

## Are Prior User Rights Good for Software?

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The America Invents Act (AIA) gave modern patent law in the United States a general prior user rights defense. The patent right is enforced via infringement litigation, but enterprises sometimes obtain patents for defensive purposes. Alternately, an enterprise that does not pursue a patent for an invention may choose to use the invention under trade secrecy protection. However, trade secrecy protection leaves a prior user vulnerable because a later inventor may patent the innovation and enjoin the prior user from further use. Styled as an infringement defense for a “prior commercial use,” the AIA defense replaces a decade-old “earlier inventor” defense that arose from a software system, patent infringement case and applied only against business method patents. This article assesses the AIA’s prior use defense from the perspective of software technology in view of the contentious issues around software patenting. It concludes, first, that courts should interpret the defense, or congress should alter it, to ensure its efficacy for software. Facially, the defense suggests a manufacturing motif, although its applicability to commerce in software may be stronger than suggested at first glance. Second, this article assesses the potential impact of a prior use defense on intellectual property protection in software. Some have posited that, as a general matter, the defense may create an incentive to favor trade secrecy over patenting. Regardless of the strength of that logic for other technologies, it seems lacking for software. While the use of the defense for software patent infringement will depend on the defense’s efficacy, there is also the question as to the defense’s impact on software patenting. One potential impact is on defensive patenting. Will software firms engage in less defensive patenting if there is an efficacious prior use defense?

### I. Introduction

The America Invents Act (AIA) changed patent law to a degree not seen in generations. Among its revisions, the AIA<sup>1</sup> introduced broad applicability of a patent infringement defense of prior use regardless of subject matter. The prior use defense recognizes what seems intuitive to many in the public. If a person had been doing something for a long time before another person filed for a patent, either the patent should be invalid, or if valid, the earlier user should not be required to cease what she had been doing because of this patent. If the earlier user’s activity was publicly accessible, the later-filed patent would be invalid on that ground.<sup>2</sup> But if the earlier user operated in secret, there is generally no barrier to a later-filed patent by someone else who independently conceived the invention.

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<sup>1</sup> Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.). Citations in this article to § 35 of the United States Code are intended to cite the statute as modified by the AIA unless indicated otherwise. When so indicating, the terms “pre-AIA” and “post-AIA” are used to indicate which version of the statutory language is referenced. The various sections of the AIA have various effective dates, but those variations are not relevant to this article and are thus ignored; all AIA effective dates are in the past as of the time of publication. See generally Paul M. Janicke, *Overview of the New Patent Law of the United States*, 21 TEX. INTELL. PROP. L.J. 63 (2013) (providing an overview of the new patent law system).

<sup>2</sup> See 35 U.S.C. § 102 (pre-AIA).

Under the AIA prior use defense, a qualifying earlier user is not required to cease use due to a later patent by someone else that independently conceived the invention. The AIA prior use defense replaced a narrower “earlier inventor” defense implemented a decade before the AIA<sup>3</sup> but applicable only to a patent for a “method[] of doing or conducting business.”<sup>4</sup> Congress enacted the AIA’s full-scope prior use defense against a backdrop of influences, including harmonizing U.S. patent law with international norms.<sup>5</sup> The influences included considerations as to whether the defense would help retain manufacturing in the U.S., particularly in light of the availability of prior user rights in other countries.<sup>6</sup> Some have predicted that prior user rights will enhance incentives for actors in a market to choose trade secrecy protection rather than patent protection.<sup>7</sup> Others have predicted that the AIA prior use defense will generate litigation, signaling vigorous use of the defense.<sup>8</sup> Finally,

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<sup>3</sup> See DAVID J. KAPPOS & TERESA STANEK REA, U.S. PATENT AND TRADEMARK OFFICE, REPORT ON THE PRIOR USER RIGHTS DEFENSE, 5–7, (2012) [hereinafter PRIOR USER RIGHTS REPORT], available at [http://www.uspto.gov/aia\\_implementation/20120113-pur\\_report.pdf](http://www.uspto.gov/aia_implementation/20120113-pur_report.pdf).

<sup>4</sup> Congress enacted the earlier inventor defense in response to *State Street Bank*, a patent case concerning an enterprise software system. *Id.* at 6. See *State St. Bank & Trust Co. v. Signature Fin. Grp.*, 149 F.3d 1368, 1371 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (describing that the patent at issue in *State Street Bank* claimed a computer system that calculated asset values for a particular configuration of entities sharing participation in pooled mutual funds).

<sup>5</sup> Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 FED. CIR. B.J. 539, 552–561 (2012). See Donald S. Chisum, *America Invents Act of 2011: Analysis and Cross-References*, 46 (2011) [hereinafter Chisum, *AIA Overview*], <http://www.chisum.com/wp-content/uploads/AIAOverview.pdf> (noting that whether U.S. patent law should have a prior user defense “comparable to that existing in other major patent systems has been an intense controversy for a long time”).

<sup>6</sup> Matal, *supra* note 5, at 553 (quoting Representative Lamar Smith as saying “This provision . . . creates a powerful incentive for manufacturers to build new plants and new facilities in the United States. Right now, all foreign countries recognize prior-user rights . . . .”); PRIOR USER RIGHTS REPORT, *supra* note 3, at 43 (stating that testimony and comments “suggested that the prior user rights being available outside, but not inside, the U.S. could lead to the exporting of manufacturing”).

<sup>7</sup> PRIOR USER RIGHTS REPORT, *supra* note 3, at 7, 45–47; Ellen Jalkut & Michael J. Remington, *Prior User Rights Expansion: Congress, the Courts, and Constitutional Considerations*, 82 BNA INSIGHTS 610, 610–11 (2011) (arguing that under post-AIA 35 U.S.C. § 273, “a patent system that was established to disseminate ideas will be weakened in favor of protecting discoveries held in secrecy”); Robert B. Milligan & Joshua Salinas, *Top 10 Developments/Headlines in Trade Secret, Computer Fraud, and Non-Compete Law in 2012*, TRADING SECRETS (Dec. 31, 2012), <http://www.tradesecretslaw.com/2012/12/articles/trade-secrets/top-10-developmentsheadlines-in-trade-secret-computer-fraud-and-non-competes-law-in-2012>.

<sup>8</sup> RAYMOND T. NIMMER, LAW OF COMPUTER TECHNOLOGY § 2:46 (2012) (postulating that the “defense is likely to spawn substantial litigation”); Bryan J. Vogel & Ryan Schultz, *The New Prior User Rights Defense Under the AIA: What’s to Come for the Clean Technology Industry*, INTELL. PROP. TODAY, Jan. 2013, at 13 (noting that the defense provides “an additional arrow in the defense quiver for an accused infringer”); Jeff Mikrut, *How the America Invents Act Revived the Prior-User Defense*, AM. BAR ASSOC. (Feb. 20, 2012), <http://apps.americanbar.org/litigation/committees/intellectual/articles/winter2012-prior-user-defense-america-invents-act.html> (“The

some predict a minimal impact on the U.S. patent system from the prior use defense.<sup>9</sup>

This article, proceeding at two levels, assesses these predictions for software technology in view of the contentious phenomenon that is software patenting.<sup>10</sup> First, the prior use defense in some ways fits poorly and in some ways might fit well with modes of commercializing and deploying software. In that sense, given that a manufacturing motif provides its conceptual framework, the question is whether the defense is “good” for software.<sup>11</sup> These observations lead to some proposed clarifications for the defense to ensure its efficacy for software.<sup>12</sup>

Second, intellectual property rights in software are quintessentially comprehensive, typically involving more than one mode of protection from copyright, trade

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current modifications to section 273 provide for a more robust prior-user defense that will likely have far-reaching effects that impact both patentees and accused infringers.”)

<sup>9</sup> Dennis Crouch, *Prior User Rights Defense*, PATENTLY-O (Feb. 1, 2012), <http://www.patentlyo.com/patent/2012/02/prior-user-rights-defense.html> (arguing that the defense will have a marginal impact); Harold C. Wegner, *The 2011 Patent Law: Law and Practice*, 75 (Oct. 26, 2011), <http://www.grayonclaims.com/storage/PatentLaw2011FourthEditionOct26REV.pdf> (“Based upon experience with parallel laws in Europe and Asia, the prior user right has very limited application in actual practice.”).

<sup>10</sup> The types of subject matter available for patenting are “process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. Patentability of software has been and is controversial. *See Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014). *See generally* James Bessen, *A Generation of Software Patents*, 18 B.U. J. SCI. & TECH. L. 241 (2012) (examining the changes in patenting in the software industry); Colleen V. Chien, *Reforming Software Patents*, 50 HOUS. L. REV. 325 (2012) (discussing several software patent reforms including reducing the number of software patents, changing the economics of patent litigation, and using the independent invention defense to bolster patent defenses).

<sup>11</sup> This article’s perspective is in light of other commentary generally considering the goodness of the AIA for software in the context of manufacturing. *See* Crouch, *supra* note 9 (providing a table of stakeholders in which “U.S. [m]anufacturers and [t]echnology companies” are a single category, which the AIA’s prior use defense will both “[h]elp and [h]urt”); Marina Krakovsky, *Patently Inadequate*, 55 COMMS. OF THE ACM, JUNE 2012, at 18 (reporting that the AIA “fails to solve the software industry’s most vexing problems,” and the prior user rights provision in the AIA is a positive change for software). This article considers software in its own right, not confined to a manufacturing context.

<sup>12</sup> This article’s analysis is in light of other commentary generally assessing the AIA’s prior commercial use defense. *See* Colleen V. Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 484 (2014) (stating that AIA prior user rights “don’t help new start-ups”); David McGowan, *The Unfallen Sky*, 51 HOUS. L. REV. 337 (2013) (suggesting certain expansions of the AIA prior use defense, including elimination of a special exception for patents with a university lineage); Brian McCall, Comment, *Don’t Bet On It: Why Businesses Should Not Forego Patent Protection in Favor of the Newly Expanded Prior User Defense*, SSRN (Mar. 17, 2014), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2128584](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2128584) (describing the limitations of the defense). Moreover, prior user rights have existed in the patent law of other nations, providing an additional body of relevant commentary. PRIOR USER RIGHTS REPORT, *supra* note 3, at 10–22. This article is the first, however, to assess the AIA’s new prior use defense specifically in light of its applicability and efficacy for software technology and in relation to software patenting.

secret, and patent.<sup>13</sup> This means prior user rights are unlikely to significantly skew how owners protect software. Virtually all commercially distributed software products rely on some degree of trade secrecy and copyright in source code and object code.<sup>14</sup> An exception to trade secrecy protection applied to software is free and open source software (FOSS), where copyright-based licensing is often used to negate secrecy in the source code. Increasingly, patent protection has been applied to software distributed under a proprietary licensing model. Software developed and operated internally within an enterprise may have all three modes of intellectual property attach. Internally developed software almost always has the first two, copyright and trade secret, and sometimes has the third, patent protection. The dualist protections of trade secrecy and copyright in code are mutually reinforcing. As a result, it seems unlikely that the existence of a prior user defense against third-party patents would induce any greater use of trade secrecy within software. To be clear, trade secrecy is not a literal precondition of the defense.<sup>15</sup> The protection pathway in

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<sup>13</sup> J. Jonas Anderson, *Secret Inventions*, 26 BERKELEY TECH. L.J. 917, 922 (2011) (noting that software “subject matter falls within the ambit of multiple protection regimes”); Karl F. Jorda, *Patent and Trade Secret Complementariness: An Unsuspected Synergy*, 48 WASHBURN L.J. 1, 14 (2008) (“For software, developers can leverage copyright, trade secret, and patent protection to provide an overlapping, robust protection not provided by any one intellectual property right.”); ROBERT M. MILGRIM & ERIC E. BENSON, MILGRIM ON TRADE SECRETS § 1.09[5][b] (2015) (discussing the protection that trade secret law has afforded to software); *Id.* § 1.09[2][c] (discussing possibilities for overlapping trade secret protection of “processes and methods incident to a patent grant”); *Id.* § 9.03[4][a][i] (providing information concerning software viewed in the copyright perspective); *Id.* § 9.03[5][a][i] (detailing the authority regarding the application of the abstraction test to computer software). Overlapping protection also may apply for other technologies. For example, materials formulations, such as the “special metal” of the hypothetical stapler of Part III, can be protected with a combination of patent and trade secret protection. *Id.* § 1.09[1][b] (discussing trade secret protection of industrial formulations).

