is not directly economic in nature, i.e., for most, the purpose is not to obtain financial rewards from the open-licensed materials directly (either through royalties, license fees, or collecting damages via litigation), even if a commercial enterprise is built around the open-licensed materials (e.g., Red Hat). But as the remainder of this Article will demonstrate, using IP rights as the means to the end of enhanced innovation in open movements has its limits and in fact has significant negative consequences. The IP approach often stymies innovation because it introduces wasteful transaction costs. The resulting tragedy of the anti-commons, furthermore, is unnecessary since the primary rationale for adopting the IP approach—to avoid a tragedy of the commons—proves unpersuasive on a number of levels. While the IP approach was perhaps necessary in the beginning in order to help establish the movements, its continuing predominance only prevents open models of innovation from reaching their full potential. The next sections examine the ways in which IP rights have this effect.

II. OPEN LICENSING IN THE CORPORATE WORLD

A. *From Enemies to Frenemies*

Firms have been involved with the open license movements since their beginnings. Early on, such involvement might be described as hesitant in the best case scenario and hostile in the worst. Such initial hesitancy and hostility were perhaps understandable. Since all open licenses disclaim any sort of liability or warranty, firms naturally worried about using such open-licensed materials without any sort of guarantee or backing from the licensor.⁶⁰ Furthermore, the language of open licenses is often opaque, leaving firms in doubt about how they were permitted to use such materials.⁶¹ Contributing technology and content under open licenses—whether intentionally or unintentionally via the effects of reciprocity—also seemed counterintuitive since doing so essentially gave up firms’ IP rights in any contributed materials, at least in the traditionally restrictive sense.⁶² Last and related, firms doubted that such licensing models were sustainable;

⁶⁰ Jon Christiansen et al., *Redefining “Free”: A Look at Open Source Software Management*, 8 NW. J. TECH. & INTELL. PROP. 425 (2010) (comments of Mr. Joseph A. Herndon); Lothar Determann & Gary Shapiro, *Handling Open Source Software Risks in Commercial and M&A Transactions*, 956 PLI/PAT 227, 231 (2009).

⁶¹ See, e.g., HEATHER J. MEEKER, *THE OPEN SOURCE ALTERNATIVE: UNDERSTANDING RISKS AND LEVERAGING OPPORTUNITIES* 183-217 (2008) (discussing at length the varying conflicting interpretations of the GPL, one of FOSS’s most prominent licenses).

⁶² Edmund J. Walsh & Andrew J. Tibbetts, *Reassessing the Benefits and Risks of Open Source Software*, 22 NO. 1 INTELL. PROP. & TECH. L.J. 9 (2010).

from their perspective, firms saw little reason why anyone, let alone large numbers of people and firms, would spend significant amounts of time and effort contributing to open-licensed projects absent direct economic incentives to do so.⁶³

But while some of these concerns remain relevant today, firms' have largely embraced use of open-licensed materials. According to the research firm Gartner, for instance, 85% of firms use FOSS in some form or another, with the remaining holdouts planning to in the near future.⁶⁴ Even Microsoft, long the perceived antithesis of the FOSS movement, has come to embrace some forms of FOSS development.⁶⁵ Creative Commons also provides a directory of hundreds of organizations that release millions of pieces content under various Creative Commons licenses.⁶⁶ Use of open-licensed materials is pervasive and only promises to become more so.⁶⁷

What explains this change? Part of the explanation is simply that firms have been proven wrong; open models of innovation are sustainable. Firms may have been justified in doubting that armies of volunteers, as well as other firms, would contribute vast amounts of time and resources into making technology and other content available, but that is precisely what has happened—and continues to happen. The previous section explored the reasons for this.

In addition to the sustainability of open models of innovation, their advantages have also become more apparent. In the FOSS world, the Open Source Initiative was founded in 1997 in part to more effectively sell the corporate world on the advantages of FOSS development by abandoning the more confrontational approach of the Free Software Foundation.⁶⁸ Eric

⁶³ See Robert L. Glass, *The Sociology of Open Source: Of Cults and Cultures*, IEEE SOFTWARE, May-June 2000, at 104; and David Lancashire, *Code, Culture and Cash: The Fading Altruism of Open Source Development*, 6 FIRST MONDAY 3 (Dec. 3, 2001), <http://www.firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1488/1403> (critiquing the typical reasons advanced for why open development occurs, and suggesting that market conditions largely explain its occurrence, which in turn suggest that the open movements may not be sustainable based on such typical reasons).

⁶⁴ Gartner, *Gartner Says as Number of Business Processes Using Open-Source Software Increases, Companies Must Adopt and Enforce an OSS Policy*, GARTNER NEWSROOM, Nov. 17, 2008, <http://www.gartner.com/it/page.jsp?id=801412>.

⁶⁵ Elizabeth Montalbano, *Microsoft Revising 'Us vs. Them' Attitude Toward Open Source Via Powerset Acquisition*, COMPUTERWORLD, Dec. 9, 2008, http://www.computerworld.com/s/article/9123089/Microsoft_revising_us_vs._them_attitude_toward_open_source_via_Powerset_acquisition?taxonomyId=18&pageNumber=2 (discussing a change in Microsoft's strategy vis-à-vis FOSS).

⁶⁶ Creative Commons, *Content Directories*, http://wiki.creativecommons.org/Content_Directories (last visited Oct. 19, 2012).

⁶⁷ See also *supra* notes 9-15 and accompanying text.

⁶⁸ See Asay, *supra* note 36, at 270.

Raymond's seminal work, *The Cathedral and the Bazaar*, was also pivotal in more clearly articulating the advantages of an open and widely dispersed model of innovation in the FOSS world; his most famous line from the work crisply made the case for an open model of innovation: "given enough eyeballs, all [software] bugs are shallow."⁶⁹ His work helped convince the Netscape Communications Corporation to release the source code for the Netscape Communicator browser and start the Mozilla project, a seminal event in the corporate world.⁷⁰ Since then, corporate use, sponsorship of, and significant contributions to open-licensed projects have exploded: Google's Android operating system,⁷¹ Red Hat's Linux distribution,⁷² and Apple's significant contributions to the Webkit browser project⁷³ are just a few of the more well-known examples.

Over time, firms have also simply become more familiar with open licenses and using materials licensed under them. Although the meaning of various open licenses remains murky in many cases, the widespread adoption of open-licensed materials and industry understandings of permitted uses have helped firms grow more comfortable using such materials.⁷⁴

What role have IP rights played in these changing attitudes? Their primary effect has been to ensure that firms and others take the conditions of open licenses seriously. Thus, in some cases IP rights (and reciprocity in particular) may have helped prevent firms from simply taking from the commons while not contributing back into it. This seems especially true early on in the case of Linux, where firms were so desperate for an alternative to Microsoft's dominant operating system that even an unconventional licensing scheme such as the General Public License was more palatable than the alternative of continuing to cede ground to

⁶⁹ ERIC STEVEN RAYMOND, *Release Early, Release Often in THE CATHEDRAL AND THE BAZAAR* (2000) (hereinafter "BAZAAR"), available at <http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/ar01s04.html>.

⁷⁰ ERIC STEVEN RAYMOND, *Epilog: Netscape Embraces the Bazaar in BAZAAR*, available at <http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/ar01s13.html> (citing an e-mail from Eric Hahn, executive vice-president and chief technology officer of Netscape at the time, which stated: "On behalf of everyone at Netscape, I want to thank you for helping us get to this point in the first place. Your thinking and writings were fundamental inspirations to our decision").

⁷¹ See generally *Android Open Source Project*, <http://source.android.com/> (last visited Nov. 9, 2012).

⁷² See generally <http://www.redhat.com/> (last visited Nov. 9, 2012).

⁷³ See generally *The Webkit Open Source Project*, <http://www.webkit.org/> (last visited Nov. 9, 2012).

⁷⁴ See, e.g., Alan Stern & A. Clifford Allen, *Open Source Licensing*, 1109 PLI/PAT 645, 673-4 (2012) (discussing general industry understandings with respect to certain aspects of reciprocity).

Microsoft.⁷⁵

But reciprocity in particular and the IP rights approach in general have outlived their usefulness in many cases. Firms and users of open-licensed materials have decades of experience in coming to appreciate the virtues of open models of innovation. This does not mean that firms always elect to take advantage of such virtues, but their merits in many contexts are largely uncontroversial. At this stage IP rights more often than not simply introduce wasteful transaction costs that inhibit innovation.⁷⁶ While it is often argued that such costs are necessary in order to protect against a tragedy of the commons, there are significant reasons to doubt this argument, as discussed more fully below. The following sections first explore the significant costs that firms incur in seeking to comply with open license and self-imposed requirements, followed by an analysis of why such costs are unnecessary in order to sustain open models of innovation.

B. Transaction Costs

Despite the significant advantages of using and contributing to open-licensed projects, firms still face risks in doing so. And such risks are largely the result of IP rights. For instance, firms face possible remedies under copyright law—including injunctions and statutory damages—for failure to comply with open licensing requirements such as reciprocity and attribution.⁷⁷ Furthermore, the reciprocal effect of certain open licenses has the potential to subject a firm's proprietary materials to the terms of the open license. In such a case, the firm has no means by which to prohibit third parties from further licensing the materials under the same terms, even if the firm later licenses it under different terms. The firm may also compromise significant patent rights depending on the applicable open license and technology at issue.

As firms seek to address these risks, they incur significant transaction costs, thereby slowing innovation. The resulting logjam might

⁷⁵ See Dibona et al., *supra* note 5, *Introduction* (outlining the dominant position that Microsoft held in the server software space for years, which helped create the original impetus for a FOSS alternative).

⁷⁶ Some have argued that open licenses actually reduce transaction costs by providing a familiar licensing mechanism that both developers and users of open-licensed materials can rely on. See Schultz & Urban, *supra* note 20, at 9. While it is likely true that over time greater familiarity with the most popular open licenses has helped reduce transaction costs that would result absent a better alternative, this Article argues that one such better alternative that would reduce transaction costs even further is a straightforward public domain approach.

⁷⁷ Case law in the US and elsewhere has confirmed that open licenses are enforceable under copyright law. See generally Meeker, *supra* note 56.

be viewed as a form of a “tragedy of the anticommons,” in the parlance of Professor Michael Heller,⁷⁸ because such IP rights and the resulting transaction costs lead to underuse of the relevant resources.⁷⁹ Superficially, the anticommons in open-license movements may appear similar to others simply because the end result is similar. But the tragedy of the anticommons in open license movements is even more tragic because the result is completely antithetical, generally, to the purposes of such movements and their contributors. Indeed, unlike in other anticommons contexts, where numerous IP rights holders may withhold permission to use materials or hold out until a royalty is paid (and thereby cause significant transaction costs that inhibit use of the resource),⁸⁰ in open license movements the purpose is generally to encourage as wide use as possible, absent royalties or any other form of economic remuneration. As in other anticommons contexts, the transaction costs in open license movements result from the assignment of IP rights to numerous owners. But, as this Article argues, they result for no good reason.

These transaction costs can generally be grouped into the following categories: 1) intake costs, 2) M&A costs, 3) internal management costs, and 4) outbound costs. A discussion of each follows.

1. Intake Costs

In order to address the risks of using open-licensed materials, firms often implement policies for reviewing and approving open-licensed materials before they come into the firm.⁸¹ While obtaining a specific example of such a policy from a firm is difficult given confidentiality and attorney-client privilege concerns, a common approach includes requiring formal approvals at the legal, business, security, and technical levels.⁸² Thus, in many firms each use of an open-licensed project requires vetting, regardless of what type of open license is concerned, be it attribution-only or reciprocal.

⁷⁸ Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998).

⁷⁹ Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 Science 698 (1998).

⁸⁰ *Id.*

⁸¹ T. Robert Rehm, Jr. *Navigating the Open Source Minefield: What's a Business to Do?*, 10 WAKE FOREST INTELL. PROP. L.J. 289, 314-7 (2010) (discussing generally the types of considerations companies may take into account when implementing such policies).

⁸² See Karen F. Copenhaver, *Open Source Policies and Processes for In-Bound Software*, 1079 PLI/PAT 785, 798-9 (2012) (indicating that many organizations establish a cross-discipline team of individuals that decides upon each use of FOSS at the company).

In the FOSS world, the costs of doing so can be significant.⁸³ For instance, engineers may wait significant periods of time before obtaining relevant approvals for a software solution that they simply want to test and may not even ultimately adopt.⁸⁴ Such waiting periods are typically longer if the request concerns a reciprocal license due to the thornier issues that come with such licenses.⁸⁵ In some cases firm leaders may approve materials under a reciprocal license, but impose significant restrictions on their use in order to avoid the effects of reciprocity. Such restrictions lead to costs that ultimately slow innovation.

