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A Case for the Public Domain

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A Case for the Public Domain

CLARK D. ASAY*

Over the past several decades open license movements have proved 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 yields. Ironically, such open license movements rely on IP rights to promote their visions 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 in many cases and in fact prevents the movements from reaching their full potential. The IP-based approach has this effect by causing significant transaction costs, often 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 license 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 many 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 and creativity based on the experiences of the open license movements and the arguments of this Article.

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I. 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,

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 be 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).

³ ROBERT 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.”).

⁴ Dreyfuss, *supra* note 2, at 1441.

the argument goes, is necessary to ensure that societies continue to receive the benefits of inventive and creative activity.

In the past few decades, several “open” license movements have 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 license movements as anti-IP movements, at least in the traditional utilitarian sense of IP.⁷ Ironically, however, these open license movements rely on IP rights to promote their paths of innovation and creativity. 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 experienced 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 largely do as

⁵ See Chris DiBona et al., *Introduction*, in *OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION* (Chris DiBona et al. eds., 1999) (providing a comprehensive history of the beginnings of the free and open source software movement). See generally *History, CREATIVE COMMONS*, <http://creativecommons.org/about/history> (last visited Oct. 14, 2013) (listing chronologically milestones that the Creative Commons has reached since its inception in 2001).

⁶ See, e.g., RICHARD M. STALLMAN, *FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN* 40–41, 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 *About, CREATIVE COMMONS*, <http://creativecommons.org/about> (last visited Oct. 14, 2013) (indicating that its goal is to develop legal and technical infrastructure that “maximizes digital creativity, sharing, and innovation”).

⁷ See Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 184 (2004) (viewing open licensing movements as introducing new dynamics to the public domain, and thus the world of non-IP); see also 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 MICHELE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY* 17–21 (2008) (discussing the significant successes of FOSS). See generally STEVEN WEBER, *THE SUCCESS OF OPEN SOURCE* 1–18 (2004).

¹⁰ See generally ANDROID OPEN SOURCE PROJECT, <http://source.android.com/> (last visited Oct. 13, 2013).

well.¹¹ Popular web browsers such as Firefox, Chrome, and Safari are also built on FOSS.¹² Wikipedia content is available under a Creative Commons license.¹³ Millions of copyright holders 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 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 license movements themselves in order to explain their successes.¹⁷ And yet others have championed expanding the tenets of open license movements 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 license movements—that is, relying on IP rights to counter restrictive IP regimes and thereby promote innovation and creativity—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 given, while

¹¹ *Jacobsen v. Katzer*, 535 F.3d 1373, 1378 (Fed. Cir. 2008) (noting the many successes of open licensing movements).

¹² *Id.*

¹³ *Id.*

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

¹⁵ See, e.g., Gavin Newsom, *Why Open Source Is the New Software Policy in San Francisco*, MASHABLE (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, 375–77 (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 MD. L. REV. 571, 582–83, 611 (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). See generally John R. Ackermann, *Toward Open Source Hardware*, 34 U. DAYTON L. REV. 183, 183–85 (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., *Why Copyleft?*, GNU OPERATING SYS., <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*, ARMED AND DANGEROUS (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 RUTGERS L.J. 53, 59, 161–62 (2004) (arguing that reciprocal licenses do more harm than good); Miriam Bitton, *Modernizing*

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 a case for a public domain approach to innovation and creativity. Despite the successes of the IP approach in open license movements, this Article argues that the FOSS, Creative Commons, and other open license movements would in many cases be better served by abandoning IP rights altogether and fully embracing a public domain approach.

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 and creativity, which is antithetical to some of the primary objectives of 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 or creativity in open license 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

Copyright Law, 20 TEX. INTELL. PROP. L.J. 65, 102–10 (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 public domain approach. For one such movement, see *Unlicense Yourself: Set Your Code Free*, UNLICENSE.ORG, <http://unlicense.org/> (last visited Oct. 13, 2013) (advocating a public domain approach to software, at least with respect to copyright).

²⁰ Jason Schultz & Jennifer M. Urban, *Protecting Open Innovation: The Defensive Patent License as a New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J.L. & TECH. 1, 37–45 (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, 322–27 (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.E.

²² See *infra* Parts III.C and IV.E.

²³ See, e.g., David McGowan, *Legal Implications of Open-Source Software*, 2001 U. ILL. L. REV. 241, 287–88 (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 “taken advantage of” by such free riders).

is generally not in play—provide just two, yet powerful, examples. Fourth, dedicating materials to the public domain would help eliminate the possibility of IP trolls²⁴ using open-licensed materials against “infringers” in the future. Such a possibility seems especially perverse given the purposes of open license movements in the first place—that is, promoting as broad use of the materials as possible. And finally, clinging to an IP approach reinforces the legitimacy of expansive IP rights in the software and content arenas, a primary concern of such movements. Conversely, promoting freedom of use 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 significant role, especially in the early years of such movements, in helping users see the advantages and potential of open innovation. But in the majority of cases today the IP approach’s time has come and gone. As this Article will argue, open license movements continue to thrive in spite of IP rights, not because of them. That these movements would do even better in many cases without IP rights suggests that open innovation can and should become viable on its own. But the crutch of IP rights has prevented these movements from reaching their full potential. In most cases, therefore, this crutch should be abandoned.

This Article proceeds as follows. Part II 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 III then examines the costs the IP approach has in the corporate setting which, this Article argues, no longer serve any purpose other than stifling innovation and creativity, resulting in a tragedy of the anti-commons. Part IV explores the merits of a public domain approach and contends that such an approach would eliminate many of these wasteful transaction costs, satisfy the motivations of most contributors to open-licensed projects, reduce the possibility of IP trolls, and better align—both in theory and in practice—with the goals of open license movements, all without resulting in a tragedy of the commons. Part V 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 VI concludes by positing some theoretical implications relating to innovation and creativity based on the experiences of the open license movements and the arguments of this Article.

²⁴ Generally, IP trolls are considered IP rights owners who do not themselves develop products or engage in creative activity, but instead focus on asserting their IP rights against others who do in order to extract licensing fees. For a discussion of the different types of patent trolls and the different tactics that they use, see Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, COLUM. L. REV. 1, 1–2, 11–12, 35–61 (forthcoming 2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2269087.

II. 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 materials subject to copyright.²⁵ The FOSS licenses are primarily intended for software.²⁶ Both licensing movements rely on IP rights to promote their causes.²⁷ Rather than disclaiming IP rights, licensors of open-licensed materials retain them while granting downstream users significant rights in the source code²⁸ in the case of FOSS licenses and the content in the case of Creative Commons licenses.²⁹

What do the licensors require in return? In both movements, two general categories of licenses exist.³⁰ The first are what might be called “attribution-only” licenses. These licenses essentially grant downstream users a license to all of the creator’s 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.³¹

²⁵ See CREATIVE COMMONS, *supra* note 6.

²⁶ See *generally About*, FREE SOFTWARE FOUND., <http://www.fsf.org/about/> (last visited Oct. 13, 2013); *About the Open Source Initiative*, OPEN SOURCE INITIATIVE, <http://opensource.org/about> (last visited Oct. 13, 2013).

²⁷ See CREATIVE COMMONS, *supra* note 6 (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 6, 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).

²⁸ That is, the human-readable version of the software that is ultimately translated into object or binary code, which the relevant device then executes.

²⁹ 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 V.

³⁰ 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 in order to create the preferred set of license requirements. The most widely used FOSS licenses do not include any such limitations, and so this Article will not focus on these license variations, although the basic conclusion of this Article—that a better approach to open innovation would be to abandon IP rights altogether—applies equally to these license variations.

³¹ For examples of such a license in each movement, see *The BSD 2-Clause License*, OPEN SOURCE INITIATIVE, <http://opensource.org/licenses/BSD-2-Clause> (last visited Sept. 6, 2013) (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); *Attribution 3.0 Unported*, CREATIVE COMMONS, <http://creativecommons.org/licenses/by/3.0/legalcode> (last

The attribution-only licenses are generally the most permissive type of open licenses.³² In many respects they are quasi-public domain dedications since 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.³³ 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 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.³⁴ They can “close” that modified version and charge for it.³⁵ In essence, they are free to take from the commons, but they need not contribute back into them.

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.³⁶ 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 them. In the words of Eben Moglen, a leading figure in the FOSS movement, reciprocity serves to prevent “defections” from the FOSS

visited Sept. 6, 2013) (providing the general template of the Creative Commons Attribution 3.0 Unported license).

³² See *About the Licenses*, CREATIVE COMMONS, <http://creativecommons.org/licenses/> (last visited Oct. 13, 2013) (indicating the attribution-only license as its “most accommodating of licenses offered”).

³³ See *Frequently Asked Questions: Can Open Source Software Be Used for Commercial Purposes?*, OPEN SOURCE INITIATIVE, <http://opensource.org/faq#commercial> (last visited Oct. 13, 2013) (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).

³⁴ Terry Hancock, *Copyleft Has No Impact on Project Activity?!*, FREE SOFTWARE MAG. (Sept. 10, 2008, 4:33 PM), http://www.freesoftwaremagazine.com/articles/copyleft_has_no_impact_project_activity (indicating that one reason developers choose reciprocal licenses over attribution-only licenses is to avoid their work being “hijacked” or co-opted).