<sup>14</sup> Source code is a set of human readable instructions in a programming language. Object code is a set of machine-readable instructions in a machine language, such as binary. Object code is obtained from source code by compiling the source code. Both source code and object code may be registered with the U.S. Copyright Office. Source code may contain some portions of code that are copyrighted and some portions of code that are maintained under trade secrecy. Further, when source code is protected by trade secrecy, the corresponding object code may be protected by copyright. MILGRIM, *supra* note 13; U.S. Copyright Office, *Copyright Registration for Computer Programs*, COPYRIGHT.GOV (Aug. 2012), <http://www.copyright.gov/circs/circ61.pdf>.

<sup>15</sup> 35 U.S.C. § 273. The prior commercial use defense requires good faith use in the U.S. *Id.* § 273(a)(1). There are numerous other requirements, but if the prior use is sufficiently public, it likely invalidates some claims of the asserted patent under novelty. If a claim is invalidated, no one needs a defense against it. Therefore, the most typical scenario where the prior use defense helps the defendant against a particular patent claim is when the defendant made a secret use. Chisum, *AIA Overview*, *supra* note 5, at 46, 53. A public use by the defendant might also allow it to win against the asserted claim, but by invalidating that claim. 35 U.S.C. § 102(a). The chain of logic given in this footnote depends in part on how courts ultimately interpret post-AIA § 102. See Donald S. Chisum, *Priority Among Competing Patent Applicants Under the American Invents Acts*, SSRN 47–49 (2011), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1969592](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1969592) (discussing potential effect of public disclosures); Robert P. Merges, *Priority and Novelty under the AIA*, 7–15 (UC Berkeley Public Law Research, Working Paper No. 2130209, 2012) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2130209](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2130209) (discussing the potential meaning of disclosure). Both the pre-AIA earlier inventor defense and the post-AIA prior commercial use de-

other technologies is often styled as a “choice” between trade secrecy and patent protection,<sup>16</sup> although that formulation hides important complexities and realities and deemphasizes the possibilities for overlapping protection.

For software distributed under a proprietary licensing model, the owner may lose little from the “choice” between trade secrecy and patent protection. Even with a patent, trade secrecy in software is mostly available due to the minimal ways in which the courts have interpreted disclosure requirements for software patents.<sup>17</sup> For example, it is not necessary to provide source code in a patent disclosure. A description of the process implemented in the source code generally suffices. Thus, to say that there might be less patenting of software with the existence of prior user rights requires a different logic than saying “owners are choosing trade secrecy instead.”

One alternative logic is that an entity lessens or foregoes defensive patenting, instead relying on the prior user defense when sued for infringement. The effectiveness of such a strategy will depend, in part, on how well the prior use defense fits with software technology. Even assuming a shaped-for-software prior use defense, systematic reliance on the prior use defense compared to defensive patenting will be a contextual assessment. Perhaps it is plausible for internally developed enterprise software, but it might be comparatively less effective for product software of either the retail or enterprise varieties. These considerations relate to the aforementioned predictions as to the importance and of the defense and its likely frequency of use.

Part II briefly reviews the sequential emergence of prior user rights in modern U.S. patent law.<sup>18</sup> The first step in the sequence was the so-called “earlier inventor”

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fense, however, caution courts from directly inferring invalidity upon the showing of a prior user defense: “A patent shall not be deemed to be invalid under section 102 or 103 of this title solely because a defense is raised or established under this section.” 35 U.S.C. § 273(b)(9) (pre-AIA); *Id.* 273(g) (post-AIA).

<sup>16</sup> Anderson, *supra* note 13, at 956–960 (discussing an inventor’s “private valuation” in choosing between patent and trade secret protection).

<sup>17</sup> *Id.* at 944; Greg R. Vetter, *Patent Law’s Unpredictability Doctrine and the Software Arts*, 76 MO. L. REV. 763, 785–90 (2011); MILGRIM, *supra* note 13.

<sup>18</sup> Modern patent law, as an era, begins with the Patent Act of 1952; before then, the U.S. had prior user rights in certain forms. Kyla Harriel, *Prior User Rights in a First-to-Invent Patent System: Why Not?*, 36 IDEA 543, 547–50 (1996) (“[P]rior user rights implicitly can be found throughout the history of United States patent law, and even explicitly from 1836-1952.”).

Under the 1952 Patent Act, however, before the earlier inventor defense, the statute had two mechanisms similar to prior user rights. First, under 35 U.S.C. § 252, concerning the effect of a reissued patent, a defendant might have intervening rights if its activity did not infringe a claim of the original patent but did infringe a claim of the reissued patent. 35 U.S.C. § 252. Second, a grandfathering mechanism for some defendants went into effect along with patent law’s enactment of 35 U.S.C. § 271(g) as a new type of infringement for process claims in the late 1980s. F. SCOTT KIEFF ET AL., *PRINCIPLES OF PATENT LAW* 945–46 (5th ed. 2011); David L. Hitchcock & Craig Allen Nard, *The Process Patent Amendments Act: The Labyrinth*, 3 FORDHAM ENT. MEDIA & INTELL. PROP. L.F. 441, 474–78 (1993) (discussing the grandfather clause); Mark E. Wojcik, *The Perilous*

defense<sup>19</sup> in response to *State Street Bank*.<sup>20</sup> The goal is not to fully review all commentary that is associated with the earlier inventor defense, but to highlight its relevance to software technology. With an earlier inventor defense in place during the AIA's fermentation, the next step to a full-scope prior use defense made sense. This assessment is particularly acute given the other international harmonization influences on the AIA. Prior user rights exist in the patent law of most other countries. An important emphasis of the AIA was to convert the U.S. from a "first-to-invent" to a "first-to-file" system to correspond better with other countries.<sup>21</sup> In addition to that move, the AIA additionally harmonized patent law by implementing a full-scope prior use defense. This implementation, however, was not necessarily driven by particular attention to software as a technology.

Part III provides a detailed review of the AIA's prior commercial use defense. Considerations include its nature as a non-general, personal immunity with minimal transferability, the possibility of site expansion, and how its conception of a "useful end result," a term given in the exhaustion provision of the prior use defense, might impact software. The prior use defense seems focused on processes, which in a historical sense would be manufacturing processes, but software is typically claimed as a process in a patent.

Part IV assesses the defense's efficacy for software. The benefit of the defense to a factory in production that ships widgets can be substantial in terms of profit and ongoing commercial viability.<sup>22</sup> The suggested clarifications arise from modern licensing and deployment practices with software. A question that arises is whether an equivalent benefit would be available to a software product supplier with thousands of end users where some aspect of the software product infringes a claim in an asserted patent? Beyond new users, further clarifications this article considers relate to the extent of applicability of the defense for software updates, divided prior

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*Process of Protecting Process Patents from Infringing Importations*, 14 LOY. L.A. INT'L & COMP. L. REV. 207, 208, 221–24 (1992), available at <http://digitalcommons.lmu.edu/ilr/vol14/iss2/1> (discussing the Process Patent Act and the grandfather clause).

Under the AIA, there are new intervening rights unrelated to the prior commercial use defense for two new post-grant proceedings: inter partes review and post-grant review. 35 U.S.C. §§ 318(c), 328(c). See Janicke, *supra* note 1, at 67–72 (generally describing inter partes review and post-grant review).

<sup>19</sup> Although called the "earlier inventor" defense, theasserter did not need to be an inventor.

<sup>20</sup> *Sabasta v. Buckaroos, Inc.*, 507 F. Supp. 2d 986, 1002–06 (S.D. Iowa 2007) (noting the reasons Congress passed the earlier inventor defense while holding that it did not apply to a manufacturing process); CRAIG ALLEN NARD, *THE LAW OF PATENTS* 260 (2d ed. 2010). See also *State Street Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1375–77 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (holding that there had never been a business method exception for patentable subject matter).

<sup>21</sup> The United States' old "first-to-invent" system included invention date as a factor in patent validity. It was to some extent a hybrid system because the filing date of the patent application also mattered as to validity.

<sup>22</sup> The prior use defense specifically allows for "variations in the quantity or volume of use of the claimed subject matter." 35 U.S.C. § 273(e)(3).

use, and nonprofit FOSS. Continuing onward after successfully asserting the defense, how does the business model of the factory shipping widgets compare to various business models of software licensing and deployment? In particular, the models of interest to demonstrate the issues are internally developed and operated enterprise software, product software for various markets, and the dramatically different model of FOSS.

Part V evaluates the potential influence of prior user rights for intellectual property protection in software and finds that influence minimal, except perhaps for defensive patenting. The prior use defense is unlikely to bring greater use of trade secrecy in software. Its degree of use may depend on how courts interpret the defense and whether those interpretations heighten or hinder its efficacy for software.<sup>23</sup>

Perhaps the prior use defense's primary influence for software might be as a potential partial substitute for defensive patenting.<sup>24</sup> Defensive or otherwise, patenting is expensive. And for software and information technology, the prevailing wisdom is that patent rights are best wielded in portfolios.<sup>25</sup> The portfolio is more expensive than a handful of patents. Might software firms undertake less defensive patenting, instead relying on the prior use defense? The answer depends on many influences. Of high relevance might be whether a defense of prior use puts a software firm or user in a vulnerable position even after the defense has been won. The counter-example, asserting a patent (or a part of a portfolio) as a counter-claim, may lead to a cross-license that puts the parties on equivalent footings for the future of the technology.<sup>26</sup>

Another potential influence of the defense will depend on to what extent prior art that invalidates patents under the new § 102 in the AIA includes secret activity.<sup>27</sup>

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<sup>23</sup> Litigation of the post-AIA prior use defense has begun to appear. *See* Emnos USA Corp.'s Response to Dunnhumby USA, LLC and Dunnhumby Ltd.'s Motion for Partial Judgment on the Pleadings, *Dunnhumby USA, LLC, v. Emnos USA Corp.*, 2015 WL 1235088 (N.D. Ill. Mar. 13, 2015) (No. 1:13-CV-00399), 2014 WL 6737226 *and* Memorandum in Reply to Emnos USA, LLC's Response to Plaintiffs Dunnhumby USA, LLC's and Dunnhumby Ltd.'s Motion for Partial Judgment on the Pleadings, *id.*, 2014 WL 6737186 (arguing for and against, respectively, availability of the defense to a subsidiary acquired after alleged vesting of the defense by the parent); *Vaughan Co. v. Global Bio-Fuels Tech., LLC*, No. 1:12-CV-1292, 2013 WL 5755389, at \*11–12 (N.D.N.Y. Oct. 23, 2013) (granting a motion to strike the defense and denying a request for leave to amend same, on the grounds that defendants alleged prior use of a pump and plaintiffs alleged infringement did not relate simply to the pump itself).