Other intake costs result from firms' own internal rules about categories of open licenses. For instance, some firms simply prohibit certain license types because of the scope of the reciprocity requirement in such licenses.⁸⁶ Apple prohibits developers in their app store from using reciprocal licensed software.⁸⁷ Such prohibitions can lead to a number of costs. For instance, due to the self-imposed unavailability of a solution licensed under a banned license, the firm may end up using its own resources to develop the solution itself or pay licensing fees to a third party for a commercially available solution.⁸⁸ Furthermore, if materials under such a prohibited license do make their way in the door despite the policy, and the firm discovers it later, the firm may undertake significant remedial action in order to remove and replace the offending materials.⁸⁹

In order to help formulate, implement, and administer such intake policies, some firms have even hired lawyers and technical personnel

⁸³ See MEEKER, *supra* note 61, at 70-1 (indicating that the information gathering and legal analysis components of compliance work are often costly and time-consuming, especially the more complex an organization is).

⁸⁴ *Id.* at 800-1 (discussing the practical need at firms that implement open license policies to guarantee some sort of response time to requests in order to help ensure that the policy succeeds).

⁸⁵ Eli Greenbaum, *Open Source Semiconductor Core Licensing*, 25 HARV. J.L. & TECH. 131, 139-40 (2011) (indicating that the scope and application of reciprocal licenses in the FOSS world remain contentious topics, and commercial software developers therefore remain wary of incorporating such materials into their proprietary products).

⁸⁶ See MEEKER, *supra* note 61, at 75, 121 (indicating different licenses that firms often ban and suggesting that a common approach to FOSS corporate policies is to include different "black," "white," and "gray" lists with respect to what FOSS licenses are permitted).

⁸⁷ See Peter Ibbotson, *Windows Phone 7 Developer Tools: A First Look*, ZDNET, Sept. 27, 2010, <http://www.zdnet.com/windows-phone-7-developer-tools-a-first-look-3040090296/>.

⁸⁸ Rehm, *supra* note 81, at 318 (indicating that firms may seek such commercial solutions in the event that audits reveal software incompatible with the firm's open license policy).

⁸⁹ *Id.*

specifically focusing on open license issues.⁹⁰ Firms also often seek aid from outside counsel or vendors specializing in FOSS compliance such as Black Duck Software, Palamida, or Open Logic.⁹¹ All of these activities in the cumulative lead to significant transaction costs that redirect efforts from innovation to legal and internal firm compliance.

Another cost related to intake involves negotiating commercial license agreements with third parties. Increasingly firms ask for representations and warranties around open-licensed materials and an indemnity covering non-compliance with the relevant open licenses as part of the negotiation.⁹² In some cases the firm may even ask for an audit of the third party's materials in order to detect and review use of open-licensed materials in the products or services being licensed or sold to it.⁹³ Such costs are similar to those incurred in the M&A context (discussed directly below), although generally on a smaller scale depending on the size of the commercial deal.

2. M&A Costs

Firms also incur significant transaction costs related to open licenses when involved with an acquisition.⁹⁴ Often a significant part of the due diligence of a target company focuses on whether the target company uses open-licensed materials and, if it does, whether the target company is in compliance with the open licenses' requirements and whether the use of open-licensed materials has compromised in any way the target's key assets.⁹⁵ Since use of open-licensed materials is so pervasive, this issue becomes relevant in most acquisitions, and becomes even more relevant when the target's products and services focus on software or content products and services.⁹⁶

⁹⁰ Copenhaver, *supra* note 82, at 799 (discussing the growing trend of hiring personnel whose primary responsibility is to ensure open-license compliance).

⁹¹ See, e.g., Stern & Allen, *supra* note 74, at 667 (discussing the availability of third-party vendors that perform such services).

⁹² Diana Marina Cooper, *Open Source Legal Concerns*, 29 NO. 23 LAW. PC 6 (2012).

⁹³ Copenhaver, *supra* note 82, at 803 (indicating that customers will often ask for lists of open-licensed materials used in a product).

⁹⁴ See generally Heather J. Meeker, *The Open Source Alternative, Open Source in Mergers and Acquisitions and Other Transactions*, 928 PLI/PAT 341 (2008).

⁹⁵ *Id.* See also Rehm, *supra* note 81, at 321 (identifying use of open-licensed materials as a significant issue in M&A activity that firms should take into when developing their own open license policies) and Lothar Determann & Gary Shapiro, *Handling Open Source Software Risks in Commercial and M&A Transactions*, 956 PLI/PAT 227, 235-6 (2009) (specifying the types of information acquirors typically request with regards to open licensed materials).

⁹⁶ Meeker, *supra* note 94, at 345-8.

Such due diligence can be significant. The acquiror generally requests a list of all open-licensed materials used at the firm, descriptions of how they are used, and the applicable open license.⁹⁷ Generating such lists can be such a significant burden on the target company that the parties will instead bring in an outside vendor to perform an audit to obtain the relevant information.⁹⁸ Some firms make such audits a prerequisite for any acquisition.⁹⁹ Even once the audit is done, firms will devote significant amounts of time reviewing the results, implementing remedial actions, and negotiating over how such results impact the terms of the merger agreement.¹⁰⁰

3. Internal Management Costs

Once open-licensed materials find their way in the door, whether through M&A activity or normal day-to-day intake, firms incur additional costs in managing them on an ongoing basis. Firms often segregate open-licensed materials from proprietary materials in their internal management systems in order to help keep track of how the materials are being used and to prevent the open-licensed materials from being intermingled with other materials.¹⁰¹ Doing so results in costs related to building the technical solutions for such internal management as well as personnel time spent administering them. Firms may also outsource developing such internal management solutions to third parties.¹⁰² Even if such a third-party solution

⁹⁷ *Id.* at 346-8.

⁹⁸ For instance, Black Duck is one of the more popular solutions that firms use to conduct such audits. See generally Black Duck, *The New Due Diligence: Assessing and Protecting Your Software Asset Value in Mergers, Acquisitions and Financing Rounds*, available at http://www.blackducksoftware.com/noindex/salesforce/pdfs/New_Due_Diligence_UL.pdf (last visited Oct. 23, 2012).

⁹⁹ See, e.g., Daniel Egger & Matthew Hogg, *Open Source Software IP Risk Audits: The Emerging Due Diligence Standard for Technology M&A Transactions*, 3, available at <http://osriskmanagement.com/downloads/Open%20Source%20Software%20IP%20Risk%20Audits.pdf> (last visited Oct. 23, 2012 (indicating that some companies perform such audits with each transaction. It is also the personal experience of the author that firms often mandate such scans with each transaction).

¹⁰⁰ Determann & Shapiro, *supra* note 95, at 235-41 (discussing generally factors related to open licenses that firms take into account when negotiating agreements).

¹⁰¹ See MEEKER, *supra* note 61, at 53-71 (discussing the need generally for firms to conduct due diligence and “compliance analysis” on their software code bases in order to avoid mixing software subject to incompatible rights).

¹⁰² See, e.g., Blackduck, *The Business Case for Automating Open Source Code Management*, 2012, available at <http://osrc.blackducksoftware.com/learningcenter/whitepapers/> (discussing the cost savings for firms in relying on a third-party solution such as Blackduck offers for managing FOSS

is more efficient, it nonetheless costs firms significant amounts of time, money, and effort.¹⁰³

Other internal management costs result when firms discover errors in information about open-licensed materials that the firm previously vetted and approved. The costs of monitoring and then remediating such errors—either by removing and replacing the open-licensed materials or updating them in order to correct the errors—can also result in significant costs for firms.¹⁰⁴ Firms will also often spend significant amounts of time training employees on their open license policies and rely on outside experts to help perform such training.¹⁰⁵

4. Outbound Costs

Firms also incur a variety of significant costs when open-licensed materials leave the firm. These occur in a number of ways. First, when firms distribute open-licensed materials, they incur costs in ensuring that they comply with their own internal policies and the open licenses themselves, since distribution is generally the event that triggers open license compliance obligations.¹⁰⁶ Firms will often conduct outbound audits of materials in order to ensure such internal and legal compliance.¹⁰⁷ Because development activities are often dynamic and fast-moving, such audits can be common even in cases where firms generally conduct intake reviews and attempt to monitor the use of such materials after intake.¹⁰⁸

Firms may develop their own auditing system, which results in its own upfront costs even if later it helps reduce costs.¹⁰⁹ Or, firms often rely

use).

¹⁰³ *Id.* at 8-9 (indicating, based on its model, an automated approach reduces FOSS management costs significantly, but nonetheless still results in licensing and other administrative costs).

¹⁰⁴ *See* MEEKER, *supra* note 61, at 71 (indicating that “the larger the organization, and the more backtracking there is to do, the more difficult the task” in remediating problems discovered during compliance activities).

¹⁰⁵ *See, e.g.*, Linux Foundation, *Linux Training Courses*, LinuxFoundation.org, <https://training.linuxfoundation.org/courses/open-source-compliance> (last visited Oct. 24, 2012) (providing a list of Linux-related training courses regarding compliance and best practices).

¹⁰⁶ *See* MEEKER, *supra* note 61, at 27 (indicating that distribution is generally conditioned upon meeting requirements such as reciprocity and notice). Some licenses, such as the Affero General Public License, define “distribution” to include making a hosted software solution available to third parties, but this is the exception more than the rule.

¹⁰⁷ *See* MEEKER, *supra* note 61, at 71-4.

¹⁰⁸ *Id.* at 71 (indicating that some firms conduct such diligence on an ongoing basis, simply as a matter of good housekeeping).

¹⁰⁹ *Id.* at 72.

on a third-party solution, either a vendor that conducts the audit on behalf of the firm or a third-party auditing system that firms license from such vendors.¹¹⁰ Using such third-party solutions still results in significant costs, both in the form of licensing fees to such third parties as well as implementing such solutions and reviewing the results.

Even in the case of attribution-only licenses, such outbound review efforts can be significant.¹¹¹ For instance, in the FOSS world, each source code file may include a separate copyright notice and license agreement that needs to be separately cited, typically as part of a legal notices document that accompanies the outbound product or service. Consequently, engineers, lawyers, and others will spend significant amounts of time going through such files, extracting the relevant notices, and compiling them into a legal notices document.¹¹² Depending on the size of the software distribution and the number of software files, this exercise can be extremely burdensome.¹¹³ Even in cases where some amount of automation helps improve efficiencies, because of the possibility of IP remedies, automation is rarely if ever fully relied on.

Reciprocal licensed materials increase the costs of making outbound distributions. If a firm intends to distribute software that includes materials under a reciprocal license, for instance, the firm will often review how such materials are integrated with other materials in order to ensure that no firm technology, content, or in some cases patents are compromised.¹¹⁴ Such additional reviews are common even if upon intake certain restrictions were specified, given that how the materials are used may have changed since the time of intake and such changes may not have been addressed as part of the firm's internal management of such materials.¹¹⁵ Such reviews may lead the firm to take remedial actions in order to avoid reciprocity obligations.¹¹⁶ Such remedial actions both slow development release cycles and require significant personnel resources in order to implement them.

Furthermore, because reciprocal licenses require releasing or making

¹¹⁰ *Id.* at 72-3.

¹¹¹ *Id.* at 83 (indicating that meeting notice requirements is time-consuming, and that complying with the exact letter of all notice requirements can be literally impossible).

¹¹² *Id.* at 84-5.

¹¹³ *Id.*

¹¹⁴ *Id.* at 98 (discussing patent issues that arise when distributing FOSS licensed under a reciprocal license). *See also* John Christianson et al, *supra* note 60, at 52 (discussing an example of an after-the-fact review that ultimately identified licensing issues that needed resolution) and Jeffrey D. Osterman, *Software Licensing and Open Source*, 1109 PLI/PAT 583, 605 (2012) (discussing such reviews).

¹¹⁵ The likelihood of these additional reviews also increases because the open-licensed materials may not have ever been reviewed in the first place.

¹¹⁶ *See* Osterman, *supra* note 114 (discussing such remedial actions).

available the reciprocal-licensed materials under the terms of the license, firms expend significant amounts of time and resources compiling and reviewing the materials to be so released.¹¹⁷ For instance, in the FOSS world, the firm will need to review and compile all source code files to be released, and doing so typically requires significant engineering and legal resources.