³⁵ *Id.*

³⁶ See, e.g., *What Is Copyleft?*, GNU OPERATING SYS., <http://www.gnu.org/copyleft/> (last updated Oct. 6, 2012) (providing a general overview of how copyleft works); *Attribution-ShareAlike 3.0 Unported*, CREATIVE COMMONS, <http://creativecommons.org/licenses/by-sa/3.0/> (last visited Oct. 13, 2013) (providing a definition of “share-alike”).

movement.³⁷ 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 other cases, some have argued, implicitly³⁸—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.³⁹ Attribution-only licenses also often include patent license terms, though the scope of such patent terms is typically narrower than that found in reciprocal FOSS licenses.⁴⁰

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.⁴¹ 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.⁴² 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 of the materials.⁴³

Directly monetizing reciprocal-licensed materials is difficult. In many reciprocal licenses there is nothing explicitly forbidding use of the materials for commercial purposes. In fact, some founders of the open license movements suggest commercial use is encouraged.⁴⁴ However, because the reciprocal

³⁷ Eben Moglen, *Anarchism Triumphant: Free Software and the Death of Copyright*, 4 FIRST MONDAY (1999), <http://pear.acc.uic.edu/ojs/index.php/fm/article/view/684/594>.

³⁸ See, e.g., Florian Mueller, *GPLv2's Implicit Patent License and Dalvik*, LWN.NET (June 6, 2011, 9:38 PM), <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).

³⁹ 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).

⁴⁰ See, e.g., *Apache License, Version 2.0*, APACHE SOFTWARE FOUND., § 3 (Jan. 2004), <http://www.apache.org/licenses/LICENSE-2.0> (last visited Oct. 11, 2013).

⁴¹ 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 to 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."

⁴² Asay, *supra* note 39, at 289.

⁴³ *Id.* at 288–89.

⁴⁴ See Moglen, *supra* note 37 (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

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 party.⁴⁵ Consequently, 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 individuals, firms, and others contribute software and other creative works under open licenses? Prevailing legal theory suggests that without direct economic interests, such creators will not have the right set of incentives to do so.⁴⁶ Consequently, no significant creative or 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.⁴⁷ Other surveys suggest that some

(indicating that FOSS does not mean “noncommercial” and that commercial FOSS is “very important”).

⁴⁵ See, e.g., Free Software Found., *GNU General Public License, Version 3*, GNU OPERATING SYS. (June 29, 2007), <http://www.gnu.org/licenses/gpl-3.0-standalone.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 . . . [ensuring] that they, too, receive or can get the source code”).

⁴⁶ MERGES, *supra* note 1, at 2.

⁴⁷ See Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, 50 J. INDUS. ECON. 197, 214 (2002) (discussing the “signaling incentives” that motivate software programmers to participate in FOSS projects); Josh Lerner & Jean Tirole, *The Economics of Technology Sharing: Open Source and Beyond*, J. ECON. PERSP., Summer 2005, at 99, 104 (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); Sebastian Von Engelhardt, *What Economists Know About Open Source Software—Its Basic Principles and Research Results* 10–12 (Univ. Jena Econ. Dep’t, Jena Research, Paper No. 2011-005, 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, 1771–81 (2012).

contributors participate simply because they enjoy the sense of creativity that comes with their participation and sharing knowledge with others.⁴⁸ Eben Moglen suggests that creativity by and large explains why individual contributors participate in FOSS development.⁴⁹

The Free Software Foundation and its constituents, copyright holders 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.”⁵⁰ Though tolerating attribution-only licenses in limited cases, the Free Software Foundation licenses most of its projects under reciprocal licenses and claims doing so has successfully pushed software into the FOSS commons that otherwise would have remained “closed.”⁵¹ Similar rationales have influenced other IP rights holders to adopt reciprocal licenses for their content and software.⁵²

Firms may contribute to open-licensed projects in order to promote an alternative to their rivals’ products.⁵³ 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.⁵⁴ It also explains in part Google’s sponsorship of the Android OS as an alternative to Apple’s iOS.⁵⁵ Relatedly, firms often contribute to open-licensed projects because they use and significantly benefit from the low-cost projects and therefore seek to improve and influence them.⁵⁶ 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 open-

⁴⁸ See Engelhardt, *supra* note 47, at 11.

⁴⁹ Moglen, *supra* note 37.

⁵⁰ STALLMAN, *supra* note 6, at 40–41.

⁵¹ *Id.* at 129–31 (listing specific examples of where the reciprocity requirement allegedly forced companies to contribute to the FOSS commons).

⁵² See Josh Lerner & Jean Tirole, *The Scope of Open Source Licensing*, 21 J.L. ECON. & ORG. 20, 24–26 (2005) (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*, DYLAN HARRIS (2003), <http://dylanharris.org/prose/gal/ycl.shtml> (last visited Oct. 15, 2013); *Why Copyleft Is Important for the Human Species as a Whole*, LINUX REVIEWS, http://linuxreviews.org/features/copyright_vs_copyleft/index.html.en (last visited Oct. 13, 2013) (indicating that reciprocity helps ensure that the commons remains open and robust).

⁵³ See Merges, *supra* note 7, at 192–93; Ronald J. Mann, *Commercializing Open Source Software: Do Property Rights Still Matter?*, 20 HARV. J.L. & TECH 1, 23 (2006).

⁵⁴ Merges, *supra* note 7, at 193.

⁵⁵ See, e.g., Jack Wallen, *10 Things Android Phones Do Better than the iPhone*, TECHREPUBLIC (Nov. 3, 2009, 12:05 PM), <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).

⁵⁶ See Merges, *supra* note 7, at 193; Mann, *supra* note 53, at 21–22.

licensed project, as well as triggering innovation in a direction that benefits the firm.⁵⁷

Some firms, such as Red Hat, have also found ways to monetize open-licensed materials by selling services related to them.⁵⁸ Indeed, some 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.⁵⁹

Conversely, IP rights do not appear to strongly motivate contributors to open-licensed projects, at least in the traditional utilitarian/economic incentives sense.⁶⁰ 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,⁶¹ despite some evidence suggesting that open license compliance is often rather weak.⁶² 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.⁶³ 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."⁶⁴

This result seems unsurprising given that the motivations of most parties in contributing to open-licensed projects are not directly economic in nature, i.e.,

⁵⁷ See, e.g., Kevin McEntee, *Why We Use and Contribute to Open Source Software*, 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[ing] those improvements back into Netflix").

⁵⁸ Mann, *supra* note 53, at 35.

⁵⁹ *Id.* at 25.

⁶⁰ Amy Kapczynski, *The Access to Knowledge Mobilization and the New Politics of Intellectual Property*, 117 YALE L.J. 804, 869–71 (2008) (noting that innovation in the FOSS world does not "rely on the incentivizing effect of IP rights").

⁶¹ See generally Heather J. Meeker, *Open Source and the Age of Enforcement*, 4 HASTINGS SCI. & TECH. L.J. 267, 268–70 (2012) (providing a catalogue of FOSS-related lawsuits).

⁶² Mark A. Lemley & Ziv Shafir, *Who Chooses Open-Source Software?*, 78 U. CHI. L. REV. 139, 151–52 (2011) (suggesting that, according to their survey results, users of FOSS often fail to meet some of the basic obligations of FOSS licenses).

⁶³ Meeker, *supra* note 61, at 286–87 (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).

⁶⁴ *License Violations and Compliance*, FREE SOFTWARE FOUND., <http://www.fsf.org/licensing/compliance> (last visited Oct. 13, 2013) ("Many 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.").

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 and creativity in open license movements has its limits and in fact often has significant negative consequences. The IP approach often stymies innovation and creativity 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 in many cases prevents open license movements from reaching their full potential. The next sections examine the ways in which IP rights have this effect.

III. 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.⁶⁵ Furthermore, the language of open licenses is often opaque, leaving firms in doubt about how they are permitted to use such materials.⁶⁶ 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.⁶⁷ Last and related, firms doubted that such licensing models were sustainable; from their perspective, firms saw little reason why anyone, let alone large numbers of people and firms, would

⁶⁵ Jon Christiansen et al., *Redefining "Free": A Look at Open Source Software Management*, 8 NW. J. TECH. & INTELL. PROP. 425, 432 (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).

⁶⁶ See, e.g., HEATHER J. MEEKER, *THE OPEN SOURCE ALTERNATIVE: UNDERSTANDING RISKS AND LEVERAGING OPPORTUNITIES* 183–221 (2008) (discussing at length the varying conflicting interpretations of the GPL, one of FOSS's most prominent licenses).

⁶⁷ Edmund J. Walsh & Andrew J. Tibbetts, *Reassessing the Benefits and Risks of Open Source Software*, 22 INTELL. PROP. & TECH. L.J. 9, 10–11 (2010).

spend significant amounts of time and effort contributing to open-licensed projects absent direct economic incentives to do so.⁶⁸

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.⁶⁹ The vast majority of contributions to important open-licensed projects now come from firms.⁷⁰ Even Microsoft, long the perceived antithesis of the FOSS movement, has come to embrace some forms of FOSS development.⁷¹ Creative Commons also provides a directory of hundreds of organizations that release millions of pieces of content under various Creative Commons licenses.⁷² Use of open-licensed materials is pervasive and only promises to become more so.⁷³

What explains this change? Part of the explanation is simply that firms have been proved wrong; open innovation is 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 freely available, but that is precisely what has happened—and continues to happen. The previous section explored some of the reasons for this.

In addition to the sustainability of open innovation, its advantages have also become more apparent. In the FOSS world, the Open Source Initiative was founded in 1998 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.⁷⁴ Eric Raymond's seminal work, *The Cathedral and the Bazaar*, was also pivotal in more clearly articulating the advantages of open and widely dispersed innovation in the FOSS world; his

⁶⁸ See Robert L. Glass, *The Sociology of Open Source: Of Cults and Cultures*, IEEE SOFTWARE, May–June 2000, at 104; David Lancashire, *Code, Culture and Cash: The Fading Altruism of Open Source Development*, 6 FIRST MONDAY (Dec. 3, 2001), journals.uic.edu/ojs/index.php/fm/article/view/904/813 (critiquing the typical reasons advanced for why open development occurs, and suggesting that market conditions largely explain its occurrence, which in turn suggests that the open movements may not be sustainable based on such typical reasons).