<sup>24</sup> *See* PRIOR USER RIGHTS REPORT, *supra* note 3, at 32 (noting the potential relationship between prior user rights and the level of defensive patenting); *Matal*, *supra* note 5, at 554 (reporting arguments that suggest prior user rights might lessen the need for defensive patenting). Another alternative, not further discussed in this article, is defensive publishing. *See* Justin P. Johnson, *Defensive Publishing by a Leading Firm*, 28 INFO. ECON. AND POL'Y 15, 18 (2014) (reporting, in Table 1, an empirical upward trend in software and business method publishing 1993–2004).

<sup>25</sup> Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 31–43 (2005).

<sup>26</sup> John S. Leibovitz, *Inventing a Nonexclusive Patent System*, 111 YALE L.J. 2251, 2263 (2002).

<sup>27</sup> JANICE M. MUELLER, *PATENT LAW*, 250–52 (4th ed. 2012).



The less the AIA permits secret or non-informing activity as prior art, the less invalidating effect will arise from software in or exposed to the stream of commerce, and, consequently, the more the prior use defense might be important for software. Prior art is sometimes categorized as secret, non-informing or informing.<sup>28</sup> Much software in circulation as prior art would fit in the non-informing category because, unless it is FOSS, its source code is kept secret. Its user-observable functionality is not secret if in circulation, such as a retail software product like Adobe Acrobat. However, its source code is kept as a trade secret, and methods implemented by the source code might be considered secret or non-informing as potential prior art in the patent system.

The AIA might diminish the secret and non-informing categories of prior art. Based on how courts interpret the AIA, if this adjustment occurred, less prior art would be available against future software patent claims, which means fewer possibilities to invalidate software patent claims. If fewer claims can be invalidated, the prior commercial defense may become more important in patent litigation.<sup>29</sup>

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<sup>28</sup> See Eric A. Kelly, *Is the Prototypical Small Inventor at Risk of Inadvertently Eliminating Their Traditional One-Year Grace Period Under the America Invents Act?—Interpreting “Or Otherwise Available to the Public” per New § 102(A) and Disclosure” Per New § 102(B)*, 21 TEX. INTELL. PROP. L.J. 373, 397–99, 401–04 (2013) (discussing the distinction between informing and non-informing and secret uses after the new § 102(a) and § 102(b)); Robert P. Merges, *Priority and Novelty Under the AIA*, 27 Berkeley Tech. L.J. 1023, 1034–36 (2012) (explaining confidential sales and non-informing public uses).

<sup>29</sup> The dynamics outlined above will manifest for technologies other than software; however they are likely stronger for software given the pervasive use of trade secrecy and secret source code for proprietary software product distribution. For example, of eleven assertions of the prior user rights defense found searching Jan. 8, 2015, involving nine cases citing a total of ten patents issued on or after September 16, 2011, two of the patents are directed to mechanical technologies while eight are directed to software and business method technologies. *Compare* Amended Answer and Counterclaims at 18, *Vaughan Co. v. Global Bio-Fuels Tech., LLC*, 2013 WL 5755389 (N.D.N.Y. Oct. 23, 2013) (No. 1:12-CV-1292) (U.S. Patent No. 8,105,017 (filed July 29, 2008), *Centrifugal Chopper Pump with Impeller Assembly*), *and* Patriot Ordnance Factory, Inc.’s and Frank Desomma’s Answer and Defenses to the Counterclaim by the Estate of Robert B. Davies, by and through Personal Representative David R. Stanowski and any Successor Personal Representative at 5, *Patriot Ordnance Factory, Inc. v. Advanced Device Design, Inc.*, No. 2:12-CV-01858-SRB, (D. Ariz. Mar. 14, 2013), *dismissed* (D. Ariz. Sept. 24, 2013) (U.S. Patent No. 8,230,634 (filed May 12, 2011), *Two Piece Upper Receiver for Firearms*), *with* Emnos USA Corp.’s Answer to the First Amended Complaint, Affirmative Defenses, and Counterclaims at 15–16, *Dunnhumby USA, LLC v. Emnos USA Corp.*, 2015 WL 1235088 (N.D. Ill. Mar. 13, 2015) (No. 1:13-CV-00399) (U.S. Patent No. 8,214,246 (filed Sept. 30, 2004), *Method for Performing Retail Sales Analysis*), *and* Motio’s First Amended Answer and Counterclaims to BSP’s Complaint at 8, *BSP Software LLC v. Motio, Inc.*, 2013 WL 3456870 (N.D. Ill. July 9, 2013) (No. 1:12-CV-02100) (U.S. Patent No. 8,073,863 (filed Dec. 26, 2007), *Batch Management of Metadata in a Business Architecture*), *and* Fulcrum Biometrics, LLC’s Answer, Counterclaims, and Affirmative Defenses to Blue Spike LLC’s First Amended Complaint for Patent Infringement at 9–10, *Blue Spike, LLC v. Texas Instruments, Inc.*, Nos. 6:12-CV-499-LED, 6:12-CV-610-LED (E.D. Tex. Apr. 24, 2014) *and* Neurotechnology’s Answer, Counterclaims, and Affirmative Defenses to Blue Spike LLC’s First Amended Complaint For Patent Infringement at 10, *id.* (U.S. Patent No. 8,214,175 (filed Feb. 26, 2011), *Method and Device for Monitoring and Analyzing Signals*); Answer and Affirmative and Other Defenses to Complaint and Counterclaims at 10–11, *Certusview Technologies, LLC v. U.S. Infrastructure Corp.*, No.

Finally, Part VI concludes, emphasizing the potential for courts to flexibly interpret the AIA's prior commercial use defense for software technology.

## II. Lineage and Context for the AIA's Prior Use Defense

Many influences led to the prior commercial use defense in the AIA. The longstanding existence of prior user rights in the patent systems of most other nations provided a continuing suggestion for implementation in U.S. law.<sup>30</sup> The preexisting narrow-scoped "earlier inventor" defense, itself triggered by an unexpected change in U.S. patent law in 1998,<sup>31</sup> paved the way for the generally applicable AIA prior commercial use defense.

### A. The "Earlier Inventor" Defense in Response to State Street Bank

A software system patent infringement case first sparked prior user rights into U.S. patent law, although the tinder for the spark was in waiting. The case, *State Street Bank*, provided patent eligibility to business methods.<sup>32</sup> Shortly thereafter,

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2:13-CV-00182-MSD-DEM (E.D. Va. June 24, 2013) (U.S. Patent No. 8,290,204 (filed Feb. 11, 2009), Searchable Electronic Records of Underground Facility Locate Marking Operations & U.S. Patent No. 8,407,001 (filed Dec. 16, 2009), Systems and Methods for Using Location Data to Electronically Display Dispensing of Markers by a Marking System or Marking Tool); Answer to Complaint, Defenses, and Counterclaims of Defendant Digital River, Inc. at 5, DDR Holdings, LLC v. Digital River, Inc., No. 2:13-CV-647 (E.D. Tex. Sep. 16, 2013), *dismissed* (E.D. Tex. Apr. 15, 2014) (U.S. Patent No. 8,515,825 (filed Oct. 18, 2010), Methods of Expanding Commercial Opportunities for Internet Websites Through Coordinated Offsite Marketing); Complaint for Declaratory Judgment of Non-Infringement and Prior User Rights of U.S. Patent No. 8,286,232 at 7–8, Jadeliquid Software (Intl.) Pty. v. Novell, Inc., No. 5:14CV04270 (N.D. Cal. Sep. 22, 2014) (U.S. Patent No. 8,286,232 (filed Nov. 5, 2009), System and Method for Transparent Cloud Access); Complaint for Declaratory Judgment of (1) Patent Invalidity (in Light of Prior Art); (2) Patent Invalidity (Inventor Omitted); and (3) Correction of Inventorship; and (4) Patent Noninfringement at 11, Yahrzeitronix, Inc. v. W & E Baum Bronze Tablet Corp., No. 2:13CV09120 (C.D. Cal. Dec. 10, 2013), *dismissed* (C.D. Cal. May 29, 2014) (U.S. Patent No. 8,390,204 (filed Feb. 8, 2010), Automated Memorial System).

<sup>30</sup> Matal, *supra* note 5, at 552–60. See also Chris P. Konkol, *Prior-Invention Rights: The Excluded Middle*, 77 J. PAT. & TRADEMARK OFF. SOC'Y 666, 666–68 (1995) (distinguishing a prior user from a prior inventor and arguing for a prior inventor right for those who actually developed the technology and used it, but which was later developed and patented by another); Edward L. MacCordy, *The Threat of Proposed Patent Law Changes to the Research University*, 20 J.C. & U.L. 295, 302–06 (1994) (arguing that prior user rights are dissatisfactory from the perspective of research universities as patentees); Robert L. Rohrback, *Prior User Rights: Roses or Thorns?*, 2 U. BALT. INTELL. PROP. L.J. 1, 2–5 (1993) (discussing proposed patent harmonization legislation and arguing that the prior user rights provisions in the legislation are not necessary for the switch from first-to-invent to first-to-file).

<sup>31</sup> MARTIN J. ADELMAN, RANDALL R. RADER & JOHN R. THOMAS, PATENT LAW 831 (3d ed. 2009) ("Inventors of methods of doing business traditionally relied upon trade secret protection because such inventions had long been regarded as unpatentable subject matter."); Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 589–93 (1999).

<sup>32</sup> More specifically, *State Street Bank* allowed business method patents by eliminating business methods as a category of subject matter excluded from patent protection. *State St. Bank & Trust*

Congress implemented what it labeled the “earlier inventor” defense for business methods, although one did not have to be an inventor to take advantage of it.<sup>33</sup>

That prior user rights emerged in the U.S. due to a controversy about a software system is telling. The emergence underscores the importance of trade secrecy as an intellectual property right for software, and secrecy of source code as a practical reality for most software. The emergence also underscores the intermingled nature of software as a technology intertwined with business methods as a category of patentable subject matter.