Outbound releases of open-licensed materials also result in costs even once the materials are distributed. For instance, if errors are discovered in the attributions, then the firm may update the legal notices document to correct those errors. Or, if the firm discovers that it is not in compliance with a reciprocity requirement or its own internal policies, then the firm may incur costs in remediating the non-compliance, either by removing the non-complying material or coming into compliance with the reciprocity requirement by releasing, for instance, the required source code in the FOSS context.¹¹⁸

Another cost related to distribution involves negotiating commercial agreements with third parties. Third party recipients of a firm's licensed or sold materials will often ask for representations and warranties around open-licensed materials and an indemnity covering non-compliance with open licenses requirements as part of the negotiation.¹¹⁹ In some cases the third party may even ask for an audit of the firm's materials in order to detect and review use of open-licensed materials in the products or services being licensed or sold to it.¹²⁰

Firms also incur significant costs when contributing to open-licensed projects. Why firms might choose to contribute to open-licensed projects was explored above. But even when contributing to such open-licensed projects is to the firm's advantage, IP licenses make such contributions more complicated than they need be. For instance, contributing materials to an open-licensed project may impact companies' patent portfolio in the FOSS context, depending on the applicable license.¹²¹

¹¹⁷ Beth Z. Shaw, *Recent Lawsuits Reflect Open Source Software Users' Copyright Compliance Obligations*, LEGAL BACKGROUNDER, May 7, 2010, http://www.wlf.org/publishing/publication_detail.asp?id=2164 (discussing the requirements of reciprocal licenses and the consequences of certain companies recently failing to release the source code to GPL-licensed software that they distributed with certain hardware products).

¹¹⁸ Sometimes firms discover such instances of non-compliance themselves and voluntarily correct them, while in other cases IP rights holders prompt them into compliance. *See, e.g.*, Meeker, *supra* note 56 (providing an overview of open license-related enforcement activities).

¹¹⁹ *See* Determann & Shapiro, *supra* note 60.

¹²⁰ Copenhaver, *supra* note 82, at 803 (indicating that customers will often ask for lists of open-licensed materials used in a product).

¹²¹ MEEKER, *supra* note 53, at 139-40.

Some of these patent licenses are exceedingly broad, so much so that some firms ban such licenses altogether,¹²² while other patent licenses suffer from a lack of clarity, thereby leaving firms in doubt as to how their patent portfolio may be impacted. Another concern is simply that firms may not want to give away their technology or content in a manner that limits its rights to reclaim such materials later on.

In order to address such issues, firms often implement policies aimed at vetting contributions to open-licensed projects before they are made.¹²³ Much like intake policies, such contribution policies can result in significant waiting periods while technical, business, legal, and security personnel review and approve such contributions. Such policies consume personnel time in developing and administering them, as well as slowing the speed of innovation while awaiting approvals. And in some cases, where approvals are denied, such policies simply prevent innovation rather than merely slowing it.

C. Worth Every Penny?

All of these efforts result in costs, which in turn slow innovation since firms could otherwise direct their resources towards innovating. Some studies suggest that the costs of open license compliance programs can be extremely high, regardless of how firms conduct them.¹²⁴ A version of the tragedy of the anti-commons thereby plays out, despite the reality that most contributors to open-licensed projects contribute precisely in order to promote a robust and freely accessible commons.

But is this anti-commons necessary in order to ensure a robust commons? Supporters of the IP approach argue that these costs are vital to maintain the movements. This is essentially the Free Software Foundation's argument in favor of reciprocal licenses: reciprocity ensures that software and content stay "free," and the costs of the IP approach, while not ideal, are simply the price necessary for a tremendous amount of freely available innovation.¹²⁵ Without reciprocity, too many free riders—especially, perhaps, firms—would result in a commons gutted of its innovative

¹²² See *supra* notes 86 and 87 and accompanying text.

¹²³ See generally MEEKER, *supra* note 61, at 135-51 (providing a general overview of the types of factors firms take into account when releasing software as FOSS).

¹²⁴ See Blackduck, *supra* note 102, at 1 (indicating that on average it costs firms \$7,800 per software component annually to effectively manage risks associated with open licenses, while suggesting that use of its automated risk management tools can help cut these costs significantly).

¹²⁵ See, e.g., STALLMAN, *supra* note 6, at 129-31 (labeling reciprocity "pragmatic idealism" and indicating that without it, the commons would not be as robust as it is).

capacity.¹²⁶ A tragedy of the commons would ensue, the argument goes. Similarly, though vetting attribution-only licenses does entail some costs, these costs pale in comparison to the value of the FOSS and content that contributors are willing to donate to the commons in exchange for the attribution.¹²⁷

Furthermore, why focus on the transaction costs of firms at all? The open license movements were founded in order to benefit society generally, not to benefit firms. They were also founded in part as a response to the increasingly aggressive IP stances of firms. And firms remain aggressive with respect to IP rights, and perhaps have grown even more so in the intervening years. Thus, the original strategy of fighting restrictive IP rights with IP rights may remain relevant.

But while open movements may not have been founded to benefit firms, it is clear that firms greatly benefit the movements. Firms are not only consumers of open-licensed materials, but significant contributors to open-licensed projects.¹²⁸ In the FOSS world, for instance, firms often hire engineers specifically in order to contribute to open-licensed projects that the firm supports.¹²⁹ Firms also lead some of the more successful FOSS projects in the world, including Google's Android, Red Hat's Linux distribution, and countless others. Given these realities, it is worth examining whether the significant transaction costs that IP rights introduce actually serve useful purposes, and whether a public domain approach might maintain the movements or even improve them by eliminating some of the transaction costs and thereby allowing for accelerated innovation.

1. What Attribution?

In important respects, the IP approach to open models of innovation fails to fulfill the roles assigned to it. For instance, with respect to attribution-only licenses, in most cases the attribution is buried somewhere

¹²⁶ See Moglen, *supra* note 34.

¹²⁷ See Meeker, *supra* note 61, at 85 (indicating that notice requirements may serve an important role in providing contributors with attribution in exchange for making software freely available).

¹²⁸ See *infra & supra*.

¹²⁹ See, e.g., All About Linux, *Cisco Is Hiring for Multiple Open Source Positions*, Nov. 7, 2007, <http://www.aboutlinux.info/2007/11/cisco-is-hiring-for-multiple-open.html> (providing a list of job openings at Cisco Systems for engineers focused on contributing to FOSS projects, primarily Linux); and Nic Williams, *Eight Ways Companies Can Contribute to Open Source Communities*, Mar. 30, 2011, MASHABLE, <http://mashable.com/2011/03/30/business-open-source-communities/> (discussing the author's own company hiring specific personnel for contributing to a particular FOSS project).

in legal documentation so that any recognition that may accompany such attribution is minimal at best.¹³⁰ This reality suggests that those who contribute under attribution-only licenses, while perhaps motivated by some form of recognition, in most cases are likely motivated by a different type of recognition than what the IP approach provides. In the FOSS world, tools such as GitHub, a widely used social coding tool, might better provide the recognition programmers seek.¹³¹ The fact that more and more software is contributed via GitHub without IP notices or license information at all suggests that the “prize” of an IP notice in obscure legal documentation is not much of a prize at all, at least to those contributing.¹³²

Furthermore, attribution need not be connected to IP rights and, therefore, IP remedies. The latter is what largely drives the wasteful transaction costs that ultimately slow innovation, since the threat of IP remedies cause firms to tread cautiously when dealing with open licensed materials. But technological solutions to attribution could potentially provide the same attribution—or perhaps even better provide it by automating the attribution or making it an integral, irreplaceable part of the work—while also removing the threat of IP remedies that only reduce the speed of innovation by introducing the transaction costs detailed above. Alternatives to the IP rights-based approach to attribution are discussed more fully in Part IV below.

2. *Reciprocity's Broken Promises*

With respect to reciprocity, the argument that firms' hands are forced, and that the content and software commons are larger due to reciprocity, in many cases seems dubious.¹³³ As discussed above, firms spend significant amounts of time and resources precisely in order to avoid results that they find inimical to their interests, including especially the

¹³⁰ See Meeker, *supra* note 61, at 85 (suggesting that it is questionable whether attribution requirements in general satisfy the desires of contributors for attribution, and reviewing a particular FOSS license's attempt to provide more meaningful attribution).

¹³¹ See generally <https://github.com/>. See also Klint Finley, *What Exactly Is GitHub Anyway?*, TECHCRUNCH, July 14, 2012, <http://techcrunch.com/2012/07/14/what-exactly-is-github-anyway/> (providing an overview of GitHub).

¹³² See, e.g., Jon Buys, *The Top Licenses on Github*, Feb. 7, 2012, Ostatic, <http://ostatic.com/blog/the-top-licenses-on-github> (indicating that several of the most popular projects on Github are provided without licensing information); *Github Projects Without Licenses*, Dec. 26, 2009, INFORMED LICENSING, <http://www.informedlicensing.com/blog/2009/12/github-projects-without-licenses.html> (summarizing one developer's frustration with the lack of licensing information found in many projects on Github).

¹³³ For such a claim, see STALLMAN, *supra* note 6, at 129-31 (specifying several software projects that, it is argued, were forced to join the FOSS world due to reciprocity).

obligations of reciprocity.¹³⁴ Indeed, some open licenses are so expansive in their reciprocity requirements that firms simply ban materials licensed under them, whereby reciprocity may, ironically, have the unintended consequence of shrinking the commons rather than expanding them.¹³⁵ Firms use and contribute to open-licensed projects when it suits their purposes. Such purposes may have expanded over time as the benefits of open models of innovation have proved sustainable and significant, but firms do not appear captives of reciprocity in any sort of meaningful way.¹³⁶

While firms may tread carefully in order to avoid undesired effects of reciprocity, some might argue that the complete absence of reciprocity would remove the key to keeping disparate parties together on an open model of innovation. For instance, without reciprocity, firms might simply take open-licensed projects, use them as or in a product or service, but not share any modifications that they make to them. Indeed, this happens today in the case of attribution-only projects such as Google's Android or in the world of Cloud computing, where no distribution occurs and therefore no license requirements are triggered.

However, several reasons suggest this potential "defection" problem is not as severe as it may seem. First, if a firm were to take and close a project, they almost certainly would not obtain the free (to them) labor that contributors around the world are willing to provide to open-licensed projects. Without that free labor, firms would lose the most significant advantages of an open model of innovation, and the free labor would likely remain loyal to the open version of the project.¹³⁷ Firms thus already have

¹³⁴ See *supra* Part II.b.

¹³⁵ Vetter, *supra* note 19.

¹³⁶ Some posit the case of Linux as a counterexample to this claim. For instance, Linux's reciprocal license requires firms that use Linux to make the source code to their specific hardware drivers and other kernel changes available under reciprocal terms; without reciprocity, they may have been less likely to do. Several factors weaken this counterexample, however, at least with respect to the claims of this Article. Firms that use Linux obviously elect to do so, and so can elect not to use Linux at any time that the reciprocity requirement becomes overly burdensome to them. Presumably, then, firms have taken into account the tradeoffs between giving up secrecy surrounding their source code innovations in Linux and the right to use Linux at all. The fact that Linux continues to be popular and use thereof continues to grow suggests perhaps more than anything that firms have come to more fully appreciate that the value of secrecy in their source code is insignificant compared to the benefits of an open model of innovation. Thus, the Linux example actually seems to support the claims of this Article, i.e., that reciprocity is not primarily responsible for safeguarding the commons. Rather, the benefits of the commons approach to development have become clearer to more and more participants.

¹³⁷ See, e.g., Nic Williams, *Eight Ways Companies Can Contribute to Open Source Communities*, Mar. 30, 2011, MASHABLE, <http://mashable.com/2011/03/30/business-open-source-communities/> (detailing one such example where Oracle attempted to impose rules and standards on a FOSS community for a particular FOSS project, to which the

incentives to open and contribute as much of their materials as possible, since doing so will attract contributors and trigger innovation in directions that better suit the firm and its strategic direction.¹³⁸

Does reciprocity prevent defections from individual contributors? It seems unlikely that individual contributors in most cases have the time, interest, or resources to take from a non-reciprocal project and use it as the basis for a closed one. The literature suggests that the purposes of individuals in contributing to open-licensed projects have little to do with direct economic advantage; rather, their interests in contributing primarily lie in creativity, reputation-enhancement, and indirect economic rewards. While it does remain a possibility that individual contributors may take and close an open-licensed project as part of their own product or service, and thus technically defect from an open model of innovation, the same reasons that suggest firms are unlikely to do so suggest individual contributors are unlikely to do so as well. Individual contributors may be even less likely to defect given their purposes in being involved in open-licensed projects in the first place, as well as their much more limited resources to successfully close and then maintain a project.

Some evidence even suggests that individual contributors are more likely to contribute to open-licensed projects under an attribution-only type of license.¹³⁹ While some contributors may like the idea that anything that they contribute can only ever be used under the terms of a reciprocal license, the reasons discussed above for why reciprocity may not be crucial to prevent a tragedy of the commons suggest such attitudes may be the result of the effective marketing of reciprocity more than anything else.

In reality, IP rights and reciprocity provide no guarantee against defections in any event. For instance, in 2007 Oracle acquired MySQL, a database management system licensed under a reciprocal license.¹⁴⁰ Because after the acquisition Oracle owns the IP rights in such system, it

community responding by creating a separate project).

¹³⁸ For a recent example of this phenomenon playing out, see <https://www.tizen.org/about>, which discusses the Tizen FOSS project. This relatively new FOSS project has been spearheaded by, among others, Samsung and Sprint Nextel in order to decrease these companies' reliance on the Android operating system by providing an alternative software platform for smartphones and tablets.