⁶⁹ *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>.

⁷⁰ For instance, by some estimates, 75% of Linux code is written by developers paid to do so. See, e.g., Angus Kidman, *75% of Linux Code Now Written by Paid Developers*, APC MAG. (Jan. 20, 2010, 1:07 PM), <http://apcmag.com/linux-now-75-corporate.htm>.

⁷¹ Elizabeth Montalbano, *Microsoft Revising "Us vs. Them" Attitude Toward Open Source via Powerset Acquisition*, COMPUTERWORLD (Dec. 9, 2008, 12:00 PM), http://www.computerworld.com/s/article/9123089/Microsoft_revising_us_vs._them_attitude_toward_op_en_source_via_Powerset_acquisition?taxonomyId=18&pageNumber=2 (discussing a change in Microsoft's strategy vis-à-vis FOSS).

⁷² *Content Directories*, CREATIVE COMMONS, http://wiki.creativecommons.org/Content_Directories (last visited Oct. 13, 2013).

⁷³ See *supra* notes 9–15 and accompanying text.

⁷⁴ See Asay, *supra* note 39, at 270.

most famous line from the work crisply made the case for an open development process: “given enough eyeballs, all [software] bugs are shallow.”⁷⁵ 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.⁷⁶ Since then, corporate use, sponsorship of, and significant contributions to open-licensed projects have exploded: Google’s Android operating system,⁷⁷ Red Hat’s Linux distribution,⁷⁸ and Apple’s significant contributions to the Webkit browser project⁷⁹ 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.⁸⁰

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 them. 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 Microsoft.⁸¹

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 innovation. This does not mean that firms always elect to take advantage

⁷⁵ ERIC STEVEN RAYMOND, *Release Early, Release Often*, in THE CATHEDRAL AND THE BAZAAR 38, 41 (2000) [hereinafter BAZAAR], available at <http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/ar01s04.html>.

⁷⁶ ERIC STEVEN RAYMOND, *Epilogue: Netscape Embraces the Bazaar*, in BAZAAR, *supra* note 75, at 75, 76, 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.”).

⁷⁷ See ANDROID OPEN SOURCE PROJECT, *supra* note 10.

⁷⁸ See generally RED HAT, <http://www.redhat.com/> (last visited Oct. 9, 2013).

⁷⁹ See generally *The WebKit Open Source Project*, WEBKIT.ORG, <http://www.webkit.org/> (last visited Oct. 9, 2013).

⁸⁰ See, e.g., Alan Stern & A. Clifford Allen, *Open Source Licensing*, 1109 PLI/PAT 645, 673–74 (2012) (discussing general industry understandings with respect to certain aspects of reciprocity).

⁸¹ See DiBona et al., *supra* note 5, at 13–15 (outlining the dominant position that Microsoft held in the server software space for years, which helped create the original impetus for a FOSS alternative).

of these 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 and creativity.⁸² 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 licenses and self-imposed requirements based on the license requirements, followed by an analysis of why such costs are unnecessary in most cases to sustain open innovation movements.

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.⁸³ 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. Firms 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 and creativity. The resulting logjam might be viewed as a form of a "tragedy of the anti-commons," in the parlance of Michael Heller,⁸⁴ because such IP rights and the resulting transaction costs lead to underuse of the relevant resources.⁸⁵

Superficially, the anti-commons in open license movements may appear similar to others simply because the end result is similar. But the tragedy of the anti-commons 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 anti-commons contexts, where

⁸² 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.

⁸³ Case law in the United States and elsewhere has confirmed that open licenses are enforceable under copyright law. See generally Meeker, *supra* note 61, at 268–86.

⁸⁴ Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 673–79 (1998).

⁸⁵ Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 698 (1998).

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),⁸⁶ 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 anti-commons 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 in most cases 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.⁸⁷ While obtaining a specific example of such a policy is difficult given confidentiality and attorney–client privilege concerns, a common approach includes requiring formal approvals at the legal, business, security, and technical levels.⁸⁸ 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.

The costs of doing so can be significant.⁸⁹ For instance, in the FOSS context 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.⁹⁰ Such waiting periods are typically longer if the request concerns a reciprocal license due to the thornier issues that come with such licenses.⁹¹ In some cases firm leaders may approve materials under a reciprocal

⁸⁶ *Id.* at 698–99.

⁸⁷ T. Robert Rehm, Jr., *Navigating the Open Source Minefield: What's a Business To Do?*, 10 WAKE FOREST INTELL. PROP. L.J. 289, 314–17 (2010) (discussing generally the types of considerations companies may take into account when implementing such policies).

⁸⁸ See Karen F. Copenhaver, *Open Source Policies and Processes for In-Bound Software*, in 1 ADVANCED LICENSING AGREEMENTS 2012, 785, 798–99 (Ira Jay Levy & Joseph Yang eds.) (indicating that many organizations establish a cross-discipline team of individuals that decides upon each use of FOSS at the organization).

⁸⁹ See MEEKER, *supra* note 66, at 70–71 (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).

⁹⁰ See Copenhaver, *supra* note 88, at 800–01 (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).

⁹¹ See 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).

license, but impose significant restrictions on their use in order to avoid the effects of reciprocity.⁹² Such processes and restrictions ultimately slow innovation and creativity by introducing significant transaction costs.

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.⁹³ Apple, for instance, prohibits developers in its App Store from using reciprocal licensed software.⁹⁴ Such prohibitions can lead to a number of costs. For example, 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.⁹⁵ Furthermore, if materials under a prohibited license do make their way in the door despite the policy, and the firm discovers them later, the firm may undertake significant remedial action in order to remove and replace the offending materials.⁹⁶

In order to help formulate, implement, and administer such intake policies, some firms have even hired lawyers and technical personnel specifically focusing on open license issues.⁹⁷ Firms also often seek aid from outside counsel or vendors specializing in FOSS compliance such as Black Duck Software, Palamida, or Open Logic.⁹⁸ All of these activities in the cumulative lead to significant transaction costs that redirect resources from innovation and creative activity 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-

⁹² *Id.* See generally Ron Phillips, *Deadly Combinations: A Framework for Analyzing the GPL's Viral Effect*, 25 J. MARSHALL J. COMPUTER & INFO. L. 487 (warning of the dangers of reciprocal licenses). In my own experience advising hundreds of clients on the use of open-licensed materials, whenever companies did approve use of reciprocally licensed materials, the approval was always contingent on abiding by a variety of limitations on how the materials could be used, primarily in order to avoid proprietary materials becoming subject to the terms of the reciprocal license and thereby becoming "contaminated."

⁹³ See MEEKER, *supra* note 66, 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).

⁹⁴ Peter Ibbotson, *Windows Phone 7 Developer Tools: A First Look*, ZDNET (Sept. 27, 2010, 11:33 AM), <http://www.zdnet.com/windows-phone-7-developer-tools-a-first-look-3040090296/>.

⁹⁵ See Rehm, *supra* note 87, 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).

⁹⁶ See *id.* at 318–21.

⁹⁷ Copenhaver, *supra* note 88, at 799 (discussing the growing trend of hiring personnel whose primary responsibility is to ensure open license compliance).

⁹⁸ See, e.g., Stern & Allen, *supra* note 80, at 667 (discussing the availability of third-party vendors that perform such services).

compliance with the relevant open licenses as part of the negotiation.⁹⁹ 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.¹⁰⁰ These 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 in connection with acquisitions.¹⁰¹ For instance, 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.¹⁰² 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.¹⁰³

The costs of this due diligence can be significant. The acquirer generally requests a list of all open-licensed materials used at the firm, descriptions of how they are used, and the applicable open license.¹⁰⁴ Generating these lists can be such a significant burden on the target company that the parties will instead hire an outside vendor to perform an audit to obtain the relevant information.¹⁰⁵ Some firms make such audits a prerequisite for any acquisition.¹⁰⁶ Even once the audit is done, firms will devote significant amounts of time to reviewing the

⁹⁹ Diana Marina Cooper, *Open Source Legal Concerns*, 29 LAW. PC 6 (2012).

¹⁰⁰ Copenhagen, *supra* note 88, at 803 (indicating that customers will often ask for lists of open-licensed materials used in a product).

¹⁰¹ See generally MEEKER, *supra* note 66, at 237–44.

¹⁰² See *id.*; see also Rehm, *supra* note 87, at 321 (identifying use of open-licensed materials as a significant issue in M&A activity that firms should take into account when developing their own open license policies); Determann & Shapiro, *supra* note 65, at 235–36 (specifying the types of information acquirers typically request with regards to open-licensed materials).

¹⁰³ MEEKER, *supra* note 66, at 237–39.

¹⁰⁴ *Id.* at 239.

¹⁰⁵ For instance, Black Duck is one of the more popular solutions that firms use to conduct such audits. BLACK DUCK SOFTWARE, THE NEW DUE DILIGENCE: ASSESSING AND PROTECTING YOUR SOFTWARE ASSET VALUE IN MERGERS, ACQUISITIONS AND FINANCING ROUNDS 1, available at advance.blackducksoftware.com/content/WPMADueDiligence.