Additionally, the emergence of prior user rights underscores the effect that vested interests have in shaping patent law doctrine. Too many owners of too much software were, after *State Street Bank*, at risk of thereafter becoming patent infringers.<sup>34</sup> The importance of trade secrecy for software will be taken up in Part V. The focus of the remainder of this section is on the other two points, software as a means to implement business methods and how this relates to vested interests and thus prior user rights.

The Federal Circuit decided *State Street Bank* at a time when the patentability of software was gaining momentum, but the case accelerated that momentum dramatically. The doctrinal story is whether the law before *State Street Bank* had a “business method” exclusion for patent-eligible subject matter.<sup>35</sup> Theoretically, be-

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Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1375–77 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

<sup>33</sup> American Inventors Protection Act of 1999, Pub. L. No. 106-113, §§ 4302–03, 113 Stat. 1501A, 570–71 (1999) [hereinafter AIPA or AIPA of 1999]. David H. Hollander, Jr., *The First Inventor Defense: A Limited Prior User Right Finds Its Way into U.S. Patent Law*, 30 AIPLA QUARTERLY J. 37, 72–78 (2002). See James R. Barney, *The Prior User Defense: A Reprieve for Trade Secret Owners or a Disaster for the Patent Law?*, 82 J. PAT. & TRADEMARK OFF. SOC’Y 261, 261–62 (2000) (describing how Congress fashioned from unsuccessful prior use defense proposals “an oddly-contrived shield against business method patents”); Leslie M. Hill, *Prior User Defense: The Road to Hell is Paved with Good and Bad Intentions*, 10 FED. CIR. B.J. 513, 515–18 (2001) (discussing earlier efforts to implement prior user rights and the implementation of the earlier inventor defense in response to *State Street Bank*).

<sup>34</sup> The vested interest threatened by the *State Street Bank* decision can be viewed through both an operational and an intellectual property law lens. Operationally, firms did not want to become patent infringers for something they had been doing for a long time; as a matter of intellectual property law, the firms made investments by either developing or licensing software with attendant trade secrecy and copyright protections. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 724, 739 (2002) (“[C]ourts must be cautious before adopting changes that disrupt the settled expectations of the inventing community . . . [because] alterations in these rules risk destroying the legitimate expectations of inventors in their property.”); *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 32 n.6 (1997) (“To change so substantially the rules of the game now could very well subvert the various balances the PTO sought to strike when issuing the numerous patents which have not yet expired and which would be affected by our decision.”). See also Shubha Ghosh, *Managing the Intellectual Property Sprawl*, 49 SAN DIEGO L. REV. 979, 1019 (2012) (describing that the use of “vested rights language indicates that [courts oftentimes] see intellectual property rights in terms of owners and nonowners”).

<sup>35</sup> The *State Street Bank* court concluded that the business method exception was a misconception and that it was not correctly a part of the law. 149 F.3d at 1375–77. Other judges, looking back on

fore *State Street Bank*, one could say that a business-related process is merely a method of doing business, and therefore it is not eligible subject matter for patenting. After *State Street Bank*, this was no longer sound argument. Moreover, the Federal Circuit held that there had never been a business method exception for patentable subject matter.<sup>36</sup>

As a result, software patenting was amplified in three ways. First, some software patents potentially became more potent. These patents might have claimed “business methods,” but this slipped through the cracks at the U.S. Patent and Trademark Office. Second, the existing queue of software patent applications became potentially more potent. Third, the expansion of patentable subject matter into business methods invited many new applications.

With these amplifications, someone operating a company with software automating its business processes could foresee a future where a much larger volume of third-party patent rights might interfere with operations. By the late 1990s, most enterprise business processes had software underlying their implementation. Since then, software automation of business processes has grown, particularly with the emergence of the Internet and increasing affordability of computing power. Software source code is mostly kept secret, and much business process automation software runs on a corporation’s internal network. The secrecy means that these systems are less likely to engender patent claim-invalidating prior art for third parties, and there is more risk of being sued for patent infringement unless there is some sort of prior user defense.

Without prior user rights, in U.S. patent law, a non-patenting secret user of a process faced the risk that someone else might patent the process, thus making the earlier secret user an infringer.<sup>37</sup> After *State Street Bank*, the infringement risk posed itself even more than before to those entities that secretly operate software systems for their business.<sup>38</sup> Even if results, data, or interfaces are non-secret, the methods later patented by others might correspond to only the secret parts of these internal software systems.<sup>39</sup> As secrets, no prior art is generated against others to invalidate those patent rights.

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that analysis, have questioned the degree of certainty for such a conclusion. See *Bilski v. Kappos*, 561 U.S. 593, 642–49 (2010) (Stevens, J., concurring) (discussing historical perspectives as to whether the statutory word “process” in 35 U.S.C. § 101 includes business methods).

<sup>36</sup> *State Street Bank*, 149 F.3d at 1375–77.

<sup>37</sup> NARD, *supra* note 18, at 259–60; Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 523, 568 (2010).

<sup>38</sup> *Bilski*, 103 S. Ct. at 3251 (Stevens, J., concurring) (“The fact that Congress decided it was appropriate to create a new *defense* to claims that business method patents were being infringed merely demonstrates recognition that such claims could create a significant new problem for the business community.”).

<sup>39</sup> The analysis of the paragraph in the main text considers primarily the case of internally operated software. It puts aside companies that license software products to users. Internally operated software is thought to be a primary concern in the wake of *State Street Bank*. KIEFF ET AL., *supra*

The change in eligible subject matter swept patenting into a field, business methods, where it was thought not to previously hold sway.<sup>40</sup> Investment in software systems to automate business methods, protected by trade secrecy and copyright, was also theoretically threatened. The vested interest was the business reliance on those systems without expectation of cost for patent licensing fees, or the threat of an injunction based on patent rights.

The narrowly defined earlier inventor defense for business methods in the American Inventors Protection Act (AIPA) of 1999 sought to protect these vested interests.<sup>41</sup> Congress responded to *State Street Bank* with prior user rights and not with an independent development defense, and the prior user defense applied to business method patents, not software patents generally.<sup>42</sup> The independent development defense would not require that the entity asserting the defense itself develop the technology before the patent owner obtained the patent so long as the development was truly independent by someone, or at least so long as it was not copied from the patent owner.<sup>43</sup> The scope and possibilities for a potential independent de-

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note 18, at 1210; *see also* H.R. REP. NO. 106-287, pt. 1, at 45–46 (1999) (describing internal software processes as business methods of concern for the earlier inventor defense).

The software product company scenario is examined *infra* in Part IV.A.1.

<sup>40</sup> ADELMAN ET AL., *supra* note 31, at 831–32.

<sup>41</sup> AIPA of 1999, Pub. L. No. 106-113, § 4302, 113 Stat. 1501 (1999). DONALD S. CHISUM, CHISUM ON PATENTS § 16.03[4] (2013) (noting that while the text of the earlier inventor defense might support a broad interpretation, its correspondence with *State Street Bank* and the legislative history indicate that the defense is meant for processes that were not traditionally patent eligible subject matter). Chisum further remarks:

Based on *State Street Bank*, and on a contemporaneous proliferation of patents on “business methods”, one might argue that [pre-AIA] Section 273 is confined to methods of doing or conducting business in a narrow sense, for example, methods of arranging financial matters, methods for controlling inventory, and methods for marketing products or services, and does not extend to methods, such as methods for manufacturing products, that have been more traditionally the subject of patents . . . . [C]ommercial enterprises who practiced innovative *business* methods as trade secrets could reasonably have believed that such methods were not patentable subject matter. Hence it can be argued that such users, unlike other users who eschewed the patent system in favor of trade secrecy, did not consciously act contrary to the purposes of the patent system. Therefore, it can be credibly argued that Congress’ intent in restricting the “first inventor” defense to business methods was to give special consideration to those using business methods as trade secrets and to withhold such consideration from users of other, more traditional technologies.

*Id.* (footnotes omitted).

*See* Hollander, *supra* note 3, at 86 (arguing that while there is some ambiguity in the question, the best reading of the legislative history for the earlier inventor defense is that the “defense applies only to business method inventions believed to be not patentable prior to *State Street*”).

<sup>42</sup> AIPA of 1999 §§ 4301–03.

<sup>43</sup> Various formulations of an independent developer defense are possible. *See* Mark A. Lemley, *Should Patent Infringement Require Proof of Copying*, 105 MICH. L. REV. 1525, 1534 (2007) (proposing that if a limited independent invention defense in the form of a prior user right were available for information technology industries in comparison to pharmaceutical and biotechnology industries, “we can be more confident that the benefits outweigh the costs”); Oskar Liivak,

velopment defense are not important details for this discussion, except to illustrate that it does not require the party invoking the defense to be “prior,” and it is thus broader. Under the earlier inventor defense, as a form of prior user rights, companies practicing business methods with software have a shield against others who later patent the method so long as the practicing companies are sufficiently prior and otherwise qualify for the defense.

It is at least plausible *ex ante* that companies operating non-patented business methods before *State Street Bank* would have been better off if business methods were excluded from patentable subject matter. Dealing with patent rights in a market or as a potential threat to operations can be costly. Ineligible subject matter for business methods might more cleanly excise the threat and risk. As eligible subject matter, there is an incentive for new patenting of business methods. This eligibility creates risk for future-developed internal business processes. They might not qualify for the earlier inventor defense because they might not be “earlier” than the patenting by others even if independently developed.<sup>44</sup>

Both changes following *State Street Bank* are now enshrined in U.S. patent law. Business methods remain eligible subject matter some of the time.<sup>45</sup> Prior user

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*Rethinking the Concept of Exclusion in Patent Law*, 98 GEO. L.J. 1643, 1648–49 (2010) (comparing traditional patent law exclusivity in the U.S. to exclusivity that does not reach independent developers of the same technology); McGowan, *supra* note 12, at 359–62; Roger Milgrim, *An Independent Invention Defense to Patent Infringement: The Academy Talking to Itself: Should Anyone Listen?*, 90 J. PAT. & TRADEMARK OFF. SOC’Y 295, 297 (2008) (discussing various practical issues concerning two proposals from the legal academy to consider independent development as a defense in patent law); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475, 479 (2006) (arguing that patent protection need not necessarily cover independent inventors in order to provide a sufficient incentive to invent). *See also* Chien, *supra* note 10, at 364–68 (reviewing alternative approaches to an independent invention defense, including the possibility of an “innocent user defense for software patents”); Vincenzo Denico & Luigi A. Franzoni, *Patents, Secrets, and the First Inventor Defense*, 13 J. ECON. MGMT. & STRATEGY 517, 518–19 (2004) (comparing the efficacy of trade secret protection versus patent protection in light of the possibility of prior user rights or independent development defenses); John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEXAS L. REV. 1, 9–10 (2007) (discussing the implications of allowing an independent development defense as part of an argument about the progression of the nonobviousness doctrine); Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 525–533 (2004) (contrasting independent creation in copyright versus patent law); Stephen M. Maurer & Suzanne Scotchmer, *The Independent Invention Defense in Intellectual Property*, 69 ECONOMICA 535, 542–45 (2002) (advocating the merits of an independent invention defense based on economic modeling and related considerations); Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92, 93–95 (2006) (discussing prior user rights from the perspective of economic theory and potential impacts on innovation); Katherine J. Strandburg, *Patent Fair Use 2.0*, 1 U.C. IRVINE L. REV. 265, 292–300 (2011) (revisiting and re-proposing a defense to patent infringement based on copyright-like fair use factors).