¹³⁹ See, e.g., Matthew Aslett, *The Trend Towards Permissive Licensing*, June 6, 2011, 451 CAOS THEORY, <http://blogs.the451group.com/opensource/2011/06/06/the-trend-towards-permissive-licensing/> and Matthew Aslett, *On the Continuing Decline of the GPL*, Dec. 15, 2011, 451 CAOS THEORY <http://blogs.the451group.com/opensource/2011/12/15/on-the-continuing-decline-of-the-gpl/> (summarizing data trends that suggest use of reciprocal licenses is becoming increasingly disfavored).

¹⁴⁰ See Bryan Richard, *Oracle Buys SUN; MySQL Is Forked*, Apr. 20, 2009, LINUX MAGAZINE, <http://www.linux-mag.com/id/7309/>.

can at any time close access to the source code and license MySQL under a proprietary license. Although older versions of the software would still be available under the reciprocal license, newer versions would not be. Similarly, any IP rights holder of an open-licensed project may at any time change the terms under which their materials are licensed.¹⁴¹ While the older versions remain under the open licenses, the rapid pace of software innovation means that those versions quickly become obsolete. IP rights and reciprocity, therefore, are no guarantee with respect to an open model of innovation unless the rights holder chooses to continuously make it so.

3. *Non-Reciprocal Success Stories*

The successes of projects licensed under attribution-only licenses also suggest that the fear of defection is overstated. The example of Google's Android is telling. Governed by the Apache 2.0 license, an attribution-only FOSS license, anyone can take Android, significantly modify it, and not release the source code to others.¹⁴² Amazon has done precisely that with its version of Android for its line of tablets.¹⁴³ But even Amazon retains an interest in contributing improvements to the Google version of Android because it will then avoid having to incorporate those changes into every new version of Android that Google releases, and that it subsequently uses. Contributing its changes to Android will also focus the broader community on its path of innovation. And as discussed, contributors will remain dedicated to the open version that Google offers. That free (to Google) labor would almost certainly vanish once and if Google ever decided to close off Android.¹⁴⁴

The successes of hosted FOSS projects also suggest that the necessity of reciprocity or attribution (in the form of IP notices) is often overstated. In the FOSS world, hosting software is not generally considered

¹⁴¹ As many feared Google might do with Android. *See supra* note 144.

¹⁴² *See generally* Android Open Source Project, *Licenses*, <http://source.android.com/source/licenses.html> (last visited Oct. 29, 2012) (discussing the project's preference for Apache 2.0 and articulating the reasons for such preference).

¹⁴³ *Forking Android*, Sept. 3, 2011, THE ECONOMIST, *available at* <http://www.economist.com/blogs/babbage/2011/09/tablets> (discussing Amazon's at-the-time intent to "fork" Android by building its own private layer on top of FOSS Android).

¹⁴⁴ Google did stall the FOSS release of one version of Android in 2011, which led to significant backlash in the developer community. *See, e.g.*, Edward J. Naughton, *Google's Android: Closing the Honeycomb Code May Open a Legal Can of Worms*, THE HUFFINGTON POST, May 5, 2011, http://www.huffingtonpost.com/edward-j-naughton/googles-android-closing-t_b_857728.html (discussing significant outrage amongst the developer community in response to the delayed release of the Honeycomb version of Android).

a distribution of the software,¹⁴⁵ and open licenses in the FOSS world require a distribution before any reciprocity or attribution requirements become effective. Some have ominously predicted that such Cloud computing may well spell the death of the open license movements.¹⁴⁶ And yet, hosted FOSS projects have flourished and continue to do so, despite contributors knowing that third parties that take such software and use it to host their products and services will not be required to provide any contributors with attribution or contribute any of their improvements back to the project.¹⁴⁷

Would such projects be even more successful if all third parties hosting the software were required to provide attribution or access to their improvements? This is the idea behind some reciprocal licenses, which define hosting as a distribution that triggers the attribution and reciprocity requirements.¹⁴⁸ It is impossible to predict the outcome of such a counterfactual, but there are reasons to doubt such an approach would lead to greater success. And most of these reasons are the similar to the reasons for why reciprocity in general helps little. First, it is likely that firms would simply design around or avoid reciprocity requirements inimical to their interests, much as they already do. Significant transaction costs without an offsetting benefit would be the primary result. Furthermore, firms already have incentives to contribute and make available to the open-licensed projects as much of their innovations as possible, since doing so may focus the broader community on their path of development for the software and issues that the firm was unable or unwilling to resolve itself. Trying to force firms' hands would likely only deter their involvement if anything.¹⁴⁹

Aside from firms, would individual contributors contribute more to such projects if they knew other users would be required to attribute them

¹⁴⁵ One exception is the Affero General Public License, which expressly defines hosting software as a distribution of such software. See Free Software Foundation, *GNU Affero General Public License, Version 3*, Nov. 19, 2007, available at <http://www.gnu.org/licenses/agpl-3.0.html> (indicating in the Preamble that one of the primary purposes of the license is to include hosting as a form of distribution that triggers reciprocity requirements).

¹⁴⁶ Tim O'Reilly, *Open Source Paradigm Shift*, June 2004, http://www.oreillynet.com/pub/a/oreilly/tim/articles/paradigmshift_0504.html (last visited Jan. 28, 2013)

¹⁴⁷ For instance, a significant proportion of the world's web servers run on Linux, a reciprocal-licensed FOSS project. Because the servers are not distributed and simply host the websites, however, no open license requirements are triggered.

¹⁴⁸ See, e.g., *supra* note 145.

¹⁴⁹ See also Tim O'Reilly, *Open Source and Cloud Computing*, O'Reilly Radar, July 31, 2008 <http://radar.oreilly.com/2008/07/open-source-and-cloud-computing.html> (discussing threats to FOSS via Cloud Computing in terms of the architectural design of projects, rather than licensing terms).

and make their improvements available? It also seems unlikely. Again, it seems dubious that the promise of an IP notice in an obscure attribution compilation provides much of a lure at all. The motivations of most individual contributors discussed above suggest that IP rights have little to do with their participation. It is possible that some contributors have held back from contributing to such hosted FOSS projects because of the lack of IP attribution or reciprocity. But again, the available survey evidence suggests that such concerns are not the primary motivations for contributors to FOSS projects.

III. THE MERITS OF THE PUBLIC DOMAIN

Thus far this Article has argued that relying on IP rights as part of open models of innovation to foster innovation has had mixed results. While open models of innovation have yielded tremendous amounts of innovation in both the FOSS and Creative Commons worlds, the role of IP rights in such movements has resulted in significant transactions costs for those wishing to use and contribute innovation to such movements. And such transaction costs slow innovation, especially in the corporate world. While some may argue that such costs are simply the price society must pay in order to have significant amounts of software and content available under such permissive licensing terms, the above discussion casts doubt on the necessity of IP rights to achieve these results.

The next section explores why a public domain approach might be a better solution. In addition to eliminating some of the above-discussed transaction costs, such an approach would arguably still satisfy the motivations of most contributors to open-licensed projects, reduce the risk of IP trolls down the road, and better align—both in theory and in practice—with the goals of open movements.

A. A Public Domain Primer

Before assessing the merits of a public domain approach, it is necessary to more clearly define what such an approach would entail. In the IP world, the most common conception of the public domain means that materials are not subject to IP rights because such rights have either expired or been waived, or because the materials were not eligible for IP rights protection in the first place.¹⁵⁰ Each area of IP law—copyright, patent,

¹⁵⁰ Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783, 791 (2006) (reviewing 13 different academic conceptions of what constitutes the “public domain,” while acknowledging that the conception discussed in this paper constitutes the conception that the U.S. Supreme Court generally relies on in its jurisprudence).

trademark, and trade secret—defines what materials are eligible for protection, how long such protection lasts, and how one obtains or relinquishes such protection. The laws of each country may also answer these various questions differently.

Under U.S. law, software and content showing at least a modicum of originality automatically obtain copyright protection as soon as they are fixed in a tangible form that is perceptible either directly or with the aid of a machine or device.¹⁵¹ No registration is thus required, although in the U.S. a copyright holder must register their work in order to bring certain legal actions relating to their work.¹⁵²

Patents, conversely, do not automatically obtain upon creation of an invention. Instead, in the U.S., one must file a patent application and satisfy the requirements of the Patent Act—patentable subject matter, novelty, non-obviousness, utility, and disclosure—before obtaining a patent on an invention.¹⁵³ Creative Commons' content generally would not be eligible for patent protection, whereas software would be so long as satisfying these requirements.¹⁵⁴ A close cousin to patent law, trade secret law, generally protects information that derives independent economic value from not being known or readily ascertainable, and which is the subject of reasonable efforts to maintain its secrecy.¹⁵⁵ Often firms choose between patent and trade secret protection for a particular invention.¹⁵⁶

Last, trademark law in certain cases grants a party the right to use a mark as an indicator of the source of goods or services and to prevent others from using the same mark in connection with similar goods and services.¹⁵⁷ One of trademark law's primary purposes is, therefore, to protect consumers from confusion about the source of a good in the marketplace.¹⁵⁸ Generally

¹⁵¹ 17 U.S.C. § 102(a) (2006).

¹⁵² 17 U.S.C. § 302(a) (2006). *See also* Matthew P. Gelfand, *A Perfect (Copyright) Union: United Registration and License Designation*, 25 HARV. J.L. & TECH. 697, 724 (2012) (detailing some of the litigation-related benefits of registering).

¹⁵³ *See generally* 35 U.S.C. §§ 101 (patentable subject matter and utility), 102 (novelty), 103 (nonobviousness), and 112 (enablement and written description).

¹⁵⁴ *See, e.g.*, Michael Mattioli, *Communities of Innovation*, 106 NW. U. L. REV. 103, 134 (2012) (citing to a list of cases in the 1990s that clearly established software as patent eligible).

¹⁵⁵ 18 U.S.C. § 1839(3).

¹⁵⁶ *See* Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311, 339-41 (2008) (discussing various reasons why inventors might choose patent protection over trade secret protection, and vice-versa).

¹⁵⁷ *See* 15 U.S.C. § 1114 (1946).

¹⁵⁸ Mark A. Lemley & Mark P. McKenna, *Owning Mark(et)s*, 109 MICH. L. REV. 137, 142-6 (2010) (discussing the various rationales that courts offer in favor of extending trademark protection to trademark owners, the most prominent of which is to prevent consumer confusion).

firms register a mark under the federal Lanham Act in order to obtain nationwide trademark protection,¹⁵⁹ although state common law can also provide firms with trademark rights based on actual usage of such marks.¹⁶⁰

A public domain approach, therefore, would need to effectively override any automatic copyright rights, waive any patent rights (both with respect to any patent rights already obtained as well as prospectively), and relinquish any remedies that come with either. Trade secret rights, if any, would be relinquished as soon as the rights holder released the software or content to the public. Arguably waiving any trademark rights is not only unnecessary but inadvisable, since others could then use the marks to confuse consumers as to the source of the software or content. Indeed, this is precisely why Creative Commons, which includes a public domain dedication tool in its repertoire of legal documents, expressly exempts trademark rights in the tool.¹⁶¹

How to waive copyright and patent rights is not a straightforward matter, however.¹⁶² Part IV of this Article explores some of the difficulties in dedicating materials to the public domain and the merits of a “Public Domain Act” intended to supplement the various IP Acts in the U.S. by more clearly charting out a path to dedicating materials to the public domain. But before turning to that task, the case for a public domain approach in the FOSS, Creative Commons, and other open movements must be made more fully.

B. Transaction Costs Redux

A public domain approach in open movements would not mean that transaction costs would disappear entirely. Most firms, for instance, would still likely vet public domain materials on intake for several reasons. For example, someone without the rights to do so may have purported to place materials in the public domain, and thus firms would likely want to review

¹⁵⁹ See 15 U.S.C. § 1051 (1946).

¹⁶⁰ See, e.g., United States Patent and Trademark Office, *Frequently Asked Questions About Trademarks*, http://www.uspto.gov/faq/trademarks.jsp#_Toc275426681 (last modified Mar. 9, 2012, 11:02 AM) (“Federal registration is not required to establish rights in a trademark. Common law rights arise from actual use of a mark and may allow the common law user to successfully challenge a registration or application”).

¹⁶¹ Creative Commons, *Creative Commons0 FAQ*, http://wiki.creativecommons.org/Creative Commons0_FAQ (last modified June 21, 2012, 7:37 PM).