¹⁰⁶ See, e.g., DANIEL EGGER & MATTHEW HOGG, OS RISK MGMT., 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> (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.

results, implementing remedial actions, and negotiating over how the results impact the terms of the merger agreement.¹⁰⁷

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 proprietary materials.¹⁰⁸ 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 these internal management solutions to third parties.¹⁰⁹ Even if a third-party solution is ultimately more efficient, it nonetheless costs firms significant amounts of time, money, and effort to implement.¹¹⁰

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 these errors—either by removing and replacing the open-licensed materials or updating them in order to correct the errors—can also be significant for firms.¹¹¹ Firms also often spend significant amounts of time training employees on their open license policies and rely on outside experts to help perform such training.¹¹²

¹⁰⁷ See Determann & Shapiro, *supra* note 65, at 235–41 (discussing generally factors related to open licenses that firms take into account when negotiating agreements).

¹⁰⁸ See MEEKER, *supra* note 66, at 53–70 (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).

¹⁰⁹ See, e.g., BLACK DUCK SOFTWARE, *THE BUSINESS CASE FOR AUTOMATING OPEN SOURCE CODE MANAGEMENT* 2, 8–9, available at [advance.blackducksoftware.com/content/WPAutomateOSSManagement](https://www.blackducksoftware.com/content/WPAutomateOSSManagement) (discussing the cost savings for firms in relying on a third-party solution such as Black Duck offers for managing FOSS use).

¹¹⁰ See *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).

¹¹¹ See MEEKER, *supra* note 66, at 71 (indicating that “[t]he larger the organization, and the more backtracking there is to do, the more difficult the task” in remediating problems discovered during compliance activities).

¹¹² See, e.g., *Open Source Compliance Courses*, LINUX FOUND., <https://training.linuxfoundation.org/courses/open-source-compliance> (last visited Oct. 13, 2013) (providing a list of Linux-related training courses regarding compliance and best practices).

4. *Outbound Costs*

Firms also incur a variety of 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 the most significant open license compliance obligations.¹¹³ Firms will often conduct outbound audits of materials in order to ensure internal and legal compliance.¹¹⁴ 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 the materials after intake.¹¹⁵

Firms may develop their own auditing system, which results in its own upfront costs even if later it helps reduce costs.¹¹⁶ Or, firms often rely 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.¹¹⁷ Using these third-party solutions still results in significant costs, both in the form of licensing fees to such third parties as well as implementing the solutions and reviewing the results.¹¹⁸

Even in the case of attribution-only licenses, these outbound review efforts can be significant.¹¹⁹ 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.¹²⁰ Consequently, engineers, lawyers, and others will spend significant amounts of time going through the files, extracting the relevant notices, and compiling them into a legal notices document.¹²¹ Depending on the size of the software distribution and the number of software files, this exercise can be extremely burdensome.¹²² Even in cases where some

¹¹³ See MEEKER, *supra* note 66, at 27, 83 (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.

¹¹⁴ See *id.* at 71.

¹¹⁵ *Id.* (indicating that some firms conduct such diligence on an ongoing basis, simply as a matter of good housekeeping).

¹¹⁶ *Id.* at 72.

¹¹⁷ *Id.* at 72–73.

¹¹⁸ BLACK DUCK SOFTWARE, *supra* note 109.

¹¹⁹ MEEKER, *supra* note 66, 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).

¹²⁰ *Id.* at 83–85.

¹²¹ *Id.* at 84–85.

¹²² *Id.*

amount of automation helps improve efficiency, because of the possibility of IP remedies, automation is rarely if ever fully relied on.¹²³

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 the materials are integrated with other materials in order to ensure that no firm technology, content, or in some cases patents have been compromised.¹²⁴ These 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 the changes may not have been addressed as part of the firm's internal management of the materials.¹²⁵ These reviews may lead the firm to take remedial actions in order to avoid reciprocity obligations.¹²⁶ Such remedial actions both slow development release cycles and often require significant personnel resources in order to implement them.¹²⁷

Furthermore, because reciprocal licenses require releasing or making 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.¹²⁸ 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.¹²⁹ 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

¹²³ *Id.* at 71–73 (detailing that compliance efforts typically include an information gathering phase and a separate legal analysis stage, with the latter having to be conducted by lawyers once the information has been gathered).

¹²⁴ *See id.* at 98 (discussing patent issues that arise when distributing FOSS licensed under a reciprocal license); *see also* Christiansen et al., *supra* note 65, at 437 (discussing an example of an after-the-fact review that ultimately identified licensing issues that needed resolution); Jeffrey D. Osterman, *Software Licensing and Open Source*, in UNDERSTANDING THE INTELLECTUAL PROPERTY LICENSE 2012, 583, 605 (Susan Proffoff, Marcelo Halpern, & Joseph Yang eds.) (discussing such reviews).

¹²⁵ The likelihood of these additional reviews also increases because the open-licensed materials may not have ever been reviewed in the first place.

¹²⁶ *See* Osterman, *supra* note 124, at 605 (discussing such remedial actions).

¹²⁷ *Id.*

¹²⁸ *See* Beth Z. Shaw, *Recent Lawsuits Reflect Open Source Software Users' Copyright Compliance Obligations*, 25 LEGAL BACKGROUNDER 1, 1–3 (May 7, 2010), available at http://www.wlf.org/Upload/legalstudies/legalbackgrounder/05-07-10Shaw_LegalBackgrounder.pdf (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).

¹²⁹ *See* MEEKER, *supra* note 66, at 83 (indicating that while failure to correct inaccurate notices is rarely the source of litigation or disputes, these notices may increasingly be the subject of informal enforcement).

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.¹³⁰

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 license requirements as part of the negotiation.¹³¹ 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.¹³²

Firms also incur significant costs when contributing to open-licensed projects. Why firms might choose to contribute to open-licensed projects was explored above.¹³³ But even when contributing to open-licensed projects is to the firm's advantage, IP licenses make the contributions more complicated.

For instance, contributing materials to an open-licensed project may impact companies' patent portfolios in the FOSS context, depending on the applicable license.¹³⁴ Some of the patent licenses are exceedingly broad, so much so that some firms ban such licenses altogether,¹³⁵ 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 their 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.¹³⁶ Much like intake policies, contribution policies can result in significant waiting periods while technical, business, legal, and security personnel review and approve the contributions.¹³⁷ Such policies thus consume personnel time in developing and administering them, as well as slowing the speed of innovation while employees await approvals. And in some cases, where approvals are denied, the policies simply prevent innovation rather than merely slow it.

¹³⁰ 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 generally* Meeker, *supra* note 61 (providing an overview of open license-related enforcement activities).

¹³¹ *See* Determann & Shapiro, *supra* note 65, at 230–31.

¹³² Copenhagen, *supra* note 88, at 803 (indicating that customers will often ask for lists of open-licensed materials used in a product).

¹³³ *See supra* Part II.B.

¹³⁴ MEEKER, *supra* note 66, at 139–40.

¹³⁵ *See id.* at 75; Ibbotson, *supra* note 94.

¹³⁶ *See generally* MEEKER, *supra* note 66, at 135–51 (providing a general overview of the types of factors firms take into account when releasing software as FOSS).

¹³⁷ *Id.* at 130–31 (outlining a template corporate open source policy based in best practices and suggesting that firms should follow an established management approval process that includes at least a review by the firm's lawyers).

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.¹³⁸ 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 open license 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 technology.¹³⁹ Without reciprocity, too many free riders—especially, perhaps, firms—would result in a commons gutted of its innovative and creative capacity.¹⁴⁰ A tragedy of the commons would ensue, the argument goes.¹⁴¹ 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.¹⁴²

Furthermore, why focus on the transaction costs of firms at all? The open license movements were founded in order to benefit society generally, not 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 permissively licensed IP rights may remain relevant.

But while open license 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 also significant contributors to open-licensed projects.¹⁴³ In the FOSS world, for instance, firms often hire engineers specifically in order to contribute to open-licensed projects that the firm

¹³⁸ See BLACK DUCK SOFTWARE, *supra* note 109, 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).

¹³⁹ 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).

¹⁴⁰ See Moglen, *supra* note 37.

¹⁴¹ *Id.*

¹⁴² See MEEKER, *supra* note 66, at 85 (indicating that notice requirements may serve an important role in providing contributors with attribution in exchange for making software freely available).

¹⁴³ See, e.g., Kidman, *supra* note 70.

supports.¹⁴⁴ Firms also lead some of the more successful FOSS projects in the world, including Google's Android, Red Hat's Linux distribution, and many others.¹⁴⁵ 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 these transaction costs and thereby allowing for accelerated innovation.

1. *What Attribution?*

In important respects, the IP approach to open innovation often fails to fulfill the roles assigned to it. For instance, with respect to attribution-only licenses, in most cases the attribution is buried somewhere in legal documentation so that any recognition that may accompany such attribution is minimal at best.¹⁴⁶ This reality suggests that in most cases a different type of recognition than what the IP approach provides likely motivates those that contribute materials under attribution-only licenses. In the FOSS world, tools such as GitHub, a widely used social software coding tool, might better provide the recognition programmers seek.¹⁴⁷ 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 one, at least to those contributing.¹⁴⁸

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 and creative activity, since the threat of IP remedies

¹⁴⁴ See, e.g., *Welcome to HotLinuxJobs! Open Source Jobs*, HOTLINUXJOBS <http://www.hotlinuxjobs.com/> (last visited Aug. 26, 2013) (search firm specializing in open source software jobs and providing a list of current openings); Nic Williams, *8 Ways Companies Can Contribute to Open Source Communities*, MASHABLE (Mar. 30, 2011), <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).

¹⁴⁵ See *supra* notes 10–15 and accompanying text.

¹⁴⁶ See MEEKER, *supra* note 66, 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).

¹⁴⁷ See GITHUB, <https://github.com/> (last visited Oct. 13, 2013); 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).