<sup>44</sup> Under the AIPA of 1999 earlier inventor defense, the party asserting the defense must “actually reduce[] the subject matter to practice at least 1 year before the effective filing date” of an asserted patent, and “commercially use[] the subject matter before the effective filing date.” 35 U.S.C. § 273(b)(1) (Pre-AIA).

<sup>45</sup> *Bilski v. Kappos*, 561 U.S. 593, 606 (2010). A patent claim to a business method, however, to be eligible subject matter, must not be too abstract. *Id.* at 608–11.

rights have been introduced and then broadened to cover all kinds of patented subject matter. The tradeoffs with these policy choices are complex. The subject matter issue is not the focus of this article, so it will be left behind.<sup>46</sup> Reasonable minds can differ concerning the tradeoffs related to prior user rights, but their sequential embrace in U.S. law moves its patent law closer to that of most other countries.

#### B. Internationalization Influences on the AIA

While broadening prior user rights is a move that further harmonizes U.S. patent law with the rest of the world, the most significant AIA harmonization relates to what is often described as the AIA's implementation of a "first-to-file" system. While some argue that the harmonization missed the mark to some degree,<sup>47</sup> the purpose of this article is not to assess the degree of U.S. law harmonization for the AIA's "first-to-file" implementation. Rather, this section recognizes that harmonization was among the goals for the AIA and positions the prior commercial use defense within those goals and in relation to the switch to first-to-file.

Under a notion that one needed the other, even before *State Street Bank*, policymakers were considering prior user rights as a complementary feature for proposed first-to-file revisions to U.S. patent law.<sup>48</sup> The push to move the U.S. to a

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The existence of the pre-AIA earlier inventor defense helped solidify the eligibility of business methods as patentable subject matter. See Mikrut, *supra* note 8 ("In fact, the most prominent case involving [pre-AIA] section 273, *Bilski v. Kappos*, did not even apply it as a defense, but used the existence of the section as part of the Court's justification for the patentability of business methods.").

<sup>46</sup> See Katherine J. Strandburg, *Much Ado About Preemption*, 50 HOUS. L. REV. 563, 565 & n.2 (2012) (arguing the efficacy of a categorical approach to eligible subject matter for patenting and citing numerous sources concerned with patentable subject matter in light of recent Supreme Court cases).

<sup>47</sup> MUELLER, *supra* note 27, at 238. Mueller further remarks:

[A]lthough Congress speaks of promoting harmonization between the U.S. patent system and foreign patent systems, it is not clear that the AIA achieves this goal . . . . §3 of the AIA did not implement a European-style system of first to file with absolute novelty. Rather, the post-AIA version of §102 puts into place a unique hybrid system that preserves many aspects of the pre-AIA grace period found in 35 U.S.C. §102(b) (2006). Rather than a true first-to-file system, the AIA created what is better described (at least in some circumstances) as a "first inventor to disclose" system.

*Id.* (footnotes omitted).

<sup>48</sup> Matal, *supra* note 5, at 553 (reporting that there was "nearly two decades of legislative activity that led up to the enactment of the new § 273"). See also PAUL GOLDSTEIN & MARKETA TRIMBLE, INTERNATIONAL INTELLECTUAL PROPERTY LAW 429 (3d ed. 2012) (noting that the "prior user right is a regular feature of first-to-file patent systems"); Lisa M. Brownlee, *Trade Secret Use of Patentable Inventions, Prior User Rights and Patent Law Harmonization: An Analysis and Proposal*, 72 J. PAT. & TRADEMARK OFF. SOC'Y 523, 525–26 (1990) (discussing prior user rights as a possible additional change to U.S. patent law in light of a proposal to implement first-to-file in the U.S.); Kevin Cuenot, *Perilous Potholes in the Path Toward Patent Law Harmonization*, 11 U. FLA. J.L. & PUB. POL'Y 101, 111–12 (1999) (describing the role of prior user rights in harmonization discussions); Gary L. Griswold & F. Andrew Ubel, *Prior User Rights—A Necessary Part of a*

first-to-file system was the primary emphasis. Prior user rights were included because some view them as a necessary component of the first-to-file system.<sup>49</sup> Prior user rights were familiar in a limited form due to the earlier inventor defense implemented by the American Inventors Protection Act (AIPA) of 1999.<sup>50</sup>

Section three of the AIA, implementing first-to-file, is entitled “First Inventor to File,” and it reworks bedrock concepts of novelty and priority in U.S. patent law.<sup>51</sup> Novelty, in general, relates to whether a patent claim is new in comparison to the prior art. Prior art has technical meaning within the statute and the case law, but for purposes of this section, think of prior art as the technological past for an area of technology. Priority, in general, relates to who among competing inventors gets the patent rights to an invention. Before the AIA, priority went to the person who could prove the earliest invention date in a WTO country, provided there was no unreasonable concealing of the invention.<sup>52</sup> After the AIA, priority goes to whoever is first to file, at least in the simplest scenario where there is no novelty-influencing prior art.<sup>53</sup> After decades of discussion about harmonization for first-to-file, the AIA represents the U.S.’s implementation of that objective.

Along with its other expressed goals for the act, Congress expressed harmonization as a specific goal for section three of the AIA.

It is the sense of the Congress that converting the United States patent system from “first to invent” to a system of “first inventor to file” will improve the United States patent system and promote harmonization of the United States patent system with the patent systems commonly used in nearly all other countries throughout the world with whom the United States conducts trade and thereby promote greater international uniformity and certainty in the procedures used for securing the exclusive rights of inventors to their discoveries.<sup>54</sup>

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*First-to-File System*, 26 J. MARSHALL L. REV. 567, 572–76 (1993) (arguing that prior user rights should be part of U.S. patent law implementing first-to-file).

<sup>49</sup> Margo A. Bagley, *The Need for Speed (and Grace): Issues in a First-Inventor-to-File World*, 23 BERKELEY TECH. L.J. 1035, 1049 (2008).

<sup>50</sup> The AIPA of 1999 implemented a variety of technical changes in U.S. patent law, some of which were based on international harmonization. The most prominent harmonization revision of the AIPA was requiring publication of some U.S. patent applications. This was implemented in a nuanced way with a related adjustment concerning how the term (period of exclusive rights) of a U.S. patent is determined. See generally Pat Costello, *New Law Creates a Patent Infringement Defense and Restructures the Patent and Trademark Office*, 6 B.U. J. SCI. & TECH. L. 346 (2000) (summarizing various points of import from the AIPA, including its earlier inventor defense and the requirement that most patent applications are published).

<sup>51</sup> MUELLER, *supra* note 27, at 234, 242.

<sup>52</sup> NARD, *supra* note 20, at 303–04.

<sup>53</sup> The complications and ambiguities beyond this simplest scenario are substantial. MUELLER, *supra* note 27, at 247–64; Merges, *supra* note 15, at 5–15. However, they will not be discussed.

<sup>54</sup> Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3(p), 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).



Section five of the AIA implements the prior commercial use defense. However, in section three, the first-to-file section, Congress also required the U.S. Patent and Trademark Office (PTO) to study prior user rights.<sup>55</sup> The scope and methodology of the study was inherently constrained in the sense that the inputs available to the PTO, besides comparative law analysis and review of the existing literature, mostly came from comments submitted voluntarily by a small number of groups and individuals.<sup>56</sup>

The important question Congress posed for the report is whether U.S. patent law should have generally-applicable prior user rights. The PTO answered this question in the affirmative, thus not proposing any disturbance in the new status quo because the prior commercial use defense was already in the post-AIA statute. The

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<sup>55</sup> *Id.* § 3(m). The resulting report is cited herein as PRIOR USER RIGHTS REPORT, *supra* note 3. The aspirations of the report are noteworthy. AIA subsection 3(m)(1) has six letter-enumerated items, (A) through (F), as report objectives. Among the first five topics in relation to prior user rights are: innovation rates; securing venture capital for start-up companies; effects on small businesses, universities and individual inventors; and legal issues from “placing trade secret law in patent law.” Leahy-Smith America Invents Act § 3(m)(1)(A)–(E).

Lastly, the report required “[a]n analysis of whether the change to a first-to-file patent system creates a particular need for prior user rights.” *Id.* § 3(m)(1)(F). For the last item, the PTO recommended the following:

United States patent law should provide for a prior user rights defense to patent infringement in order to address a systemic inequity inherent in a first-inventor-to-file system and to ensure United States businesses are (i) able to protect their investments in the event of a later issued patent, and (ii) placed on similar footing as competitors in other jurisdictions.

PRIOR USER RIGHTS REPORT, *supra* note 3, at 53.

<sup>56</sup> PRIOR USER RIGHTS REPORT, *supra* note 3, at 9–10, 58–59. Subsequent inputs to the PTO are described in a report of a PTO survey on use of prior user rights in a time period of usage covering pre- and post-AIA time frames, UNITED STATES PATENT AND TRADEMARK OFFICE, REPORT ON USER CONSULTATION FEEDBACK ON SUBSTANTIVE PATENT LAW HARMONIZATION (2013) [hereinafter US TEGERNSEE SURVEY REPORT], available at [http://www.uspto.gov/ip/global/patents/tegersee\\_survey/Report\\_on\\_User\\_Consultation\\_Feedback\\_on\\_Patent\\_Law\\_Harmonization\\_FINAL.pdf](http://www.uspto.gov/ip/global/patents/tegersee_survey/Report_on_User_Consultation_Feedback_on_Patent_Law_Harmonization_FINAL.pdf).

For example, actual usage of prior user rights in settlement negotiations or litigation was very low in comparison to counseling on the issue of prior user rights in a sample of 121 survey respondents answering at least one survey question on the topic of prior user rights. *Id.* at 59. The results of combining this later PTO survey with international surveys on use of prior user rights are discussed in DANISH PATENT AND TRADEMARK OFFICE ET AL., CONSOLIDATED REPORT ON THE TEGERNSEE USER CONSULTATION ON SUBSTANTIVE PATENT LAW HARMONIZATION, 83, 97 (2014) [hereinafter INTERNATIONAL TEGERNSEE REPORT], available at [http://www.uspto.gov/ip/global/patents/tegersee\\_survey/teg-final\\_consol\\_report\\_june\\_2014.pdf](http://www.uspto.gov/ip/global/patents/tegersee_survey/teg-final_consol_report_june_2014.pdf) (discussing the frequency of usage of prior user rights varied across technologies, with the three most frequent fields being Mechanics, Electrical/Electronics, and Chemistry, and further noting that survey respondents had limited experience with prior user rights abroad, except for litigation in Germany). With respect to the PRIOR USER RIGHTS REPORT, *supra* note 3, at 12 n.45, after Microsoft submitted comments to the USPTO indicating lack of significant experience with the defense, Microsoft asserted a defense of prior user rights in litigation in Germany brought by Motorola enforcing EP 0847654. See Florian Mueller, *Microsoft's Prior User Rights May Trump Motorola's Push Notification in Germany*, FOSS PATENTS (May 11, 2012), available at <http://www.fosspatents.com/2012/05/microsofts-prior-user-rights-may-trump.html>.