¹⁶² See generally Robert P. Merges, *To Waive and Waive Note: Property and Flexibility in the Digital Era*, 34 COLUM. J.L. & ARTS 113 (2011) (discussing ways to address “knotty issues surrounding legal requirements for waiver of intellectual property rights”).

materials to determine if the public domain designation passes legal muster. Furthermore, public domain materials still suffer from the issue of not having the backing of a third party that can provide the user with indemnities and warranties. Although this is an issue with open-licensed materials today, a public domain approach would do nothing to address it. Consequently, firms may still incur transaction costs in vetting such public domain materials on intake.

Furthermore, in the M&A context acquirors would still likely want to know what materials at the target company are in the public domain, how they got there, and whether such designation affects the value of their proposed acquisition. Such issues would almost certainly affect agreement negotiations. M&A due diligence and the costs thereof, therefore, would also not simply go away.

Some internal management costs would also certainly survive. Firms may generally want to know the source of third-party materials used at the firm, and so may still incur costs in managing and tracking public domain materials and, potentially, keeping them segregated from other materials. And firms may still develop and provide training about their internal policies for using and contributing to the public domain.

Firms would also continue to incur some outbound costs if a public domain approach replaced an IP-licensing approach. Firms may want to disclaim liability and indemnities for such materials, for instance, in both the end user and commercial agreement context. In the end user context standard disclaimers that firms already include in their end user agreements would likely address this concern. But in commercial negotiations, obtaining such a disclaimer could be difficult in many contexts and therefore result in some transaction costs to the firm.

Firms would also continue to incur costs when contributing to projects adopting a public domain approach. They would still, for instance, in many cases desire to conduct outbound reviews to ensure that no copyright or patent rights were in jeopardy contrary to the interests or policies of the firm.

Despite these remaining costs, however, a public domain approach, if done right, promises to significantly reduce such costs. On intake, for instance, firms would not need to deal with the hundreds of different types of open licenses that are currently used. Many have cited license proliferation as a major problem,¹⁶³ including significant concerns about whether and to what extent licenses may successfully coexist.¹⁶⁴ A

¹⁶³ See, e.g., Robert W. Gomulkiewicz, *Open Source License Proliferation: Helpful Diversity or Hopeful Confusion*, 30 WASH. U. J.L. & POL'Y 261 (discussing the pros and cons of license proliferation in general).

¹⁶⁴ *Id.* at 80-1. See also Molly Shaffer Van Houweling, *Author Autonomy and Atomism*

straightforward public domain designation would allow firms to make faster decisions on whether the materials may be used or not.

In the M&A context, transaction costs would almost certainly be reduced as well. For instance, the acquiring firm would not need to concern itself with license compliance and compatibility issues, whether in the past or going forward. It may still require audits in order to better understand the assets it is acquiring, but the public domain materials would not come with the issues of potential IP remedies or reciprocity. Some issues around the validity of such materials being in the public domain at all may still arise, but no more so than in the open-license context currently.

Internal management costs would also certainly decline. While firms may still incur some costs in segregating and tracking public domain materials, as well as developing and administering their policies on use of public domain materials, they would not need to worry about the requirements of reciprocity, attribution, and license compatibility as in the open-license context. Such management would, therefore, be done for internal efficiency reasons rather than legal ones. This is a positive result in terms of innovation since such tracking focuses on improving products and services rather than helping ensure compliance with a set of rules, which compliance is often undertaken simply to avoid the effect of such rules (e.g., reciprocity or IP remedies).

Outbound costs would diminish as well. Firms would not need to spend the significant amounts of time they currently do building license-compliant attribution documents and source code repositories. They would also avoid the costs of designing around the effects of reciprocity and license incompatibilities and conducting outbound audits to ensure that the effects of reciprocity are contained in accordance with firm policies. Although some outbound audits may still be done, they would almost certainly not be as significant given the absence of reciprocity and licensing requirements in general.

Negotiations with third parties in commercial agreements would also see more efficient results. Although third parties may still want to know about public domain materials included in product or service, and such concerns may affect negotiations, the potential effects of reciprocity and IP remedies are typically the most pressing concern of the parties. A public domain approach would remove this concern and therefore improve the efficiency of such negotiations.

in Copyright Law, 96 VA. L. REV. 549, 634-5 (2010) (discussing the significant costs that may result when attempting to reconcile the various conflicting terms of the numerously available and used open licenses); and Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885, 943-4 (2008).

C. Containing the Prospect of Trolls

Another significant benefit of a public domain approach would be to limit the likelihood of IP “trolls.” As discussed, rent-seeking or even the traditional economic incentives of IP rights are not generally what motivate individuals and firms to contribute to open-licensed projects.¹⁶⁵ The limited amount and nature of case law surrounding open-licensed materials, despite evidence suggesting significant license non-compliance, provides some confirmation to this.¹⁶⁶ Indeed, the primary motivation behind the suits that have been brought seems to be simply a desire to have the violators follow the relevant license requirements.¹⁶⁷

But this benevolent behavior could change. This possibility seems especially stark in the case of copyright. The recent example of Righthaven, the now defunct copyright “troll” responsible for filing numerous cases on behalf of its clients against users of its clients’ copyrighted materials, illustrates this possibility.¹⁶⁸ So long as open-licensed materials remain subject to copyright, similar suits are possible in the open license world.

While it is perhaps unlikely that such suits will materialize so long as the materials remain in the possession of the original rights holders, a dour economy and the counsel of a copyright troll might change the status quo. Furthermore, bankruptcies and other acts of insolvency could release such copyrighted materials into the hands of owners lacking the benign mindset of many contributors to open-licensed projects.¹⁶⁹ Because statutory damages and injunctive relief are available for violations of copyright in the U.S.,¹⁷⁰ obtaining rents might be especially tempting since such potential liabilities make obtaining settlement payments that much easier.¹⁷¹

Such rent-seeking seems to have little to do with innovation. Instead, it hampers it. In the patent space, commentary regarding the

¹⁶⁵ See *supra* Part I.b.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ See generally Stephen McJohn, *Top Tens in 2011: Copyright and Trade Secret Cases*, 10 NW. J. TECH. & INTELL. PROP. 331 (2012) (describing the Righthaven litigation).

¹⁶⁹ See Tracie L. Bryant, *The America Invents Act: Slaying Trolls, Limiting Joinder*, 25 HARV. J.L. & TECH. 673, 691 (2012) (discussing how patent trolls often acquire patents in bankruptcy proceedings).

¹⁷⁰ 17 U.S.C. § 504(c).

¹⁷¹ See Constance Boutsikaris, *The Rise of Copyright Trolls in a Digital Information Economy: New Litigation Business Strategies and Their Impact on Innovation*, 20 COMMLAW CONSPPECTUS 391 (2012) (discussing the business strategy of Righthaven in threatening significant statutory damages for what in some instances turned out to be “fair use” under copyright law, while offering to accept a significantly lower amount as settlement of the claims).

negative effects of patent trolls on innovation has been significant.¹⁷² While such troll-like behavior in the copyright space has not been widespread, it is better to ensure that it remains so. A public domain approach to open models of innovation would help do precisely that.

The prospect of patent trolls buying up patented open-licensed materials and wielding the patents against FOSS users may be less worrisome.¹⁷³ In most cases it is unlikely that FOSS projects have obtained patents for a number of reasons.¹⁷⁴ Many of the projects are run by a collection of individual contributors across the world. Filing for and obtaining patents is costly,¹⁷⁵ and such collectives of individuals in most cases are unlikely to have undertaken such activity due to the costs,¹⁷⁶

¹⁷² See, e.g., Mark A. Lemley & Carl Shapiro, *Frontiers of Intellectual Property: Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007) (discussing the excessive power patent trolls may hold over complex products through ownership of a patent covering a single component in such complex product); Gerard N. Maglio, *Creative Commons, Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809 (2007) (discussing several possible means by which to prevent troll-like behavior); Mark A. Lemley, *Are Universities Patent Trolls?*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 613-4 (2008) (labeling the patent troll problem as a form of “patent hold-up” because such trolls extort more value from third parties than their patent is actually worth); Robin Feldman & Tom Ewing, *The Giants Among Us*, 2012 Stan. Tech L. Rev. 1 (2012) (discussing a new form of behavior somewhat akin to troll-like behavior, what they call “mass aggregators” of patents, which behavior, while possibly resulting in some benefits, also has the effect of potentially slowing innovation); Colleen V. Chien, *Startups and Patent Trolls*, Sept. 28, 2012, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146251 (discussing the negative effects of patent troll activity on startup companies); and Simon Phipps, *Numbers Don't Lie: Patent Trolls Are a Plague*, Oct. 19, 2012, INFOWORLD, <http://www.infoworld.com/d/open-source-software/numbers-dont-lie-patent-trolls-are-plague-205192> (discussing the ill effects of patent trolls on innovation).

¹⁷³ Of course, the prospect of patent trolls using other patents against open-licensed projects remains real, but that subject is beyond the scope of this Article.

¹⁷⁴ See generally Ronald J. Mann, *supra* note 48, at 2-3 (discussing reasons why FOSS developers generally do not obtain patents, but why, given the environment in which they exist, they may need to in order to survive); Schultz & Urban, *supra* note 20, 10-14 (discussing the cultural and political reasons why open license communities do not generally patent their technologies).

¹⁷⁵ See, e.g., Gene Quinn, *The Cost of Obtaining a Patent in the US*, Jan. 28, 2011, IPWatchdog, <http://www.ipwatchdog.com/2011/01/28/the-cost-of-obtaining-patent/id=14668/> (providing a range of estimates, starting at \$5,000 and ending at \$15,000 or more); and Michael Neustel, *How Much Does a Patent Cost?*, Neustel Law Offices, <http://www.patent-ideas.com/Patent-Costs-Fees/How-Much-Does-A-Patent-Cost.aspx> (last visited Nov. 2, 2012) (providing similar ranges).

¹⁷⁶ See Simon Phipps, *Why Software Patents Are Evil*, Mar. 16, 2012, INFOWORLD, <http://www.infoworld.com/d/open-source-software/why-software-patents-are-evil-188738?page=0,2> (indicating that FOSS communities often lack the resources to mount a patent defense by, for example, acquiring patents).

especially since their motivations in contributing have little to do with IP rights or obtaining direct economic remuneration.¹⁷⁷ The unlikelihood of patents for FOSS projects increases given that many FOSS licenses include automatic patent licenses to downstream users.¹⁷⁸ So the reward of obtaining patents on the technology—being able to exclude others from using such technology absent a patent license—in many cases by default has already been given away.¹⁷⁹

Furthermore, even in cases where the rights holders do find reasons to file for patents—for instance, as a defensive mechanism vis-à-vis aggressive third parties—such realization in many cases may simply come too late. For instance, under U.S. law a creator has one year from releasing or using materials in public to file a patent on the technology.¹⁸⁰ After that time period, any possible patent rights expire.¹⁸¹ The collective nature of many FOSS projects, and the non-IP centric motivations of such groups, makes it likely that this alone would prevent many from filing for patents or being eligible to do so. In cases of well-organized, corporate open-licensed projects—for instance, Red Hat’s version of Linux—firms may in fact pursue patents on the open-licensed technology, although reluctantly in most cases given the general hostility to software patents in FOSS communities.¹⁸²

Even if the risk of patent trolls is limited, a public domain approach that effectively waives patent rights could still help guard against that risk. Of course, users of such materials would remain vulnerable to suits from trolls that have obtained patents that read on the dedicated materials, but that is a result of the current U.S. patent system rather than an issue with a

¹⁷⁷ Indeed, some in the FOSS world view software patents as evil and thus eschew software patents as a matter of principle. See, e.g., Julie Bort, *The Defensive Patent License Makes Patents Less Evil for Open Source*, May 7, 2010, NetworkWorld, <http://www.networkworld.com/community/blog/defensive-patent-license-makes-patents-less-e> (indicating that FOSS developers “notoriously shy away from pursuing software patents [because] [t]he concept is ugly to them”).

¹⁷⁸ Christian H. Nadan, *Closing the Loophole: Open Source Licensing and the Implied Patent License*, 26 *The Computer & Internet Lawyer*, Aug. 2009, available at <http://www.scribd.com/doc/46088081/Closing-the-Loophole-Open-Source-Licensing-amp-the-Implied-Patent-License-Nadan> (indicating that some FOSS licenses include express patent licenses, while the others may contain implied patent licenses).

¹⁷⁹ *Id.*

¹⁸⁰ Laurence P. Colton, *Intellectual Property*, 63 *MERCER L. REV.* 1283, 1286 (indicating that this “statutory bar” to obtaining a patent remains in effect following enactment of the America Invents Act of 2011).

¹⁸¹ *Id.*

¹⁸² See Red Hat, Inc., *Statement of Position and Our Promise on Software Patents*, http://www.redhat.com/legal/patent_policy.html (last visited Nov. 2, 2012) (indicating that the firm intends to pursue software patents, despite being opposed to them in principle, in order to help defend FOSS against IP trolls and other aggressive patent holders).

public domain approach. Much like the open license approach, a public domain approach could help limit the number of potential patents reading on the dedicated materials by expanding the prior art.¹⁸³ And, a public domain approach, if implemented right, could better limit the number of patents that might be asserted against such materials (since, for instance, not all FOSS licenses include express patent licenses). Section IV below discusses how a public domain approach might best be implemented in order to address patent issues. So long as materials remain subject to IP rights, however, the prospect of trolls, in the patent world but especially in the case of copyright, remains more likely.