¹⁴⁸ See, e.g., Jon Buys, *The Top Licenses on GitHub*, OSTATIC (Feb. 7, 2012), <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*, SOGGY BLOGGER (Dec. 26, 2009, 5:24 PM), <http://www.soggyblogger.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).

causes firms to tread cautiously when dealing with open-licensed materials.¹⁴⁹ 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 reduce the speed of innovation and creativity 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.¹⁵⁰ 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 in particular the obligations of reciprocity.¹⁵¹ 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.¹⁵² 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 innovation have proved sustainable and significant, but firms do not appear captives of reciprocity in any sort of meaningful way.¹⁵³

¹⁴⁹ See Walsh & Tibbetts, *supra* note 67, at 10 (highlighting the growing legal risks to companies in using openly innovated technologies based on an increase of IP enforcement activities in the open innovation arena).

¹⁵⁰ 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).

¹⁵¹ See *supra* Part III.B. Another example of this phenomenon is Qualcomm, which recently restructured itself largely in order to avoid the reciprocal effects of FOSS licenses on its patent portfolio. See Chloe Albanesius, *Qualcomm Restructures To Protect Patents*, PCMAG.COM (June 28, 2012, 1:52 PM), <http://www.pcmag.com/article2/0,2817,2406466,00.asp>.

¹⁵² Vetter, *supra* note 19, at 153.

¹⁵³ 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 so. Several factors weaken this counterexample, however, at least with respect to the claims of this Article. Firms that use Linux 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 open 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.

While firms may tread carefully in order to avoid the undesired effects of reciprocity, some might argue that the complete absence of reciprocity would remove the key to keeping disparate parties together on a path of openness.¹⁵⁴ 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 generally no distribution occurs and therefore no reciprocity or attribution requirements apply.

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, it almost certainly would not obtain the free (to it) 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 open innovation, and the free labor would likely remain loyal to the open version of the project.¹⁵⁵ Firms thus already have incentives to open and contribute as much of their materials as possible, since doing so will attract contributions and trigger innovation and creative activity in directions that better suit the firm and its strategic direction.¹⁵⁶

Does reciprocity prevent defections from individual contributors? It seems unlikely in most cases that individual contributors 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 often have little to do with direct economic advantage; rather, their interests in contributing primarily lie in creativity, reputation enhancement, and indirect economic rewards.¹⁵⁷ 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 development model, 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

Rather, the benefits of the commons approach to development have become clearer to more and more participants.

¹⁵⁴ See *supra* notes 139–40 and accompanying text.

¹⁵⁵ See, e.g., Williams, *supra* note 144 (detailing one such example where Oracle attempted to impose rules and standards on a FOSS community for a particular FOSS project, to which the community responded by creating a separate project).

¹⁵⁶ For a recent example of this phenomenon playing out, see *About, TIZEN*, <https://www.tizen.org/about> (last visited Sept. 7, 2013), 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.

¹⁵⁷ See *supra* Part II.B.

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.¹⁵⁸ 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. In fact, they ensure the opposite possibility. For instance, in 2007 Oracle acquired MySQL, a database management system licensed under a reciprocal license.¹⁵⁹ Because Oracle now owns the IP rights in such system, it 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. Similarly, any IP rights holder of an open-licensed project may at any time change the terms under which its materials are licensed.¹⁶⁰ While the older versions remain under the open licenses, the rapid pace of software innovation, for instance, means that those versions quickly become obsolete. IP rights and reciprocity, therefore, are no guarantee with respect to an open development process 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.¹⁶¹ Amazon has done precisely that with a version of

¹⁵⁸ See, e.g., Matthew Aslett, *The Trend Towards Permissive Licensing*, 451 CAOS THEORY (June 6, 2011, 10:56 AM), <http://blogs.the451group.com/opensource/2011/06/06/the-trend-towards-permissive-licensing/>; Matthew Aslett, *On the Continuing Decline of the GPL*, 451 CAOS THEORY (Dec. 15, 2011, 11:24 AM) [hereinafter Aslett, *Continuing Decline*], <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).

¹⁵⁹ See Bryan Richard, *Oracle Buys SUN; MySQL Is Forked*, LINUX MAG. (Apr. 20, 2009), <http://www.linux-mag.com/id/7309/>.

¹⁶⁰ As many feared Google might do with Android. See *infra* note 163.

¹⁶¹ See generally *Licenses*, ANDROID, <http://source.android.com/source/licenses.html> (last visited Oct. 11, 2013) (discussing the project's preference for Apache 2.0 and articulating the reasons for such preference).

Android for its line of tablets.¹⁶² 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 development. 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 Android.¹⁶³

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 a distribution of the software,¹⁶⁴ and open licenses in the FOSS world require a distribution before reciprocity or attribution requirements become effective. Some have ominously predicted that such Cloud computing may well spell the death of open license movements.¹⁶⁵ 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.¹⁶⁶

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.¹⁶⁷

It is impossible to predict the outcome of such a counterfactual, but there are reasons to doubt that such an approach would lead to greater success. And most of these reasons are similar to the reasons for why reciprocity in general

¹⁶²G.F., *Tablets: Forking Android*, *ECONOMIST*, Sept. 3, 2011, <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).

¹⁶³Google 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*, *HUFFINGTON POST* (May 5, 2011, 8:09 AM), 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).

¹⁶⁴One exception is the Affero General Public License, which expressly defines hosting software as a distribution of such software. *See* Free Software Found., *GNU Affero General Public License, Version 3*, GNU OPERATING SYS. (Nov. 19, 2007), <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).

¹⁶⁵Tim O'Reilly, *Open Source Paradigm Shift*, O'REILLY (June 2004), http://www.oreillynet.com/pub/a/oreilly/tim/articles/paradigmshift_0504.html.

¹⁶⁶For 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.

¹⁶⁷*See, e.g.*, Free Software Found., *supra* note 164.

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 draw attention to issues that the firm was unable or unwilling to resolve itself. Attempting to force firms' hands would likely only deter their involvement, if anything.¹⁶⁸

Aside from firms, would individual contributors contribute more to hosted projects if they knew other users would be required to attribute them 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 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.¹⁶⁹

IV. THE MERITS OF THE PUBLIC DOMAIN

Thus far this Article has argued that relying on IP rights in open license movements has had mixed results. While open license movements have yielded tremendous amounts of innovation and creativity in both the FOSS and Creative Commons worlds, the role of IP rights in these movements has resulted in significant transaction costs for those wishing to use and contribute materials to such movements. And these transaction costs slow innovation and creativity, particularly in the corporate setting. While some may argue that these costs are simply the price society must pay in order to have significant amounts of software and content available under such permissive license 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 many contexts. In addition to eliminating some of the above-discussed transaction costs, a public domain approach would also 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 license movements.

¹⁶⁸ See 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).

¹⁶⁹ See *supra* Part II.B.

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 entails. 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 in the first place.¹⁷⁰ Each area of IP law—copyright, patent, trademark, and trade secret—defines what materials are eligible for protection, how long the protection lasts, and how one obtains or relinquishes the protection. The laws of each country may also answer these 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.¹⁷¹ No registration is thus required, although in the U.S. copyright holders must register their work in order to bring certain legal actions relating to the copyrighted work.¹⁷²

Patents, conversely, do not automatically obtain upon development of an invention. Instead, in the United States, 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.¹⁷³ Creative Commons content generally would be ineligible for patent protection, whereas software would be so long as it satisfied these requirements.¹⁷⁴ 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.¹⁷⁵ Often firms choose between patent and trade secret protection for a particular invention.¹⁷⁶

¹⁷⁰ See Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783, 791 (2006) (reviewing thirteen different academic conceptions of what constitutes the “public domain,” while acknowledging that the conception discussed in this Article constitutes the conception that the U.S. Supreme Court generally relies on in its jurisprudence).

¹⁷¹ 17 U.S.C. § 102(a) (2012).

¹⁷² *Id.* § 408(a); Matthew P. Gelfand, *A Perfect (Copyright) Union: Uniting Registration and License Designation*, 25 HARV. J.L. & TECH. 711, 724 (2012) (detailing some of the litigation-related benefits of registering).

¹⁷³ See generally 35 U.S.C. §§ 101 (patentable subject matter and utility), 102 (novelty), 103 (non-obviousness), and 112 (enablement and written description) (2006).

¹⁷⁴ See, e.g., Michael Mattioli, *Communities of Innovation*, 106 NW. U. L. REV. 103, 134 n.201 (2012) (citing to a list of cases in the 1990s that clearly established software as patent eligible).

¹⁷⁵ 18 U.S.C. § 1839(3) (2012).

¹⁷⁶ 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

Last, trademark law 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.¹⁷⁷ One of trademark law's primary purposes, therefore, is to protect consumers from confusion about the source of a good in the marketplace.¹⁷⁸ Firms often register a mark under the federal Lanham Act in order to obtain nationwide trademark protection,¹⁷⁹ although state common law can also provide firms with trademark rights based on actual usage of the marks.¹⁸⁰

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 prospective rights), and relinquish any remedies that come with either. Trade secret rights, if any, would be inapplicable 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 the Creative Commons, which includes a public domain dedication tool in its repertoire of legal documents, expressly exempts trademark rights from the tool's scope.¹⁸¹

How to waive copyright and patent rights is not always a straightforward matter, however.¹⁸² 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 United States 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 innovation movements must be more fully made.

choose patent protection over trade secret protection, and vice-versa). *See generally* Andrew A. Schwartz, *The Corporate Preference for Trade Secret*, 74 OHIO ST. L.J. 623 (2013).

¹⁷⁷ See 15 U.S.C. § 1114 (2012).