PTO's answer relied in part on comparative law analysis and noted that jurisdictions with a first-to-file system tend to also have prior user rights as a bulwark against the first filer.<sup>57</sup> That the U.S. patent system moved sequentially into a regime with prior user rights may become a historical footnote, but the first step, the earlier inventor defense in response to *State Street Bank*, shows the increasing importance of software as an issue for the patent system and as a basis for commerce.

### III. Detailing the Prior Use Defense

While the AIA has only recently come fully into effect, there are already some calls to alter it, including proposed alterations to the prior commercial use defense.<sup>58</sup> The AIA's prior use defense is structurally similar to the earlier inventor defense under the AIPA of 1999.<sup>59</sup> The degree of parallelism is high except for the much wider subject matter applicability. This part discusses the structure of the prior use defense and notes some proposed general clarifications for it.

#### A. Structure of the AIA Prior Use Defense

From the perspective of the non-patenting earlier secret user of a technology, the AIA prior use defense is limited. And while the AIA prior use defense is broader in subject matter applicability and therefore better than the AIPA's earlier inventor defense, its limitations are noteworthy. The prior use defense is personal, which is another way to say that it is only minimally transferrable. It seems written and

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<sup>57</sup> PRIOR USER RIGHTS REPORT, *supra* note 3, at 10–22, 47–51.

<sup>58</sup> Effective dates for various provisions of the AIA ranged from its date of signing in September 2011 to the effective date for the first-to-file system in March 2013 for claims with an effective filing date on or after March 16, 2013. *See, e.g.*, Leahy-Smith America Invents Act §§ 3(e)(3), 3(n), 4(e), 5(c), 6(c), 6(f), 7(e), 8(b), 9(b), 10(h)-(i), 35.

Remarks calling for revisions to the prior use defense range from eliminating it to expanding it. Jalkut & Remington, *supra* note 7, at 611–12 (arguing, on the cusp of its enactment, that the AIA's prior commercial use defense suffers from “constitutional infirmities”); McGowan, *supra* note 12, at 360–61 (arguing for certain expansions of the prior commercial use defense).

<sup>59</sup> The heading of post-AIA 35 U.S.C. § 273 labels the defense as available to a “prior commercial user” whereas the heading of pre-AIA 35 U.S.C. § 273 labels it as available to an “earlier inventor.” As a technical matter, there is an argument that the “earlier inventor” moniker for the AIPA defense is a mislabeling.

Under either defense, the prior user need not have invented the subject matter. This assertion seems completely clear for the AIA prior use defense, unless the concept of “good faith” is stretched to encompass inventing the subject matter, an unlikely interpretive result. Similarly, the earlier inventor defense does not say that the prior user must have invented the subject matter. However, it does require that the user “had, acting in good faith, actually reduced the subject matter to practice” and “commercially used” it, each early enough to be “prior” under the defense. 35 U.S.C. § 273(b)(1) (pre-AIA) (stating that reduction to practice must be one year before the effective filing date of the asserted patent and the commercial use must be merely before that effective filing date). Thus, the earlier inventor defense used the well-understood term of art in patent law, reduction to practice, separately from commercial use, with a separate timing requirement. But reduction to practice does not necessarily mean that the person who reduced the subject matter to practice was the inventor. It might mean that in certain contexts but typically as part of an argument that someone actually invented the subject matter.

structured to fashion a defense only for the specific activity occurring in the U.S. early enough to be deemed “prior” subject matter under the defense. Many expansions of that activity are cabined.<sup>60</sup>

As a statutorily authorized defense, which indirectly characterizes itself as a “license”<sup>61</sup> but explicitly invokes the concept of “exhaustion” of patent rights, the defense potentially involves itself with some doctrinal complexity. No court ever evaluated this involvement under the AIPA’s earlier inventor defense, even while exhaustion of patent rights has been an issue of import during recent times.<sup>62</sup> Exhaustion is a venerable, judge-made aspect of U.S. patent law. The only appearance of the word “exhaustion” in the pre-AIA and post-AIA patent statute is as part of the prior user rights defense each version contained.<sup>63</sup> The potential influence of

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<sup>60</sup> Discussed further at Part III.A.3.

<sup>61</sup> 35 U.S.C. § 273(e)(3) (describing that the defense is “not a general license . . . but extends only to the specific subject matter,” which implies that it is a license for the specific subject matter that was commercially used in a way that is “prior”).

<sup>62</sup> See *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 621 (2008) (holding that the doctrine of exhaustion applies to method claims in a patent and that for the transaction at issue there was exhaustion because a license authorized the sale of components that substantially embodied the claims); Shubha Ghosh, *Carte Blanche, Quanta, and Competition Policy*, 34 J. CORP. L. 1209, 1226 (2009) (“The difficult question left open by the Court in *Quanta* is when precisely patent exhaustion occurs.”). International patent exhaustion has been raised as an issue in the wake of *Kirtsaeng v. John Wiley & Sons, Inc.*, 133 S. Ct. 1351, 1352 (2013) (holding that copyright exhaustion is not geographically limited). See *San Disk Corp. v. Round Rock Research LLC*, No. C 11-5243 RS, 2014 WL 2700583, at \*4 (N.D. Cal. June 13, 2014); but see *Robert Bosch LLC v. Trico Prods. Corp.*, No. 12C437, 2014 WL 2118609, at \*2 (N.D. Ill. May 21, 2014).

The term “exhaustion” is mostly used in association with patent law; in that sense, it typically means the elimination of the patentee’s power to further exclude sales and uses of an item made and sold under the authority of the patentee. MUELLER, *supra* note 27, at 546–47; ROGER E. SCHECHTER & JOHN R. THOMAS, *INTELLECTUAL PROPERTY: THE LAW OF COPYRIGHTS, PATENTS AND TRADEMARKS* 125 (2003). When the patent claim is not a “product” claim, but a claim to a process, the typical statement of exhaustion falls apart somewhat because “making” the process is effectively the same as “using” it. Dan L. Burk, *The Problem of Process in Biotechnology*, 43 HOUS. L. REV. 561, 564–65 (2006). The typical statement of exhaustion is cast against the acts of infringement in 35 U.S.C. § 271(a), “makes, uses, offers to sell, or sells . . . within the United States, or imports into the United States”, but there are other more specialized acts of infringement elsewhere in 35 U.S.C. § 271. See, e.g., 35 U.S.C. § 271(g) (product made by a patented process infringes under certain conditions).

Copyright law has a similar doctrine, typically called “first sale.” SCHECHTER, *supra* note 62, at 125. First sale, the name for the doctrine of “exhaustion” in a copyright context, has also been a recent issue of import. *Kirtsaeng*, 133 S. Ct. at 1352 (copyright’s first-sale doctrine applies to books sold abroad with the authority of the copyright holder). See also Dennis Crouch, *First-Sale Doctrine: Authorized Foreign Sales Exhaust US Copyrights [and US Patents]*, PATENTLY-O (Mar. 19, 2013), <http://www.patentlyo.com/patent/2013/03/first-sale-doctrine-authorized-foreign-sales-exhaust-us-copyrights-and-us-patents.html> (arguing that *Kirtsaeng* has implications for patent law exhaustion in a cross-border, international sense).

<sup>63</sup> The paragraph below shows the substantive language of the AIA’s prior use defense exhaustion provision with revision-tracking style marking to show what words changed as compared to the exhaustion provision in the AIPA’s earlier inventor defense from 1999:

these doctrinal complexities is discussed in Part III.B below as part of this article's discussion of an explanatory test case.

The remainder of this section will overview the prior commercial use as it stands in the post-AIA statute, grouping the defense's provisions into three areas: (1) baseline; (2) procedural; and (3) cabining. The overview oftentimes relegates to the footnotes details, ambiguities, or complexities that are not critical to the focus of this article. The overview, however, seeks to identify all such items even if only in passing or in the footnotes.

### 1. Baseline Provisions

As a baseline matter, to qualify for the prior use defense, the use of the subject matter must be: "prior;" "commercial;" in good faith,<sup>64</sup> not abandoned,<sup>65</sup> not subject matter that was derived from the patentee asserting the claims against the purported prior user,<sup>66</sup> and not asserted against a patent with a university lineage.<sup>67</sup>

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... the sale or other disposition of a useful ~~end result end-product produced by the patented method~~, by a person entitled to assert a defense under this section in connection with a patent with respect to that useful end result shall exhaust the patent owner's rights under the patent to the extent that such rights would have been exhausted had such sale or other disposition been made by the patent owner.

35 U.S.C. § 273(b)(2) (pre-AIA); *Id.* § 273(d) (post-AIA).

<sup>64</sup> *Id.* § 273(a)(1). Whether the term "good faith" will work only as a general qualifier, or take specific meaning from patent law, is perhaps an interpretative question. For example, good faith would not mean "did not derive" because there is a specific provision covering derivation. See Thomas A. Fairhall & Paul W. Churilla, *Prior Use of Trade Secrets and the Intersection with Patent Law: The Prior User Rights Statute*, 35 U.S.C. § 273, 14 FED. CIR. B.J. 455, 461 (2005) (re-marking on the good faith requirement in the AIPA's earlier inventor defense). Would courts interpret good faith to require that the prior use was not arranged in view of the possibility of the patentee's forthcoming specific rights? In other words, might "good faith" require lack of knowledge of the competitive activity that eventually developed into the asserted patent? Further, might "good faith" require commercial use for genuine market reasons, rather than to strategically trigger the defense?

<sup>65</sup> 35 U.S.C. § 273(e)(4). Abandonment applies to the activities that have been or would otherwise be asserted as the prior commercial use. If the person asserting the defense has abandoned commercial use of the subject matter, she "may not rely on activities performed before the date of such abandonment in establishing a defense." *Id.*

<sup>66</sup> *Id.* § 273(e)(2) ("A person may not assert a defense under this section if the subject matter on which the defense is based was derived from the patentee or persons in privity with the patentee.").

<sup>67</sup> *Id.* § 273(e)(5). The university exception weakens the prior commercial use defense by removing a class of patents against which the defense can be asserted. If the patent upon which the infringement suit is based has a qualifying lineage to a university, the infringement defendant does not have legal recourse to the prior commercial use defense. Lineage to a university is a broad concept with temporal and ownership elements:

[T]he claimed invention . . . was, at the time the invention was made, owned or subject to an obligation of assignment to either an institution of higher education . . . or a technology transfer organization whose primary purpose is to facilitate the commercialization of technologies developed by one or more such institutions of higher education.

*Id.* § 273(e)(5)(A).