D. Satisfying Contributors

A possibly fatal counterargument to the public domain approach is simply this: if contributors preferred such an approach, they could have already adopted it. But they largely have not. Instead, in the FOSS world, the most popular license remains the General Public License, a reciprocal license.¹⁸⁴ Large numbers of developers also prefer the Apache License for their FOSS projects, an attribution-only license.¹⁸⁵ In the Creative Commons world, some evidence suggests that participants prefer more restrictive Creative Commons licenses.¹⁸⁶ One might infer from this evidence that whatever the issues with the IP approach, contributors prefer it.

But there are reasons to doubt this inference. In the FOSS world, for instance, there is no recognized or widely used public domain dedication tool.¹⁸⁷ Instead, the Open Source Initiative and the Free Software

¹⁸³ For challenges that open license communities face in expanding the prior art through contributions of technology under open licenses, see Schultz & Urban, *supra* note 20, at 22.

¹⁸⁴ See, e.g., Black Duck Software, *Open Source License Data*, OPEN SOURCE RESOURCE CENTER, <http://osrc.blackducksoftware.com/data/licenses/> (last visited Nov. 2, 2012) (indicating that the GPL Version 2.0 is the most popular FOSS license).

¹⁸⁵ *Id.* (indicating that the Apache license is the second most popular FOSS license).

¹⁸⁶ On the popular photo-sharing site, Flickr, for instance, an analysis in 2009 suggested that those choosing to license their photos under a Creative Commons license by and large choose Creative Commons licenses that contain restrictions, for instance, around commercial use or making derivative works of the photos. See Michelle Thorne, *Analysis of 100M Creative Commons-Licensed Images on Flickr*, CreativeCommons.org, Mar. 25, 2009, <http://creativecommons.org/weblog/entry/13588>. See also Giorgos Cheliotis, *Creative Commons Stats*, HOIKOINOI BLOG, Jul. 2, 2007 <http://hoikoinoi.wordpress.com/2007/07/02/Creative-Commons-stats/> (indicating that most contributors choosing Creative Commons licenses for their content prefer a version that restricts commercial use).

¹⁸⁷ There have been attempts to create such a tool and movement towards the public

Foundation—the two leading FOSS advocacy organizations in the world—vet and approve open licenses for use in the community.¹⁸⁸ While it is true that various projects could simply ignore these recommended licenses and adopt a public domain approach—and some have attempted to do precisely that¹⁸⁹—that sentiment assumes that the organizers of such projects understand how to do so. Section IV below, which discusses the complexities involved in dedicating materials to the public domain and some possible changes in the law that may help make doing so easier, suggests dedicating materials to the public domain is not a straightforward matter.

The open licenses in the FOSS world and the Creative Commons licenses in the Creative Commons world, conversely, provide contributors with vetted and well-known legal tools for making materials available to the public. Indeed, in some cases contributors believe that using such open licenses in fact does contribute their materials to the public domain.¹⁹⁰ Given the availability of these licenses, the significant roles of the licensing bodies in creating and advancing the open license movements, and the complexities in dedicating materials to the public domain, it is no surprise, then, that more projects have not adopted a public domain approach.

In the Creative Commons world, a public domain dedication tool does exist, and yet most open-licensed materials in the Creative Commons world appear to be licensed under non-public domain, copyright licenses.¹⁹¹ Part of the reason for this may lie simply in the belief that reciprocity helps build up the commons by ensuring that others license their improvements or derivative works similarly.¹⁹² However, as argued throughout, there are

domain. See, e.g., *Unlicense Yourself: Set Your Code Free*, <http://unlicense.org/> (last visited Nov. 2, 2012).

¹⁸⁸ See Asay, *supra* note 36, at 268-71 (summarizing the two organizations roles in promoting FOSS and approving FOSS licenses based on each group's definition of FOSS).

¹⁸⁹ See *supra* note 187 (providing a list of projects that have taken the public domain approach to FOSS).

¹⁹⁰ Academic literature also at times treats open licensed materials as belonging to the public domain, so it is not surprising that non-lawyers sometimes come to the same conclusion. See, e.g., DAVID BOLLIER, *WHY THE PUBLIC DOMAIN MATTERS: THE ENDANGERED WELLSPRING OF CREATIVITY, COMMERCE AND DEMOCRACY* 14 (2002) (suggesting that FOSS development helps expand the public domain); Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 190-3 (2004) (identifying FOSS as an example of the public domain's new dynamism); and Lisa Mandrusiak, *Balancing Open Source Paradigms and Traditional Intellectual Property Models to Optimize Innovation*, 63 Me. L. Rev. 303, 304 (2010) (indicating that FOSS licensing promotes contributing materials to the public domain).

¹⁹¹ See *supra* note 186 and accompanying text.

¹⁹² Rufus Pollock, *Why Share-Alike Licenses Are Open But Non-Commercial Ones Aren't*, OPEN KNOWLEDGE FOUNDATION BLOG, June 24, 2010, <http://blog.okfn.org/2010/06/24/why-share-alike-licenses-are-open-but-non-commercial->

reasons to doubt that reciprocity in fact has that effect, at least where subsequent users do not already desire such a result. Instead, it can and often does deter third parties from using the materials due to concerns about the reach of reciprocity. Or, in the FOSS world, they simply design around the effects of reciprocity in many cases.

Nonetheless, attribution may still provide a reason to maintain an IP approach to open models of innovation. Contributors to open-licensed projects often suggest that the “signaling effects” and reputational benefits they receive from their contributions are significant drivers in why they contribute in the first place.¹⁹³ But an IP approach is not the only way, or even the best way, to satisfy such goals. In the FOSS world, as discussed, it is hard to imagine that the typical attribution provides the type of recognition that contributors rely on as a motivation, since such attributions are generally buried in the product or service documentation, where no one but lawyers sees them. Instead, tools such as Github likely represent a more powerful means of providing recognition.¹⁹⁴

Furthermore, even if some inventors and creators do wish for a formal attribution in materials that make use of their works, an IP notice solution seems like a suboptimal one. Technological solutions to attribution could potentially provide the same attribution—or perhaps even better provide it by automating the attribution or making it an integral part of the work—while also removing the threat of IP remedies that only reduce the speed of innovation by introducing the transaction costs detailed above.

Even absent a formal legal requirement for attribution, community norms could also help dictate such a result. In the Creative Commons’ FAQ regarding the public domain, for instance, the organization notes that while the public domain dedication tool does not require that subsequent users provide any sort of attribution to the original author, community norms (such as with scientific or academic citations) may still strongly encourage such attributions.¹⁹⁵ Such norms could serve the same role in a public domain approach.

E. Reconciling a Vision

ones-arent/ (suggesting that share-alike in the Creative Commons world may help build up the commons by promoting contributions back into it).

¹⁹³ See *supra* note 42 and accompanying text.

¹⁹⁴ See, e.g., Erek Zukerman, *Why You Should Contribute to Open Source Projects [Opinion]*, MAKEUSEOF, Feb. 24, 2012, <http://www.makeuseof.com/tag/contribute-opensource-projects/> (discussing the advantages of an active Github profile, including allowing potential employers to recognize all the software code that a person has written and generating significant numbers of followers).

¹⁹⁵ See Creative Commons, *supra* note 161.

Richard Stallman, considered by some as the “prophet” or “philosopher king” of the FOSS movement,¹⁹⁶ has written a series of essays powerfully arguing against IP rights in software. For instance, in an essay titled, “Why Software Should Not Have Owners,” he provocatively writes that “[c]ontrol over the use of one’s ideas’ really constitutes control over other people’s lives; and it is usually used to make their lives more difficult.”¹⁹⁷ Consequently, from Stallman’s point of view, as an ethical matter “a person should not [enforce copyrights] regardless of whether the law enables him to” because doing so harms society as a whole.¹⁹⁸

In a related essay, “Why Software Should Be Free,” Stallman argues against ownership rights in software because rights owners often impose restrictions on the software’s use, and such restrictions “only interfere [with use of the software]...[s]o the effect can only be negative.”¹⁹⁹ Such obstructions result in fewer people using, adapting, and fixing the software, and therefore fewer people benefiting from it.²⁰⁰ In essence, Stallman argues against IP rights in software because these rights lead to a tragedy of the anti-commons.

Naturally Stallman does not have his own IP approach in mind when discussing this anti-commons issue. Instead, he is focused on software licensing models that prohibit access to source code and charge licensing fees for use of the software. But reciprocity and the other effects of employing IP rights on behalf of openness and freedom have similar obstructive effects on use, adaptation, and adoption, as discussed above.²⁰¹ Stallman himself later admits that the particular mode of restricting sharing is irrelevant. As he puts it: “how...obstruction is carried out...doesn’t affect the conclusion...if it succeeds in preventing use, it does harm.”²⁰²

Nonetheless, though the IP approach may be a suboptimal one, the architects of open movements argue that it is a necessary evil. Without it, defectors would quickly deplete the commons, resulting in a tragedy of the commons. Reciprocity, according to this argument, prevents such a tragedy by rendering concerns about the long-term viability of open-licensed projects moot because reciprocity assures users that the project will remain open and available.²⁰³ Therefore, they will continue to participate in and

¹⁹⁶ See STALLMAN, *supra* note 6, at i (quotes from Tim Berners-Lee and Simon L. Garfinkel).

¹⁹⁷ *Id.* at 33.

¹⁹⁸ *Id.* at 34.

¹⁹⁹ *Id.* at 46.

²⁰⁰ *Id.*

²⁰¹ See *supra* Part II.b.

²⁰² STALLMAN, *supra* note 6, at 50.

²⁰³ Moglen, *supra* note 34.

contribute to the commons.²⁰⁴ Eben Moglen cites the reciprocity-based IP approach as the “central institutional structure” responsible for the FOSS movement’s success and the GPL, the Free Software Foundation’s primary reciprocal license, as Stallman’s greatest achievement.²⁰⁵

These arguments prove unconvincing. Part II.c above provided arguments as to why the IP-induced anti-commons are not a necessary evil in order to prevent a tragedy of the commons. Furthermore, it is also worth noting that a tragedy of the commons in the true sense of the phrase simply never results absent reciprocity. For instance, if software or content is in the public domain, subsequent users are not then able to “subtract” from the commons because each person’s use of the software or content is “nonrivalrous.” Hence, though subsequent users of public domain materials may not contribute changes to the commons, and thereby fail to expand the commons, their “defections” would not remove materials from the commons. The size of the commons would simply remain the same.²⁰⁶

But is reciprocity responsible for the existence of the commons at all? Put another way, even if reciprocity does not prevent a true tragedy of the commons, would the commons simply not exist, or stop growing after a few initial contributions, without reciprocity? Such a result might be viewed as a form of depleting the commons, and thus a form of a tragedy of the commons. In the FOSS world, for instance, reciprocity seems to have played a role in promoting Linux as a counterweight to Microsoft’s operating system, at least early on.²⁰⁷ At least some developers may have been motivated by the understanding that, because of Linux’s reciprocity requirement, corporate competitors to Microsoft could not simply take their hard work and close it back up. This factor may have been especially critical early on in the FOSS movement, when developer communities were less interconnected and thus less capable of collaborating in order to compete against such potential defectors.²⁰⁸

But reciprocity’s time has come and gone. If Linux were in the public domain or under an attribution-only license, for instance, and firms used it without releasing their changes in source code form, this would in no way impinge upon others’ rights to use the public domain or attribution-only version. And that version would certainly continue to attract contributions, both from independent developers and firms, for the variety

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ For an analysis of why analogizing IP to real property, with its concomitant focus on seeking out and stopping free riders, is misguided, see Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 Tex. L. Rev. 1031 (2005).

²⁰⁷ See Merges, *supra* note 48.

²⁰⁸ Moglen, *supra* note 34, at 14 (indicating that the interconnectedness that the Internet enabled made open models of innovation more practical and feasible).

of extrinsic and intrinsic motivations discussed above.²⁰⁹ The firm that took without giving back would be relegated to hoarding its own version in a technical corner, hoping that future developments advance in a direction favorable to the firm. It would not, however, be able to attract developers to its own version except by hiring them. Forking software projects and then closing them, therefore, in some ways is its own punishment.²¹⁰

Put another way: peer production models of innovation have built-in mechanisms that reinforce contributing to the commons rather than trying to hoard pieces of it, and such built-in mechanisms have nothing to do with IP rights. Firms that attempt to hoard pieces of the commons effectively cannot because the goods are nonrivalrous, and when they attempt to do so, they simply cut themselves off from free (to them) labor—at least with respect to changes that they make to their hoarded version—and in some cases influencing the direction of the project. They lose the very benefits of an open model of innovation. These benefits may not have been clear to firms in the beginning, when reciprocity may have played a bigger role in advancing this alternative model of innovation, but they seem clear now.