¹⁷⁸ Mark A. Lemley & Mark P. McKenna, *Owning Mark(et)s*, 109 MICH. L. REV. 137, 142–46 (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).

¹⁷⁹ Trademark Registration (Lanham) Act, Pub. L. No. 79–489, 60 Stat. 427 (1946) (codified as amended at 15 U.S.C. § 1051 (2012)).

¹⁸⁰ See, e.g., U.S. Patent & Trademark Office, *Frequently Asked Questions About Trademarks*, USPTO.GOV, <http://www.uspto.gov/faq/trademarks.jsp> (last modified Apr. 23, 2013, 10:26 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.").

¹⁸¹ *Frequently Asked Questions*, CREATIVE COMMONS, http://wiki.creativecommons.org/Frequently_Asked_Questions (last modified July 29, 2013, 11:45 AM).

¹⁸² See Robert P. Merges, *To Waive and Waive Not: Property and Flexibility in the Digital Era*, 34 COLUM. J.L. & ARTS 113, 113 (2011) (discussing ways to address "knotty issues surrounding legal requirements for waiver of intellectual property rights").

B. *Transaction Costs Redux*

A public domain approach in open innovation 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 materials to determine if the public domain designation passes 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 acquirers 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. 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 materials to the public domain.

Firms would also continue to incur some outbound costs if a public domain approach replaced an IP-licensing one. Firms may want to disclaim liability and indemnification 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 issue. But in commercial negotiations, obtaining such a disclaimer could be difficult in many contexts and therefore result in some transaction costs.

Firms would also continue to incur costs when contributing to projects that adopt 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 compromised 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 them. On intake, for instance, firms would not need to deal with the hundreds of different types of open licenses that are currently used. Some have cited license proliferation as a major problem,¹⁸³ including significant concerns about whether and to what extent licenses may

¹⁸³ See, e.g., Robert W. Gomulkiewicz, *Open Source License Proliferation: Helpful Diversity or Hopeless Confusion?*, 30 WASH. U. J.L. & POL'Y 261, 279–82 (discussing the pros and cons of license proliferation in general).

coexist.¹⁸⁴ A straightforward public domain designation would allow firms to make faster decisions on whether the materials may be used.

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 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 the materials being in the public domain at all may still arise, but no more so than in the open license context today.

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 concern themselves with the requirements of reciprocity, attribution, and license compatibility as in the open license context. Such management, therefore, would 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 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 avoid spending 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 a product or service, and these concerns may affect negotiations, the potential effects of reciprocity and IP remedies are typically the most pressing concerns of the parties in such negotiations. A public domain approach would remove these concerns and therefore improve the efficiency of the negotiations.

C. *Containing the Prospect of Trolls*

Another significant benefit of a public domain approach would be to limit the likelihood of IP “trolls.” IP “trolls” are generally owners of IP rights that do

¹⁸⁴*Id.* at 281–82; see also Molly Shaffer Van Houweling, *Author Autonomy and Atomism in Copyright Law*, 96 VA. L. REV. 549, 634–35 (2010) (discussing the significant costs that may result when attempting to reconcile the various conflicting terms of the numerously available and used open licenses); Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885, 943–44 (2008).

not make products or engage in creative activity themselves, but instead focus on asserting their IP rights against those that do in order to extract licensing fees.¹⁸⁵ At first blush, the likelihood of open license movements taking on the characteristics of IP trolls may seem slim. 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.¹⁸⁶ The limited amount and nature of case law surrounding open-licensed materials, despite evidence suggesting significant license non-compliance, provides some confirmation to this.¹⁸⁷ Indeed, the primary motivation behind most of the suits that have been brought seems to be simply a desire to have the violators follow the relevant license requirements.¹⁸⁸

But this mostly 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.¹⁸⁹ So long as open-licensed materials remain subject to copyright, similar (albeit perhaps better orchestrated) 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 the copyrighted materials into the hands of owners lacking the benign mindset of many contributors to open-licensed projects.¹⁹⁰ Because statutory damages and injunctive relief are available for violations of copyright in the United States,¹⁹¹ obtaining rents might be especially tempting since such potential liabilities make obtaining settlement payments that much easier.¹⁹²

¹⁸⁵ See Lemley & Melamed, *supra* note 24, at 1; COLLEEN V. CHIEN, PATENT ASSERTION ENTITIES 1–5, 21–22 (2012), available at <http://www.justice.gov/atr/public/workshops/pae/presentations/290073.pdf> (providing a variety of definitions for what constitutes a “patent assertion entity,” another common name applied to trolls).

¹⁸⁶ See *supra* Part II.B.

¹⁸⁷ See *supra* Part II.B.

¹⁸⁸ See *supra* Part II.B.

¹⁸⁹ See generally Stephen McJohn, *Top Tens in 2011: Copyright and Trade Secret Cases*, 10 NW. J. TECH. & INTELL. PROP. 331, 333 (2012) (describing the Righthaven litigation).

¹⁹⁰ See Tracie L. Bryant, *The America Invents Act: Slaying Trolls, Limiting Joinder*, 25 HARV. J.L. & TECH. 687, 691 (2012) (discussing how patent trolls often acquire patents in bankruptcy proceedings).

¹⁹¹ 17 U.S.C. § 504(c) (2012).

¹⁹² 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, 401–03 (2012) (discussing the business strategy of Righthaven in threatening significant statutory damages for what in some instances turned

Rent-seeking by definition has little to do with innovation. Instead, it hampers it. In the patent space, commentary regarding the negative effects of patent trolls on innovation has been significant.¹⁹³ 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 would help do precisely that.

The prospect of patent trolls buying up or obtaining patents from FOSS communities that read on open-licensed materials and eventually wielding the patents against FOSS users may be less worrisome.¹⁹⁴ In most cases FOSS projects don't pursue patents on their technologies for a number of reasons.¹⁹⁵ Many of the projects are run by a collection of individual contributors across the world. Filing for and obtaining patents is costly,¹⁹⁶ and these collectives of individuals in most cases are unlikely to have undertaken such activity due to these costs,¹⁹⁷ especially since their motivations in contributing have little to do

out to be "fair use" under copyright law, while offering to accept a significantly lower amount as settlement of the claims).

¹⁹³ See, e.g., Colleen V. Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. (forthcoming 2014), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146251 (discussing the negative effects of patent troll activity on startup companies); Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 23–25 (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); Mark A. Lemley, *Are Universities Patent Trolls?*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 613–14 (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); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1992–93 (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. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1832–37 (2007) (discussing several possible means by which to prevent troll-like behavior); Simon Phipps, *Numbers Don't Lie: Patent Trolls Are a Plague*, INFOWORLD (Oct. 19, 2012, 3:00 AM), <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).

¹⁹⁴ 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.

¹⁹⁵ See generally Mann, *supra* note 53, at 21–22 (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, at 10–14 (discussing the cultural and political reasons why open license communities do not generally patent their technologies).

¹⁹⁶ See, e.g., Gene Quinn, *The Cost of Obtaining a Patent in the US*, IPWATCHDOG (Jan. 28, 2011, 1:14 PM), <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); 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).

¹⁹⁷ See Simon Phipps, *Why Software Patents Are Evil*, INFOWORLD (Mar. 16, 2012, 3:00 AM), <http://www.infoworld.com/d/open-source-software/why-software-patents-are-evil-188>

with IP rights or obtaining direct economic remuneration.¹⁹⁸ The unlikelihood of patents for FOSS projects increases given that many FOSS licenses include automatic patent licenses to downstream users.¹⁹⁹ 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.²⁰⁰

Furthermore, even in cases where the rights holders do find reasons to file for patents—for instance, as a defensive mechanism vis-à-vis third parties—such realization in many cases may simply come too late. Under U.S. patent law a creator has one year from releasing or using materials in public to file a patent on the technology.²⁰¹ After that time period, any possible patent rights expire.²⁰² The collective nature of many FOSS projects, and the non-IP centric motivations of those behind them, 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, although reluctantly in most cases given the general hostility to software patents in FOSS communities.²⁰³ Even in these cases, though, open innovation communities may face both informal and formal challenges to obtaining patents on their technologies.²⁰⁴

Even if the risk of patent trolls “from within” 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

738?page=0,2 (indicating that FOSS communities often lack the resources to mount a patent defense by, for example, acquiring patents).

¹⁹⁸ 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*, NETWORKWORLD (May 7, 2010, 1:42 PM), <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”).

¹⁹⁹ Christian H. Nadan, *Closing the Loophole: Open Source Licensing & the Implied Patent License*, 26 COMPUTER & INTERNET LAW. 1 (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).

²⁰⁰ *Id.* at 1, 4.

²⁰¹ Laurence P. Colton, *Intellectual Property*, 63 MERCER L. REV. 1283, 1286 (2012) (indicating that this “statutory bar” to obtaining a patent remains in effect following enactment of the America Invents Act of 2011).

²⁰² *Id.*

²⁰³ See *Statement of Position and Our Promise on Software Patents*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Oct. 13, 2013) (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).

²⁰⁴ See, e.g., Clark D. Asay, *Enabling Patentless Innovation 5–7* (July 30, 2013) (unpublished manuscript), available at http://papers.ssm.com/sol3/papers.cfm?abstract_id=2289326 (reviewing some of these challenges).