The prior user must deploy the subject matter one year before the earlier of the effective filing date of the asserted claim or a public disclosure by the patentee.<sup>68</sup> A public disclosure by the patentee under AIA § 102(b) allows the patentee to file within the U.S. up to a year after the public disclosure.<sup>69</sup> Thus, being a “prior” user means being at least a year in advance and might mean even further in advance when the “prior” requirement is measured against the patentee’s pre-filing public disclosure ahead of his filing. This article will use the term “vesting date” to indicate a use sufficiently early in time to qualify for the defense.<sup>70</sup>

Besides being prior in this sense, the use must also be commercial. This requirement has several wrinkles. The use must be in the U.S. and “either in connection with an internal commercial use or an actual arm’s length sale or other arm’s length commercial transfer of a useful end result of such commercial use . . . .”<sup>71</sup> The defense applies only to those “who performed or directed the performance of the commercial use” or those with a corporate control relationship with the director.<sup>72</sup> Finally, there are two special types of uses deemed “commercial”<sup>73</sup> but not relevant to this section.

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But, there is an exception to the exception. The plaintiff might face the prior commercial use defense if “the activities required to reduce to practice the subject matter of the claimed invention could not have been undertaken using funds provided by the Federal Government.” *Id.* § 273(e)(5)(B).

Finally, the university lineage exception under 35 U.S.C. § 273(e)(5)(A) seems to contain an oddity given the AIA’s emphasis on the effective filing date for priority to a patent claim in a first-to-file system—anomalous statutory language that refers to a date of invention rather than an effective filing date. The university exception language requires ownership or an obligation of assignment “at the time the invention was made.” The phrase “was made” signals an inquiry into the date of invention. *See id.* §§ 102(g)(1)-(2) (pre-AIA); MUELLER, *supra* note 27, at 223–31.

<sup>68</sup> 35 U.S.C. § 273(a)(2). This “one year before” provision is unpopular, for example, with a majority of PTO survey respondents. *See US TEGERNSEE SURVEY REPORT*, *supra* note 56, at 69–73. This provision contrasts with required deployment of the prior use before the filing date, common to the prior user rights of all other countries in the international Tegernsee survey, and is also unpopular with majority of survey respondents. *See INTERNATIONAL TEGERNSEE REPORT*, *supra* note 56, at 91–93.

<sup>69</sup> 35 U.S.C. §§ 102(b)(1)(B), 102(b)(2)(B). The effect of public disclosures by the eventual filer is a complex area within the AIA’s implementation of first-to-file. *See Examination Guidelines for Implementing the First Inventor To File Provisions of the Leahy-Smith America Invents Act*, 78 Fed. Reg. 11,059, 11,077 (Feb. 14, 2013) (to be codified at 37 C.F.R. pt. 1) (describing the PTO interpretation that a public disclosure by an eventual patentee of a species will not operate to remove from the prior art under 35 U.S.C. § 102(b)(1)(B) other species or the genus if those are publicly disclosed by another person before the patentee files); MUELLER, *supra* note 27, at 260–61.

<sup>70</sup> 35 U.S.C. § 273(e)(a)(2).

<sup>71</sup> *Id.* § 273(a)(1).

<sup>72</sup> *Id.* § 273(e)(1)(A). If the defense vests it “may be asserted only by the person who performed or directed the performance of the commercial use described in subsection (a), or by an entity that controls, is controlled by, or is under common control with such person.” *Id.* One court has already been asked to construe this provision in a fact setting where the defendant asserts the prior commercial use defense, but the defendant’s corporate relation made the prior use before a parent entity acquired the defendant entity. Emnos’ Response to Dunnhumby’s Motion for Partial Judgment on the Pleadings, *Dunnhumby USA v. Emnos USA*, No. 1:13-CV-00399 (N.D. Ill. Mar. 28,

## 2. Procedural Provisions

Procedural provisions are the second area of the prior use defense discussed in this part. The two primary items are burden of proof and a penalty for unreasonable assertion of the defense.<sup>74</sup> Additional discussion is left to the footnotes for the procedural aspects.

## 3. Cabining Provisions

Last are provisions cabining expansion of the defense in a transactional and beneficial sense. The activity of the defense, the use that must be prior, is described as “subject matter” throughout § 273. Subject matter is characterized with broad functional language deploying the same words used by the patent statute to define eligible subject matter for patent rights.<sup>75</sup> In contrast, the earlier inventor defense

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2014) (arguing against a statutory construction whereby the corporate relationships must be in existence at the time when the prior use was made to vest the defense).

<sup>73</sup> 35 U.S.C. § 273(c). Use during a premarketing regulatory review period, to gauge safety or efficacy, is deemed commercial. *Id.* § 273(c)(1).

Use by a nonprofit lab or entity is deemed commercial so long as the use benefits the public. *Id.* § 273(c)(2). However, the nonprofit deeming makes the defense available in a partial form—the defense can only be asserted for “noncommercial use by and in” the nonprofit. *Id.* § 273(c)(2). This alteration likely has the effect of contracting the scope of the defense for the nonprofit, removing the effect of the following words in 35 U.S.C. § 273(a)(1): “an actual arm’s length sale or other arm’s length commercial transfer of a useful end result of such commercial use,” and removing the corresponding effect of the exhaustion provision in 35 U.S.C. § 273(d). In sum, for the nonprofit prior user, the noncommercial use can be deemed “commercial” to qualify for the defense so long as the use is an internal use.

<sup>74</sup> The burden of proof to successfully assert the defense is clear and convincing evidence. *Id.* § 273(b). Raising the defense without a reasonable basis might make a case exceptional for purposes of awarding attorney fees. *Id.* § 273(f). Raising or establishing the defense is not to be taken as deeming invalidity. *Id.* § 273(g).

In the fall of 2013, Congressman Goodlatte introduced a bill entitled “Innovation Act,” which includes a repeal of 35 U.S.C. §§ 273(f)–(g). Innovation Act, H.R. 3309, 113th Cong. § 3(b)(2)(B) (2013). The press release for the bill stated that its purpose was to “address the ever increasing problem of abusive patent litigation.” Press Release, Congressman Bob Goodlatte, Goodlatte Introduces Patent Litigation Reform Bill (Oct. 28, 2013), *available at* [http://goodlatte.house.gov/press\\_releases/465](http://goodlatte.house.gov/press_releases/465). A subsequent press released stated that Congress Members Goodlatte and Eshoo urged the Senate to act on the bill, which passed the House on December 5, 2013. Press Release, Judiciary Comm. Chairman Bob Goodlatte, Goodlatte and Eshoo Call on the Senate to Pass Innovation Act (July 17, 2014), *available at* <http://judiciary.house.gov/index.cfm/press-releases?ID=1F8AF0DB-E1DD-4A38-AE29-BB3F097746DE>.

The defense is “under section 282(b).” 35 U.S.C. § 273(a). Section 282(b) is the macro list of defenses for “any action involving the validity or infringement of a patent” and includes “[a]ny other fact or act made a defense by this title.” *Id.* § 282(b).

<sup>75</sup> *Compare id.* § 273(a) (“A person shall be entitled to a defense . . . with respect to subject matter consisting of a process, or consisting of a machine, manufacture, or composition of matter used in a manufacturing or other commercial process . . .”), *with id.* § 101 (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent . . .”).

implemented by the AIPA in 1999 was applicable only to the use of business methods.<sup>76</sup> In that sense, the AIA prior commercial use defense is not highly cabined and is certainly broad compared to its predecessor.

Other cabining effects relate to restrictions on transfer of the defense, including a specific restriction on applicable sites after an allowed transfer (by transfer of the entire enterprise or line of business), limitations on expansions of use of the subject matter beyond changes in volume or quantity, and questions about the scope of exhaustion of the patentee's rights via the defendant's use as immunized by the defense.

The prior commercial use defense is nontransferable except by sale of the "entire enterprise or line of business to which the defense relates."<sup>77</sup> Upon such a transfer, the defense "may only be asserted for uses at sites . . . in use before the later of the effective filing date of the claimed invention or the date of the assignment or transfer."<sup>78</sup>

While the assignment restriction is straightforward, the post-transfer site limitation is intriguing as a matter of statutory construction. No where else in § 273 is there an explicit restriction limiting qualifying uses to those sites that were "prior." The commercial use of the subject matter must itself be prior, but § 273(e)(3) allows the use to "extend to variations in the quantity or volume of use of the claimed subject matter" even while noting that the defense "is not a general license under all claims of the patent at issue."<sup>79</sup> Perhaps these allowed variations in quantity or volume could include subject matter use at new sites, especially given the specific limitation on sites after a transfer of the defense, by transfer of the entire enterprise or business line. In a manufacturing motif, a logical consequence of a new site is

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The term "subject matter" in the prior commercial use defense refers to the activity of the prior user that is "prior," and would "otherwise infringe a claimed invention." *Id.* § 273(a). Thus, the section uses the term "claimed invention" to refer to the asserted patent claim, which might be taken to mean a claim covering any type of subject matter—that is, either a process claim or a product claim (putting aside the tendency for patent lawyers to sometimes draft claims as "system" claims for information technology, even though "system" is not a statutory category of eligible subject matter in 35 U.S.C. § 101). So, "subject matter" might infringe a "claimed invention." In this context, that means that the subject matter fits within the language of the claim. However, if the subject matter qualifies for the prior use defense, the defendant can prevail. The subject matter can be either a process or an apparatus, but if it is an apparatus it must be used in a "manufacturing or other commercial process." *Id.* § 273(a). The subject matter is further qualified in how it is deployed—either with "an internal commercial use or an actual arm's length sale or other arm's length commercial transfer of a useful end result of such commercial use." *Id.* § 273(a)(1). There are some potential ambiguities arising from the combination of 35 U.S.C. § 273(a), 35 U.S.C. § 273(a)(1), and the exhaustion subsection, 35 U.S.C. § 273(d). These are further explored in Part III.B.

<sup>76</sup> *Id.* § 273(a)(3) (pre-AIA) ("[T]he term 'method' means a method of doing or conducting business.").

<sup>77</sup> *Id.* § 273(e)(1)(B).

<sup>78</sup> *Id.* § 273(e)(1)(C).

<sup>79</sup> *Id.* § 273(e)(B).

greater quantity or volume of widgets shipped into commerce based on a new factory at the new site that practices merely the subject matter that was “prior.”<sup>80</sup> If that proposition seems to go too far with the scope of the defense, it does seem clear that a preexisting site, such as a factory, could increase production for greater quantity or volume. But given that, what is the difference between a factory adding a new production line versus building a new factory elsewhere to house those new production lines (stipulating in either case that only the “prior” subject matter is practiced at either)?