As discussed above, the successes of attribution-only licensed projects and hosted FOSS projects also provide real-world evidence suggesting that reciprocity is less of a driving force behind creating the commons than often claimed, at least today.²¹¹ As also discussed, it is also doubtful that reciprocity frequently forces firms' hands. Instead, firms contribute when it makes strategic sense for them, but otherwise simply design around or avoid certain reciprocal licenses altogether.²¹²

Ironically, much of this seemed clear to the architects of the open license IP approach from the beginning. Eben Moglen, in critiquing IP regimes as applied to software, decries the “econodwarf” perspective that IP rights are necessary in order to provide creators with incentives to create.²¹³ Instead, he claims that the Internet helps connect people, who then engage each other in creative activities for their own pleasure “and to conquer their uneasy sense of being too alone.”²¹⁴ The desire to engage in creative activity and share that experience with others, in Moglen's view, is the driving force behind the FOSS movement.²¹⁵ Stallman comes to similar

²⁰⁹ See *supra* Part II.c.

²¹⁰ Eric S. Raymond, *The Economic Case Against the GPL*, Apr. 26, 2009, <http://esr.ibiblio.org/?p=928> (early luminary of FOSS movement indicating that veering from open models of innovation becomes its own punishment because open innovation has proven itself over time as more efficient).

²¹¹ See *supra* Part II.c

²¹² *Id.*

²¹³ Moglen, *supra* note 34, 6-7.

²¹⁴ *Id.*

²¹⁵ *Id.* at 23-7.

conclusions.²¹⁶ And surveys of participants in open license movements confirm that such goals play a significant role in motivating many of them to participate.²¹⁷

Moglen goes on to argue that the “field strength” of the IP system is the primary obstruction to such creativity growing exponentially.²¹⁸ Stallman expresses similar sentiments,²¹⁹ although of course both are focused on the traditional IP approach, rather than their own. But as discussed above, their IP approach results in many of the same issues that they identify with the traditional IP approach: a version of the tragedy of the anti-commons. And, as this Article argues, all for naught.

To some extent it is unsurprising that the architects of the open license movements adopted an IP approach despite the normative framework they laid out for why non-IP models of innovation are superior and sustainable. In the FOSS context, for instance, Stallman had experienced firsthand how proprietary firms had grown over software products, and how such restrictive approaches to software ownership prevented engineers from improving software.²²⁰ Expecting Stallman and other early leaders in the FOSS movement to trust firms to accept their normative arguments, when firms had in fact rejected them, is therefore dubious. Instead, Stallman and others responded to firms with a dose of their own medicine, with a twist: an IP license—the General Public License—that commanded adherence to their normative precepts.²²¹

But again, this IP strategy, while understandable in context, belies the normative vision offered by Stallman and others and slows innovation unnecessarily. And as this Article has argued, this anticommens is not a necessary evil to prevent a greater tragedy of the commons, at least anymore. Moglen was right—many people do seem to be motivated by creativity and the ability to share it with others. Direct economic rewards are not the only end for which people and firms will work. And IP rights often simply get in the way, as Stallman argued.

Realigning the normative visions of open movements with the actual mechanics of such movements would, therefore, prove beneficial. But such benefits are more than simply spurring innovation by reducing the transaction costs discussed above. Adopting a truly public domain approach to open development would better foster norms of free and open access than the current IP approach does. Put simply: such an approach would more

²¹⁶ STALLMAN, *supra* note 6, 34-5, 51-4.

²¹⁷ See Engelhardt, *supra* note 42.

²¹⁸ Moglen, *supra* note 34, at 7.

²¹⁹ STALLMAN, *supra* note 6, 37-57.

²²⁰ *Id.* at 7-24.

²²¹ *Id.* at 12-13.

ably push back against the very idea of IP rights in software and other types of content.

For instance, the more that software and content is available in the public domain, the more difficult it becomes for firms or others to appear credible in asserting strong IP rights over it, whatever the law on the books may be. The FOSS and Creative Commons movements have already helped create some of this type of pressure in the software and content worlds. For instance, one reason that firms are careful to comply with open licenses, and one reason that they often choose open-licensed solutions in the first place, is to foster goodwill and strengthen relationships with developer communities.²²² Firms often seek to be viewed as good actors in the open license movements because their products and services' commercial viability often depend on good relations with developer communities.²²³

But the FOSS, Creative Commons, and related movements could go farther by eliminating IP rights altogether and thereby removing the conflicts between the normative visions of such movements and their actual implementation. Put another way, if a societal consensus develops that software and other types of content should not be subject to IP rights, then, notwithstanding the law on the books, others will be more likely to adhere to this consensus. And, the law is more likely to change accordingly over time, too, to reflect this consensus.

The current disconnect between the normative vision of FOSS and other open license movements and the actual implementation has the opposite effect. Regardless of the titles of Stallman's provocative essays, his reliance on IP rights to further his vision of free access undermines it in important ways by tacitly arguing that IP rights are necessary to foster innovation. Indeed, that is, in a nutshell, essentially the argument in favor of reciprocity. By failing to trust the convincing power of his normative tenets, therefore, he and others have failed to push back against IP rights in the software and content worlds as powerfully as they could have. As a result, the FOSS and other open license movements concede a foundation that inherently conflicts with their vision of innovation. And that conflict leads to an unnecessary anticommmons that slows innovation.

One practical negative result of this tension is increasingly complicated efforts to push back against the very foundation such

²²² See Black Duck, *Open Source Governance in Highly Regulated Companies*, 5-7, available at http://www.blackducksoftware.com/noindex/salesforce/pdfs/OSS_Governance_UL.pdf (last visited Nov. 6, 2012) (discussing the "brand" risk firms face when failing to abide by FOSS requirements and discussing a specific example of Microsoft's failure to adhere to FOSS license requirements and the resulting damage to Microsoft's relationship with the developer community).

²²³ *Id.*

movements have conceded. For instance, Stallman and the Free Software Foundation extensively revised the General Public License in 2008 after years of public input.²²⁴ The new version was meant to address perceived new threats to the FOSS movement—primarily the use of digital rights management to thwart free access to software and increasingly sophisticated patent deals.²²⁵ But the complexity of the new version has resulted in slower than expected adoption,²²⁶ increased transaction costs in dealing with the license’s complexities, and some firms’ prohibition of materials licensed under the new version altogether.²²⁷ As new technological “threats” to the preferences of Stallman and others develop, similarly complicated license revisions may ensue in order to address them.²²⁸ Rather than promoting innovation, however, such efforts simply introduce significant transaction costs without appearing to achieve the desired result: that is, greater freedom of use. A true public domain approach would achieve that result.

IV. MAKING THE PUBLIC DOMAIN PUBLIC

This Article has thus far offered reasons to doubt that IP rights are the best method by which to promote open models of innovation. An IP approach results in a tragedy of the anticommons, while failing to prevent a tragedy of the commons in a meaningful way. Those that choose open models of innovation do so for a variety of extrinsic and intrinsic reasons that generally have little if anything to do with IP rights, and a public domain approach would do nothing to undermine such reasons for participation. A public domain approach, therefore, would encourage at least similar levels of participation in open models of innovation and, in fact, would likely lead to greater participation by eliminating significant transaction costs. A public domain approach would also eliminate future transaction costs stemming from rent-seeking by IP trolls, as well as aligning the normative roots of such movements with their actual mechanics. In addition to helping reduce wasteful transaction costs, such realignment would better serve the purpose of pushing back against expansive IP rights in the software and content worlds.

The question remains, however, how to best promote a public domain approach. Materials can qualify for the public domain in two

²²⁴ See generally Asay, *supra* note 36.

²²⁵ *Id.*

²²⁶ See Aslett, *supra* note 139 (discussing the declining percentage of GPL-licensed projects relative to attribution-only licenses).

²²⁷ See *supra* notes 86 and 87 and accompanying text.

²²⁸ Indeed, some efforts are already underway to update the latest version of the GPL. See, e.g.,

general ways. The first is through private action: right holders or potential rights holders may dedicate such materials to the public domain, despite whatever IP rights they may have in such materials.²²⁹ Individuals or firms can do so through tools such as that provided by the Creative Commons²³⁰ or by simply forfeiting patent rights, for instance, by using an invention publicly and failing to file for patent rights in the permitted grace period.

The other method consists in government action—that is, the government can either exempt certain categories of materials from IP rights or limit the time period for which IP rights subsist in the materials, after which time period the materials enter the public domain. The public domain can be expanded, therefore, by the government expanding the categories of materials that are not subject to IP rights or limiting the time periods for which IP rights subsist in the materials. In the U.S. and elsewhere, however, governments and courts have recently shrunk the public domain by expanding the categories of materials that are subject to IP rights²³¹ and increasing the time periods for which IP rights subsist in such materials.²³²

Private action, therefore, may appear to be the more likely route towards expanding the public domain. But using private tools to dedicate materials to the public domain is fraught with certain complexities discussed below. Government action could, therefore, buttress private action by simplifying the method by which parties contribute materials to the public domain. A Public Domain Act would thus be a welcome and needed addition to the IP statutory regime in the U.S.²³³ The following sections first examine the current state of private tools used to dedicate materials to the public domain and some of the issues that arise in that context, followed by what a Public Domain Act might look like in order to address such issues.

²²⁹ See generally Merges, *supra* note 162.

²³⁰ See Armstrong, *supra* note 236, at 396-9 (discussing at length the mechanics of the Creative Commons public domain tools).

²³¹ See, e.g., William T. Gallagher, *Trademark and Copyright Enforcement in the Shadow of IP Law*, 28 SANTA CLARA COMP. & H. TECH L.J. 453, 455 (2012) (reviewing academic commentary focusing on the expansion of IP rights and the threats that such expansion poses).

²³² See, e.g., Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, 112 Stat. 2827 (1998) (codified in scattered sections of 17 U.S.C.) (extending the term of copyright protection in the U.S.).

²³³ Others have come to similar conclusions. See, e.g., Pamela Samuelson, *The Copyright Principles Project: Directions for Reform*, 25 BERKELEY TECH. L.J. 1175, 1227-8 (2010) (recommending that Congress amend the Copyright Act to make it easier for copyright holders to dedicate materials to the public domain).

A. Private Action Unadulterated

As discussed above, effectively placing materials in the public domain in the U.S. through private action would ideally require relinquishing any applicable copyright and patent rights (and all related rights). Waiving trademark rights is inadvisable since doing so may result in significant consumer confusion. Any trade secret rights would cease to exist as soon as the materials were made public.²³⁴

The options for achieving this result, however, are rather weak. For instance, the Creative Commons public domain legal tool—perhaps the best example of a private tool used to dedicate materials to the public domain—expressly exempts patent rights from the public domain dedication because of the “complexities associated with patent rights.”²³⁵ Avoiding patent rights in the tool may come with good reason. For one, the Creative Commons licenses are generally intended for content that is not normally patentable subject matter. Furthermore, patent rights are unlike copyright in at least one important respect: whereas copyrights obtain automatically so long as some modicum of originality is fixed in a tangible medium, patent rights must be applied for and granted through a long prosecution process. Consequently, questions naturally arise regarding how to effectively waive rights that one may or may not ever seek or obtain.

Other complexities also arise due to the nature of patent rights themselves. Would the patent waiver only be with respect to the dedicated work or in general? Would the waiver be structured as a covenant not to sue? If so, what would the scope of such a covenant be? Such additional complexities likely played a role in steering the Creative Commons away from addressing patent rights, especially given that most content subject to Creative Commons licenses would be ineligible for patent protection in any event. However, while such an exemption may be palatable in the world of content, in the software world and others patent rights cause significant

²³⁴ In some jurisdictions other rights may be applicable, and therefore require waiver, in order for accompanying materials to fully fall in the public domain. For instance, since the Creative Commons public domain dedication tool is intended to be effective worldwide, the tool attempts to address different issues that arise depending on the jurisdiction. “Moral rights” in Europe are inalienable, for instance, and so even if one attempts to dedicate copyrighted material to the public domain, such an attempt under some European laws may not effectively disclaim such moral rights. Because of this and other issues in various jurisdictions regarding the effectiveness of public domain dedications, the Creative Commons public domain dedication tool includes a backup license meant to replicate the effect of the public domain dedication. However, the Creative Commons indicates that even the fallback license approach may fail in some jurisdictions. The scope of this Article limits itself to U.S. law, while acknowledging that international cooperation on these issues is critical and therefore worth exploring.

²³⁵ *Id.*

transactions costs and are a significant concern. Waiving them as part of a public domain dedication is therefore desirable in order create a commons that is free of IP entanglements and the resulting transaction costs.