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 public domain approach. Much like the current 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.²⁰⁵ And, a public domain approach, if implemented well, could better limit the number of patents that might be asserted against such materials (since, for instance, not all FOSS licenses include patent licenses). Section IV below discusses how a public domain approach might best be implemented in order to address these and related 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 to open-licensed projects preferred such an approach, they could have already adopted it.²⁰⁶ But they largely have not. Instead, in the FOSS world, the most popular license remains the General Public License, a reciprocal license.²⁰⁷ Large numbers of developers also prefer the Apache License, an attribution-only license.²⁰⁸ In the Creative Commons world, some evidence suggests that participants prefer more restrictive Creative Commons licenses.²⁰⁹ One might infer from this evidence that whatever the issues with the IP license 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.²¹⁰ Instead, the Open Source Initiative and the Free Software Foundation—

²⁰⁵ 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.

²⁰⁶ Expert Statement of Bruce Perens at 2, *Jacobsen v. Katzer*, 609 F. Supp. 2d 925 (N.D. Cal. 2009) (No. C06-1905-JSW).

²⁰⁷ See, e.g., Top 20 Open Source Licenses, BLACK DUCK SOFTWARE, <http://www.blackducksoftware.com/resources/data/top-20-open-source-licenses> (last visited Oct. 12, 2013) (indicating that the GPL Version 2.0 is the most popular FOSS license).

²⁰⁸ *Id.* (indicating that the Apache license is the second most popular FOSS license).

²⁰⁹ 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 CC-Licensed Images on Flickr*, CREATIVE COMMONS (Mar. 25, 2009), <http://creativecommons.org/weblog/entry/13588>; see also Giorgos Cheliotis, *CC Stats*, HOIKOINOI (Jul. 2, 2007, 10:58 PM), <http://hoikoinoi.wordpress.com/2007/07/02/cc-stats/> (indicating that most contributors choosing Creative Commons licenses for their content prefer a version that restricts commercial use).

²¹⁰ There have been attempts to create such a tool and movement towards the public domain. See, e.g., UNLICENSE YOURSELF, *supra* note 19.

the two leading FOSS advocacy organizations in the world—vet and approve open licenses for use in the community.²¹¹ 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 that²¹²—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 as straightforward of a matter as some suggest.²¹³

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.²¹⁴ 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.²¹⁵ 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

²¹¹ See Asay, *supra* note 39, at 268–71 (summarizing the two organizations' roles in promoting FOSS and approving FOSS licenses based on each group's definition of FOSS).

²¹² See UNLICENSE YOURSELF, *supra* note 19 (providing a list of projects that have taken the public domain approach to FOSS).

²¹³ See Expert Statement of Bruce Perens, *supra* note 206 (suggesting that dedicating materials to the public domain is, in fact, simple). Perens also anecdotally indicates that developers have known how to dedicate materials to the public domain for years and simply have chosen not to due to the benefits that the IP approach provides. This author's own experiences working with many engineers over the years on open-licensing issues suggest this is far from accurate. Engineers often believe licensing the materials under an open license is, essentially, dedicating the materials to the public domain. Furthermore, a variety of open licenses that the author has encountered in actual practice include a copyright notice, then some language purportedly dedicating the material to the public domain, followed by some conditions of use, which all suggest that those licensing the materials in such a manner clearly do not understand what the public domain entails.

²¹⁴ 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 WELLSRING OF CREATIVITY, COMMERCE AND DEMOCRACY 14, 24 (2002) (suggesting that FOSS development helps expand the public domain); 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); Merges, *supra* note 7, at 190–93.

²¹⁵ See *supra* note 209 and accompanying text.

similarly.²¹⁶ However, as argued throughout, there are 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—particularly firms—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 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.²¹⁷ 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 see them. Instead, tools such as GitHub likely represent a more powerful means of providing the desired recognition.²¹⁸

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 reduce the speed of innovation and creative activity 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 attribution.²¹⁹ Such norms could serve the same role in a public domain approach to innovation.

²¹⁶Rufus Pollock, *Why Share-Alike Licenses Are Open but Non-commercial Ones Aren't*, OPEN KNOWLEDGE FOUND. BLOG (June 24, 2010), <http://blog.okfn.org/2010/06/24/why-share-alike-licenses-are-open-but-non-commercial-ones-arent/> (suggesting that share-alike in the Creative Commons world may help build up the commons by promoting contributions back into it).

²¹⁷See *supra* note 47 and accompanying text.

²¹⁸See, e.g., Erez Zukerman, *Why You Should Contribute to Open Source Projects [Opinion]*, MAKEUSEOF (Feb. 24, 2012), <http://www.makeuseof.com/tag/contribute-open-source-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).

²¹⁹See CREATIVE COMMONS, *supra* note 181.

E. Reconciling a Vision

Richard Stallman, considered by some as the “prophet” or “philosopher king” of the FOSS movement,²²⁰ has written a series of essays 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.”²²¹ 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.²²²

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.”²²³ Such obstructions result in fewer people using, adapting, and fixing the software, and therefore fewer people benefiting from it.²²⁴ 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 licensing approach in mind when assessing 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.²²⁵ 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.”²²⁶

Nonetheless, though the IP approach may be a suboptimal one, the architects of open license 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; reciprocity assures users that the project will remain open and available.²²⁷ Accordingly, they will continue to participate in and contribute to the commons.²²⁸ Eben Moglen cites the reciprocity-based IP approach as the

²²⁰ See STALLMAN, *supra* note 6 (book blurbs from Tim Berners-Lee and Simon L. Garfinkel).

²²¹ *Id.* at 33.

²²² *Id.* at 34.

²²³ *Id.* at 46.

²²⁴ *Id.*

²²⁵ See *supra* Part III.B–C.

²²⁶ STALLMAN, *supra* note 6, at 50.

²²⁷ Moglen, *supra* note 37.

²²⁸ *Id.*

“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.²²⁹

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 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.²³⁰

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.²³¹ 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.²³²

But arguably 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 likely continue to attract contributions, both from independent developers and firms, for the variety of extrinsic and intrinsic motivations discussed above.²³³ 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.

²²⁹ *Id.*

²³⁰ 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, 1046–69 (2005).

²³¹ See Merges, *supra* note 7, at 193.

²³² Moglen, *supra* note 37, at 14 (indicating that the interconnectedness that the Internet enabled made open innovation more practical and feasible).

²³³ See *supra* Part II.B.

Forking software projects and then closing them, therefore, in some ways is its own punishment.²³⁴

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 little 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 open 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 is often claimed, at least today.²³⁵ As also argued, it is also doubtful that reciprocity frequently forces firms' hands. Instead, firms generally contribute when it makes strategic sense for them, but otherwise often design around or avoid certain reciprocal licenses altogether.²³⁶

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.²³⁷ 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.”²³⁸ 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.²³⁹ Stallman comes to similar conclusions.²⁴⁰ And surveys of participants in open license movements confirm that such goals play a significant role in motivating many of them to participate.²⁴¹

Moglen goes on to argue that the “field strength” of the IP system is the primary obstruction to such creativity growing exponentially.²⁴² Stallman

²³⁴ Raymond, *supra* note 19 (early luminary of FOSS movement indicating that veering from open innovation becomes its own punishment because open innovation has proven itself over time as more efficient).

²³⁵ See *supra* Part III.C.

²³⁶ *Supra* Part III.B.

²³⁷ Moglen, *supra* note 37.

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ STALLMAN, *supra* note 6, at 34–35, 51–54.

²⁴¹ See Engelhardt, *supra* note 47.

²⁴² Moglen, *supra* note 37.

expresses similar sentiments,²⁴³ although of course both are focused on the traditional IP approach, rather than their own. But as discussed above, the IP approach used in open license movements today 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, in most cases 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 these restrictive approaches to software ownership prevented engineers from using and improving software.²⁴⁴ 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.²⁴⁵

But again, this IP strategy, while understandable in context, belies the normative vision offered by Stallman and others and slows innovation and creative activity unnecessarily in many cases. And as this Article has argued, this anti-commons is not a necessary evil to prevent a greater tragedy of the commons. 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 license movements with the actual mechanics of such movements would, therefore, prove beneficial. But such benefits are more than simply spurring innovation and creativity by reducing the transaction costs discussed above. Adopting a 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 ably push back against the very idea of strong IP rights in software and other types of content, a primary objective of open license movements.

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

²⁴³ STALLMAN, *supra* note 6, at 46–50.

²⁴⁴ *Id.* at 7–24.

²⁴⁵ *Id.* at 12–13.

and strengthen relationships with developer communities.²⁴⁶ Firms often seek to be viewed as good actors in the open license movements because their products and services' commercial viability depend in significant ways on good relations with developer communities.²⁴⁷

But the FOSS, Creative Commons, and related movements could go further 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 typically should not be subject to IP rights, then, notwithstanding what the law is, 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. Reliance on IP rights to further the goal of free access undermines that goal in important ways by tacitly arguing that IP rights are necessary to foster innovation and creativity. That is, in a nutshell, essentially the argument in favor of reciprocity. By failing to trust in the convincing power of the movements' normative tenets, therefore, the movements have failed to push back against IP rights in the software and content worlds as forcefully as they could. As a result, the FOSS and other open license movements concede a foundation that inherently conflicts with their vision of innovation and creativity. And that conflict leads to an unnecessary anti-commons that often slows innovation and creative activity.

One practical negative result of this tension is increasingly complicated efforts to push back against the very foundation that the movements have conceded. For instance, Stallman and the Free Software Foundation extensively revised the General Public License in 2008 after years of public input.²⁴⁸ 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.²⁴⁹ But the complexity of the new version has resulted in slower than expected adoption,²⁵⁰ increased transaction costs in dealing with the license's complexities, and some firms' prohibition of materials licensed under the new version altogether.²⁵¹ As

²⁴⁶ See BLACK DUCK SOFTWARE, OPEN SOURCE GOVERNANCE IN HIGHLY REGULATED COMPANIES 5, available at advance.blackducksoftware.com/content/WPossRegulatedCompanies (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).