Specific statutory IP doctrines, furthermore, may prevent private public domain waivers such as the Creative Commons tool from being fully effective. In the copyright sphere, for instance, U.S. federal law allows copyright holders and their heirs to terminate any transfer or license of copyright interests during certain defined periods.²³⁶ This doctrine, by providing copyright holders with a means of recovery in the event that powerful third parties at some point coerced them into an unprofitable bargain, has the perverse effect of possibly preventing effective public domain dedications.²³⁷ Some commentators have consequently called for legislation and other proposals to address this and related issues.²³⁸

Aside from specific patent and copyright obstacles in dedicating materials to the public domain, significant amounts of conflicting information regarding what the public domain is, what it entails, and how to dedicate materials to it also exists. Perhaps most obviously, both the FOSS and Creative Commons movements include so many different licenses as to make it difficult for creators to know what the right path to the public domain is.²³⁹ In fact, often creators mistakenly believe that open licenses are in essence public domain dedications.²⁴⁰ The Creative Commons, FSF, and OSI all provide significant amounts of commentary explaining the various license options.²⁴¹ But such commentaries, together with complex license texts themselves, leave much to sift through when the goal may often be quite simple. Furthermore, such movements' dogged determination to maintain an IP approach, despite such an approach largely failing to achieve its stated purposes, as discussed above, also serves to obscure the path to the

²³⁶ Timothy K. Armstrong, *Shrinking the Commons: Termination of Copyright Licenses and Transfers for the Benefit of the Public*, 47 HARV. J. ON LEGIS. 359 (2010) (discussing this issue and proposing federal legislation as the best solution); Lydia Pallas Loren, *Renegotiating the Copyright Deal in the Shadow of the "Inalienable" Right to Terminate*, 62 FLOR. L. REV. 1329 (2010) (discussing the issue and making recommendations as to how the issue should be addressed in various contexts).

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ Gomulkiewicz, *supra* note 163.

²⁴⁰ Practitioners must often disabuse clients of confusion on this topic. For one such general effort from a practitioner along these lines, see Brad Frazer, *Open Source Is Not Public Domain: Evolving Licensing Philosophies*, 45 IDAHO L. REV. 349 (2009).

²⁴¹ See, e.g., Free Software Foundation, *Various Licenses and Comments About Them*, <http://www.gnu.org/licenses/license-list.html> (last updated Oct. 25, 2012); Open Source Initiative, *Open Source Licenses*, <http://opensource.org/licenses/index.html> (last visited Nov. 8, 2012); and Creative Commons, *About the Licenses*, <http://creativecommons.org/licenses/> (last visited Nov. 8, 2012).

public domain by convincing creators that IP rights and reciprocity, for instance, are crucial.

A Public Domain Act could help address some of these issues by providing a straightforward means by which to contribute materials to the public domain. The next section examines how this might work.

B. A Public Domain Act

Article I, Section 8 of the U.S. Constitution authorizes Congress to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”²⁴² The U.S. Constitution, therefore, expressly adopts the principle that granting authors and inventors IP rights in their works is important to spurring creative activity and authorizes Congress to act accordingly.

But what the open license movements discussed in this Article seem to confirm is that IP rights are not the only way to incent such creative activity, and that inventors and authors also contribute significant creative activity for a variety of other reasons, in many cases *in spite* of IP rights. This is not to argue that IP rights should be done away, or that they do not in many cases function as an important incentive to creative and inventive activity. They clearly do. But it is to say that another path to promoting “the Progress of Science and useful Arts” lies in unlocking the potential of the public domain.

1. A Public Domain Symbol

A public domain Act could help do so by creating a universal symbol for when materials are in the public domain. For instance, much like the “(C)” symbol that signifies something is subject to copyright, a “(PD)” symbol could be adopted to indicate that materials are free of copyright and patent claims, at least from those dedicating such materials. Rather than having to rely on third-party licenses that approximate such intentions, or come up with some public domain declaration of their own, therefore, creators could use such a symbol as a simple means to achieve public domain status.

A (PD) symbol could also serve the important role of providing creators and inventors with attribution. For instance, if a creator or inventor decided to include their name with the (PD) symbol, the Public Domain Act could mandate that subsequent users are not permitted to remove such

²⁴² U.S. CONST. art. I, § 8, cl. 8.

designation. In the FOSS context, this requirement would not require compiling attribution documents or making public domain source code available to additional downstream users. It would simply mean that users of public domain materials should leave the “(PD) 2012 John Doe” designation intact. The Public Domain Act might provide for some limited statutory damages to help ensure that users take this requirement seriously.

In order to deter parties from wrongfully placing materials in the public domain through use of the (PD) symbol, the Public Domain Act might also make available statutory damages against those that place materials in the public domain with actual knowledge or reason to know that they do not have the rights to do so. Such a provision would be an important safeguard against the Public Domain Act being exploited and the (PD) symbol thereby losing credibility. Relatedly, the Act might provide some sort of copyright infringement safe harbor for users of public domain-designated materials that rely on such designation in good faith.

2. A Limited Patent Waiver

Ideally a Public Domain Act would by default limit the patent rights being waived to the specific materials containing the “(PD)” designation. This seems logical from the perspective of both the dedicator and subsequent user. The contributor would likely only wish to dedicate the materials to which she attaches the (PD) designation, and so would not expect such dedication to extend to other materials that she has not similarly dedicated. Such a default limitation would thus better encourage contributions to the public domain. The subsequent user would similarly gain a windfall if the patent rights waived extended beyond the actual materials they were receiving. Of course, if patent holders wished to dedicate a patent in its entirety to the public domain, then the Public Domain Act would ideally provide for a means to do that as well. How the exact language should appear is beyond the scope of this Article, but the general concept of a limited patent waiver would be an important piece of such a Public Domain Act.

Ideally such a waiver would also function as a bar to obtaining patent rights related to such materials. That is, if a dedicator does not already have patents reading on the dedicated materials, such dedication would mean that the materials are now prior art that would prevent both the dedicator and any other party from obtaining a patent that reads on such materials. Ideally, then, no grace period under patent law would be applicable for applying for patent rights once released into the public domain under the “(PD)” designation.

If the dedicator already does have patents that read on the dedicated

materials (or has filed for a patent that is ultimately issued), such a patent waiver should be more than simply a covenant not to sue from the original dedicator. Courts have at times found that covenants not to sue do not automatically bind future patent owners. So, for instance, if a third party dedicated some materials to the public domain but owned patents reading on such materials, and the Public Domain Act failed to make clear that any subsequent owner of such patents was also bound by the dedication with respect to those materials, the new owner might reasonably expect to be able to bring a patent action against users of such materials. The Public Domain Act would therefore need to clearly address this issue in favor of the public domain-dedicated materials and users thereof as well as potential issues relating to patent exhaustion, where similar issues might arise.²⁴³

One potential drawback to the public domain approach advocated in this Article compared to the open license IP approach is that many FOSS licenses, for instance, also include patent licenses from subsequent users. So, theoretically at least, patent protection is broader in the open license context because subsequent distributors of open-licensed materials also grant patent rights to additional downstream users. In the public domain approach, conversely, the patent protection comes only from the person or entity that dedicates the materials to the public domain (as well as those that might obtain that original dedicator's relevant patents). A subsequent user of such public domain materials with a patent that reads on them could take and use the materials, distribute them to third parties, and then require those third parties to take a patent license or face a patent infringement suit.

There are reasons to doubt that patent protection in the open license context is in reality any broader than it would be under a public domain approach, however. As discussed above, firms go to significant lengths to ensure that their patent and other economic interests are not compromised through use of open-licensed materials. Consequently, while in the open license context there may be an appearance of significant patent protection from firms because of the presence of patent licenses in the open licenses, in reality the actual patent protection from firms is likely much narrower than imagined (i.e., due to the extensive measures that firms take to protect their patent interests). It seems likely, then, that firms would continue to address patent issues in the public domain world much the same way they do currently in the FOSS world: carefully.

Another potential drawback of a public domain approach to patents is that it may mean that the public domain world would be disadvantaged vis-à-vis the "proprietary" world in terms of patents. That is, those that

²⁴³ Marc Malooley, *Patent Licenses Versus Covenants Not to Sue: What Are the Consequences?*, [http://www.brookskushman.com/Portals/0/Newspublic domainFs/131.pdf](http://www.brookskushman.com/Portals/0/Newspublic%20domainFs/131.pdf) (last visited Nov. 12, 2012).

adopt the public domain approach may be left defenseless against those that choose to pursue patents.²⁴⁴ But this potential drawback proves unconvincing. First, as discussed above, very few FOSS projects currently pursue patents as it is. Second, for those concerned about being defenseless, they could either obtain or file for patents before dedicating materials to the public domain or simply not dedicate them at all.

Ideally the Public Domain Act would also address the issue of termination of transfers in copyright law. It is beyond the scope of this Article to address the best method by which to do this; others have devoted significant scholarship to this issue. But a Public Domain Act could provide a useful vehicle for finally addressing it.

3. The Public Domain Act in Practice

How would the Public Domain Act work in practice? In the FOSS context, for instance, would individual developers actually contribute materials to projects under the public domain without some sort of assurance that the project would actually make the project itself public domain? Such an issue would likely be addressed through the contributor agreements rather than as part of a Public Domain Act. For instance, individual contributors might provide materials to a project under a public domain designation so long as the project agrees to make the whole project available under a public domain designation as well. Most FOSS projects already operate in a similar manner; the agreement simply indicates that the contribution will be used under whatever FOSS license the relevant project has chosen.²⁴⁵

Would creators actually rely on the Public Domain Act and use the (PD) designation? Those that believe in reciprocity may resist and continue to use reciprocal licenses for their projects. Others might continue to use IP-based open licenses simply out of inertia or because of greater familiarity with them. But the Public Domain Act would provide another, simpler option for making materials available for public consumption. And such an option, as this Article has argued, presents significant advantages over the IP-based approach.

²⁴⁴ Because of this concern, some have advocated adopting a more comprehensive approach to addressing patent issues in the open license communities than is currently pursued. *See generally* Schultz & Urban, *supra* note 20.

²⁴⁵ *See, e.g.,* The Python Foundation, *Contributor Agreement*, available at <http://www.python.org/psf/contrib/contrib-form/> (last visited Nov. 8, 2012). In some cases the projects retain somewhat more wiggle room. For instance, the Apache foundation indicates simply that contributions will always be used for the “public benefit.” The Apache Software Foundation, *Individual Contributor License Agreement Version 2.0*, available at <http://www.apache.org/licenses/icla.txt> (last visited Nov. 8, 2012).

CONCLUSION

Open license movements came at just the right time. In the face of increasingly aggressive corporate assertions of IP rights, the FOSS and Creative Commons movements provided powerful checks to those assertions. They gave a voice and means to many who wished for a world of creativity and innovation freer than that envisioned in corporate board rooms. Their vision, and the legal tools architected to help achieve that vision, have succeeded in helping recast dialogues in both the content and software worlds.

But at what cost? The legal tools selected, while understandable in context, suffer from a significant flaw: they rely on the same foundation that they seek to do away with. This IP “schizophrenia” has had significant repercussions, as this Article has detailed. Most immediately, it leads to wasteful transaction costs that inhibit innovation. More futuristically, it paves the way for significant IP troll activity, especially in the copyright realm. And generally, it concedes and even implicitly argues in favor of the legitimacy and necessity of IP rights in the software and content worlds.

What is more, the costs of the IP approach do not appear necessary in light of actual experience or based on the reasons that innovators choose to participate in open models of innovation. The anticommons that the IP approach helps create is not needed to fend off a tragedy of the commons. Contributors to the commons have come to believe in and understand the virtues of the commons, and so already have incentives to contribute to it. This may not have been true at the inception of such open movements, but it seems clear now. Furthermore, the anticommons arises precisely as a result of firms taking precautions to avoid the effects of licensing requirements they deem to be against their interests. The anticommons, therefore, does not ensure the existence of the commons—it simply makes it less useful.

A public domain approach would eliminate many of the wasteful costs, both now and in the future, while still satisfying the goals of most innovators interested in contributing to such a commons. A Public Domain Act, furthermore, would be a welcome and needed addition to the U.S. IP statutory regime, providing yet another important path towards “promoting the sciences and useful arts.”

This Article does not argue, however, that IP rights are unnecessary or trivial in encouraging innovation. Too much evidence suggests they are important to encouraging creative and inventive activity in many important areas. But IP rights are only one option for spurring innovation. The open models of innovation discussed in this Article provide powerful examples of how innovation is encouraged in spite of IP rights, not because of them.

The best way to achieve such movements' full potential, therefore, is not through an IP approach, but through a full-throated public domain route. Open movements may wish to rely on IP rights in their transition to true openness and freedom. But if such reliance becomes permanent, open movements give up their birthright. It need not be so.