²⁴⁷ *Id.*

²⁴⁸ See generally Asay, *supra* note 39.

²⁴⁹ *Id.* at 288.

²⁵⁰ See Aslett, *Continuing Decline*, *supra* note 158 (discussing the declining percentage of GPL-licensed projects relative to attribution-only licenses).

²⁵¹ See *supra* notes 93–94 and accompanying text.

new technological “threats” develop, similarly complicated license revisions may ensue in order to address them.²⁵² Rather than promoting innovation and creativity, however, such efforts often simply introduce significant transaction costs without appearing to achieve the desired result: greater freedom of use. A public domain approach would achieve that result.

V. 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 innovation. An IP approach often results in a tragedy of the anti-commons, while failing to prevent a tragedy of the commons in a meaningful way. Those that choose open 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 arguably do little to undermine these reasons for participation. A public domain approach, therefore, would encourage at least similar levels of participation in open innovation movements and, in fact, would arguably 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 general ways. The first is through private action: right holders or potential right holders may dedicate the materials to the public domain, despite whatever IP rights they may have in such materials.²⁵³ Individuals or firms can do so through tools such as that provided by the Creative Commons²⁵⁴ or by simply forfeiting patent rights, for instance, by using an invention publicly and failing to file for patent rights in the permitted timeframe.

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 United States and elsewhere, however, governments and courts have recently shrunk the public domain by expanding the categories of

²⁵² Indeed, some efforts are already underway to update the latest version of the GPL.

²⁵³ See generally *Merges, supra* note 182.

²⁵⁴ Timothy K. Armstrong, *Shrinking the Commons: Termination of Copyright Licenses and Transfers for the Benefit of the Public*, 47 HARV. J. ON LEGIS. 359, 396–98 (2010) (discussing at length the mechanics of the Creative Commons public domain tools).

materials that are subject to IP rights²⁵⁵ and increasing the time periods for which IP rights subsist in such materials.²⁵⁶

Private action, therefore, appears 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, as discussed below. Government action could help solve some of these complexities by simplifying the method by which parties contribute materials to the public domain. Indeed, a Public Domain Act would be a welcome and needed addition to the IP statutory regime in the United States,²⁵⁷ and in certain respects seems politically feasible since its focus would be to facilitate individual choice rather than limit the rights of entrenched interests. 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 an examination of what a Public Domain Act might look like in order to address such issues.

A. *Private Action Unadulterated*

As discussed above, effectively placing materials in the public domain in the United States 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.²⁵⁸

²⁵⁵ See, e.g., William T. Gallagher, *Trademark and Copyright Enforcement in the Shadow of IP Law*, 28 SANTA CLARA COMPUTER & HIGH TECH L.J. 453, 455 (2012) (reviewing academic commentary focusing on the expansion of IP rights and the threats that such expansion poses).

²⁵⁶ See, e.g., Sonny Bono Copyright Term Extension Act of 1998, Pub. L. No. 105-298, 112 Stat. 2827 (codified in scattered sections of 17 U.S.C.) (extending the term of copyright protection in the United States).

²⁵⁷ Others have come to similar conclusions. See, e.g., Pamela Samuelson et al., *The Copyright Principles Project: Directions for Reform*, 25 BERKELEY TECH. L.J. 1175, 1227-28 (2010) (recommending that Congress amend the Copyright Act to make it easier for copyright holders to dedicate materials to the public domain).

²⁵⁸ 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.

The options for achieving this result, however, are limited. 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.”²⁵⁹ 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 copyrights 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 arise regarding how to effectively waive rights that one may or may not ever seek or obtain.

Other complexities 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? These 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 transactions costs and thus remain a concern. Waiving them as part of a public domain dedication is therefore desirable in order to 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.²⁶⁰ This doctrine, by providing copyright holders with a means of recovery in the event that they entered into an unprofitable bargain that they later regret, has the perverse effect of possibly preventing effective public domain dedications.²⁶¹ Some commentators have consequently called for legislation and other proposals to address this and related issues.²⁶²

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

²⁵⁹ *CC0 FAQ*, CREATIVE COMMONS, http://wiki.creativecommons.org/CC0_FAQ (last modified June 21, 2012).

²⁶⁰ *See, e.g., About the Licenses*, CREATIVE COMMONS, <http://creativecommons.org/licenses/> (last visited Oct. 11, 2013); *Various Licenses and Comments About Them*, GNU OPERATING SYS., <http://www.gnu.org/licenses/license-list.html> (last updated July 15, 2013); *Open Source Licenses*, OPEN SOURCE INITIATIVE, <http://opensource.org/licenses> (last visited Oct. 11, 2013).

²⁶¹ Armstrong, *supra* note 254, at 422–23.

²⁶² *Id.*

also exist. Perhaps most obviously, both the FOSS and Creative Commons movements include so many different licenses as to make it difficult to know what the right path to the public domain is.²⁶³ In fact, often creators mistakenly believe that open licenses are in essence public domain dedications.²⁶⁴ The Creative Commons, Free Software Foundation, and Open Source Initiative all provide significant amounts of commentary explaining the various license options.²⁶⁵ 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' determination to maintain an IP approach, despite such an approach falling short in achieving its stated purposes, as discussed above, also serves to obscure the path to the public domain by convincing creators that IP rights and reciprocity, for instance, are necessary to maintain the movements.

A Public Domain Act could help address many 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.”²⁶⁶ The U.S. Constitution, therefore, expressly adopts the principle that granting authors and inventors IP rights in their works is important to spurring creative and inventive 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 activity, and that inventors and authors also contribute significant inventive and 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)”

²⁶³ Gomulkiewicz, *supra* note 183, at 280–82.

²⁶⁴ 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, 365–66 (2009).

²⁶⁵ See *supra* note 260.

²⁶⁶ U.S. CONST. art. I, § 8, cl. 8.

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 these intentions, or come up with some public domain declaration of their own, parties could use such a symbol as a simple means to achieve public domain status.

A (PD) symbol could also serve the role of providing parties with attribution. For instance, if a creator or inventor decided to include their name with the (PD) symbol, the Public Domain Act could prohibit subsequent users from removing the 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 who 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 infringement safe harbor for users of public domain-designated materials that rely on the 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 the dedication to extend to other materials that she has not similarly dedicated. This 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 she was 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. Crafting the exact language is beyond the scope of this Article, but the general concept of a limited patent waiver would be an important part of a Public Domain Act.

Ideally the patent waiver would also function as a bar to obtaining patent rights related to the dedicated materials. That is, if a dedicator does not already have patents reading on the dedicated materials, the dedication would mean that the materials are now prior art that should prevent both the dedicator and any other party from obtaining a patent that reads on the materials. Ideally, then, no

grace period under patent law would be applicable for applying for patent rights once the materials were 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), the 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.²⁶⁷ 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 the relevant 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 the dedicated 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.²⁶⁸

One potential drawback to the public domain approach compared to the open license IP approach is that many FOSS licenses 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.

²⁶⁷ MARC MALOOLEY, PATENT LICENSES VERSUS COVENANTS NOT TO SUE: WHAT ARE THE CONSEQUENCES? 2 (2008), available at <http://www.brookskushman.com/Portals/0/News/PDFs/131.pdf>; RUFUS PICHLER, PATENT EXHAUSTION AND IMPLIED LICENSES: IMPORTANT RECENT DEVELOPMENTS IN THE WAKE OF *QUANTA V. LG ELECTRONICS* 2, 6 (2009), available at <http://www.mofo.com/files/uploads/images/090804-quantum-computer-v-lg-electronics.pdf>.

²⁶⁸ MALOOLEY, *supra* note 267.

Furthermore, as also discussed above, many of those that participate in open license projects don't pursue patents on the technologies that they contribute, and so don't have patent rights to grant to subsequent users in any event. Or if they do own patents, they already have significant incentives not to assert them against the broader community, since they rely on the goodwill of that community to support their business models.

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 adopt the public domain approach may be left defenseless against those that choose to pursue patents.²⁶⁹ But this potential drawback proves unconvincing. First, as discussed above, 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 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 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? This issue would likely be addressed through the contributor agreements rather than as part of a Public Domain Act. For instance, 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.²⁷⁰

Would creators actually rely on the Public Domain Act and use the (PD) designation? Those that believe in reciprocity may decline and continue to use

²⁶⁹ 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, at 6–13.

²⁷⁰ *See, e.g., Contributor Agreement*, PYTHON SOFTWARE FOUND., <http://www.python.org/psf/contrib/contrib-form/contributor-agreement.pdf>. In some cases the projects retain somewhat more wiggle room. For instance, the Apache Software Foundation indicates simply that contributions will always be used for the "public benefit." The Apache Software Found., *Individual Contributor License Agreement Version 2.0*, APACHE, available at <http://www.apache.org/licenses/icla.txt> (last visited Oct. 13, 2013).

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 in many contexts.

VI. 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 boardrooms. 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 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 and creative activity in many cases. 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 most choose to participate in open innovation movements. The anti-commons that the IP approach helps create is typically not needed to fend off a tragedy of the commons. By and large 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 license movements, but it seems clear now. Furthermore, the anti-commons arises precisely as a result of firms taking precautions to avoid the effects of licensing requirements they deem to be against their interests. The anti-commons, therefore, does not ensure the existence of the commons—in many cases 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 of those 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 creativity or 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 such activity. The open license movements discussed in this Article provide powerful examples of

how innovation and creativity are often 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 licensing approach, but through a full-throated public domain route. Open innovation movements may wish to rely on IP rights in their transition to true openness and freedom. But if such reliance becomes permanent, open innovation movements give up their birthright. It need not be so.