Relating the manufacturing motif to the exhaustion provision of § 273(d) shows how each widget made and sold under the prior use defense is deemed to exhaust the patentee’s rights to further restrict sales and uses of those widgets.<sup>81</sup> Under the most straightforward scenario for classic exhaustion of patent rights, makings and sales of the widget under the authority of the patent owner trigger exhaustion. The exhaustion covers the exclusionary rights to sell and use patented subject matter.<sup>82</sup>

A policy benefit of exhaustion is that the widget moves unencumbered through the stream of commerce. The prior commercial use defense is concerned with items in the stream of commerce from the prior user or others operating under the benefit of the defense. If the defense applies for the prior use, any “useful end result” from that use should also move freely through commerce. To achieve this, § 273(d) commands that “the sale or other disposition of a useful end result . . . shall exhaust the patent owner’s rights under the patent to the extent that such rights would have been exhausted had such sale or other disposition been made by the patent owner.”<sup>83</sup>

Among the ways in which this formulation might raise questions about the scope of exhaustion within the defense, one comes from the text of § 273(d), while the other comes from the external exhaustion standard. Textually, the question is

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<sup>80</sup> See *Matal*, *supra* note 5, at 570–72 (discussing the concept of limitations on sites after transfer of the defense by transfer of the entire enterprise or line of business under the analogous provisions in the earlier inventor defense of the AIPA, informed by legislative history of the AIPA and the parallelism of language between the AIPA defense and the AIA prior use defense). Other commentary of importance creates uncertainty about the site expansion question. See PRIOR USER RIGHTS REPORT, *supra* note 3, at 1 (stating in the Executive Summary portion of the report that “the defense is geographically limited to cover only those sites where the invention was used before the critical date,” but the report does not clarify what is meant by the term “critical date” in the usage and context of the Executive Summary).

<sup>81</sup> 35 U.S.C. § 273(d).

<sup>82</sup> Actions taken under the authority of the patent owner include actions by licensees where the scope of the license includes the right for the licensee to make the claimed item. Oftentimes, the item made fits completely within the language of the claim, but if it does not, there might still be an exhaustion of patent rights if what is sold is a substantial embodiment of the patent claims at issue. *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 633–34 (2008). Other complications with exhaustion relate to its similarity with a group of doctrines under the label “implied license” (some characterize exhaustion as a type of implied license). The implications of these complexities are not taken up here.

<sup>83</sup> 35 U.S.C. § 273(d).



what fits within the words “or other disposition” after the word “sale.” As to incorporating the judge-made body of exhaustion law into the legal effect of § 273(d), that law has, for example, recently clarified that a claim to a process in a patent can be exhausted at least for a “process of using” type of patent claim.<sup>84</sup> To the extent, the courts are active in further developing the law of exhaustion and effects on § 273(d) may follow.

Among the three areas—baseline, procedural, and cabining—there are ambiguities and complexities of varying degrees. The cabining provisions, however, are of particular import for Parts 0 and 0 of this article. In light of this, the next section will discuss the cabining provisions related to subject matter and exhaustion with an example technology.

#### B. Explanatory Test Case: A Hypothetical Stapler (and Staples)

The example technology is a hypothetical stapler and its staples. Staples, it might be remembered, are little metal devices that hold together multiple pieces of paper, for those readers who remember what paper is. A party called “Manufacturer” is the prior user. A party called “Patentee” is the patent holder. The staples are referred to as raindrop staples because at the end of the metal arms that go through the multiple pieces of paper are little globs of a special metal shaped like a raindrop. The special metal deforms as the arm plunges through the paper, follows the arm through the paper, and reforms the raindrop on the other side. The raindrop metal is more effective at holding the paper together than the bent arm of a traditional staple and is less likely to break, deform, and scratch.

Manufacturer has been using these four areas of subject matter secretly: (1) a process of stapling with the raindrop staples; (2) a machine to staple the raindrop staples; (3) a process of making the raindrop staples; and (4) the raindrop staples. In this example, these four areas will be called “technologies.” This example will not specify whether Manufacturer independently developed these four technologies except to say that it did not obtain the technologies from Patentee. Initially, the four technologies are a part of Manufacturer’s internal operations as intermediate steps to manufacture some other product. The staples do not go into that other product. Further, no raindrop staples were distributed to others during the first time frame or scenario described immediately below.

In this example, there are two time frames or scenarios. In the first, Manufacturer uses the four technologies secretly and early enough to be prior in the sense of the AIA defense. Thereafter, Patentee obtains patents claiming the four technologies. The patents will be further described below. Manufacturer continues its internal use of the four technologies.

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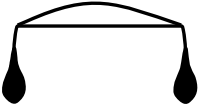
<sup>84</sup> *Quanta Computer*, 553 U.S. at 621. A claim reciting a process may create an ambiguity against patent law’s exclusionary rights. To use the process might be the same as to “make” the process. Both the use right and the make right are exclusionary rights given at 35 U.S.C. § 271(a).

In the second time frame or scenario, starting about five years after Patentee gets the patents, Manufacturer notices Patentee's success in selling raindrop staples. Manufacturer begins selling raindrop staples and continues to make them to sell them. However, Manufacturer stops its internal process of stapling and sells its stapling machine. Thus, in the second time frame or scenario, the Manufacturer no longer uses technologies one and two, and it only makes the staples to sell them.

Patentee independently developed the four technologies and did not derive them from Manufacturer. Patentee obtained a patent on each. To simplify, assume each patent has only one claim, except the patent to the raindrop staple, which has two. The second claim adds what Patentee calls a "staple pull arm" on the backside of the staple, the opposite side of the paper from the raindrops. The staple pull arm is illustrated in Table 1 below.

Manufacturer never made or used the pull arm version of the raindrop staple prior to or during the first time frame. Both Manufacturer and Patentee operate in the U.S.

**Table 1: Hypothetical Stapler (and Staples) Technology**

<p>Claim 1 embodiment: raindrop staple</p> 	<p>Claim 2 embodiment: raindrop staple with pull arm</p> 
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With this setup, the approach is to focus on § 273(a), § 273(a)(1), and the exhaustion provision in § 273(d). The addition of the "staple pull arm" claim will also allow a focus on part of § 273(e)(3).

Table 2 below remarks upon the effect of the prior use defense based on the statutory provisions of the defense and other provisions in the patent statute. Assume that all other aspects of the prior use defense are met beyond what is discussed in the table.

Table 2 is organized according to the two time frames or scenarios. Thus, each column gives remarks for the four technologies in a particular time frame or scenario. The approach to viably divide the problem into two time frames itself requires an interpretation of § 273(a)(1) in light of § 273(e)(3).<sup>85</sup> The alternative construction

<sup>85</sup> To viably divide the example test case for the raindrop staples into two time frames requires an interpretation of the effect of two words in 35 U.S.C. § 273(a)(1): "either," and the first instance of the word "or." 35 U.S.C. § 273(a)(1). Section 273(e)(3) says that the defense is only created for the "specific subject matter" established as qualifying. *Id.* § 273(e)(3). Subject matter is outlined in a functional way in § 273(a) with reference to statutory words defining eligible subject matter for patenting. The theory of interpretation justifying the two time frames is that the "specific subject matter" was established as prior and qualifying for the defense during the first time frame by the internal commercial use by Manufacturer. *Id.* § 273(e)(3). And because § 273(a)(1) says use "either in connection with an internal commercial use or an actual arm's length" transac-

in § 273(a)(1) allows a clearly qualifying “internal commercial use” to vest the prior use defense in a way that allows later deployment of the subject matter under a use that is “an actual arms length sale or other arm’s length commercial transfer of a useful end result” of the prior use. Even if this interpretation is not prevailing, the example test case benefits from examining both alternatives.

If one does not accept an interpretation that allows the Manufacturer to continue into time frame two, think of the two time frames as two independent scenarios, adjusting the activity of Manufacturer so it is still prior. Under that approach, in the second scenario (time frame two), the astute reader might observe that the distribution of staples by Manufacturer would, at least for claim 1, create public use invalidating prior art for Patentee’s patent on the staples. This can be overcome by changing the scenario so that the distributed staple is a secret technology, perhaps embedded deep in some other product in a way hard to discover or observe or even reverse-engineer. The only purpose of this stipulation is to give overall plausibility to the second scenario.

A primary purpose of time frame two or scenario two is to illustrate potentialities as to exhaustion. As one commenter remarked:

Subsection (d)’s extension of the exhaustion doctrine to the prior-user defense makes explicit what would otherwise almost certainly be deemed implicit in the defense. Section 273 necessarily encompasses such ancillary rights as are requisite to the enjoyment of its core prior-user right. And if a prior-user right in a manufacturing process did not entail a right for the manufacturer to sell the resulting end product, and for the purchaser to use that product, “the prior user right system would be entirely meaningless.”<sup>86</sup>

In Table 2, for economy of expression, braces {} are used to indicate the statutory paragraph from which a quoted word originates. Each cell in the table characterizes the analysis of the defense for the scenario in that cell. The characterization expresses itself with specific statutory words, hoping to express the logic for thinking about the prior use defense.

**Table 2: Scenarios for Stapler Technology**

Tech.	Time Frame or Scenario One: Manufacturer’s internal secret use. § 273(d) exhaustion is not relevant for this time frame or scenario.	Time Frame or Scenario Two: Manufacturer switches to selling raindrop staples, discontinues internal stapling, and sells the stapling machine. These actions bring § 273(d) exhaustion to the analysis.
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tion, the approach is that either of these can establish the subject matter as qualifying, and once either does, the other is available. *Id.* § 273(a)(1) (emphasis added). This may not be a prevailing interpretation, but it simplifies the example test case because the internal use in the first time frame is not invalidating prior art to Patentee because it is secret.

<sup>86</sup> Matal, *supra* note 5, at 569–70 (internal citations omitted).

Process of stapling	This is a qualifying “internal commercial use” {§ 273(a)(1)}, of subject matter that is a “process . . . used in a manufacturing . . . process” {§ 273(a)}, that infringes a “claimed invention” to a process {§ 273(a)}.	It would be the same as under time frame or scenario one if Manufacturer had continued use. <sup>87</sup>
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<sup>87</sup> In the scenario for the process of stapling in time frame two (in which Manufacturer has stopped internal stapling), the question of abandonment arises for the defense under 35 U.S.C. § 273(e)(4). For purposes of thinking about the scenario in the column on the right, conceive of it as a separate, independent scenario rather than as a second time frame, adjusting the activity of Manufacturer so it is still prior.

Stapling machine	This is a qualifying “internal commercial use” {§ 273(a)(1)}, of subject matter that is a “machine . . . used in a manufacturing . . . process” {§ 273(a)}, that infringes a “claimed invention” to a machine {§ 273(a)}.	The Manufacturer sells the stapling machine, which raises the question of the scope of exhaustion, if any, for that machine. Will the buyer be able to use it or resell it relying on exhaustion under the defense? <sup>88</sup>
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<sup>88</sup> In the scenario for the stapling machine in time frame two, several points are relevant. First, selling the machine is not a transfer of the entire enterprise or business line as required to transfer the defense under 35 U.S.C. § 273(e)(1)(B). *Matal*, *supra* note 5, at 571 & n.212. Second, the infringement possibilities that Patentee might have against the buyer are in 35 U.S.C. § 271(a), specifically the use and sell exclusionary rights listed in that provision. Third, if there is exhaustion under 35 U.S.C. § 273(d), then Patentee will not be successful in asserting either of those two rights. Fourth, for 35 U.S.C. § 273(d) exhaustion, one must characterize the machine to staple as a “useful end result.”

The plausibility of this “useful end result” characterization is tricky, to say the least. One approach might be to say that when Manufacturer decided to sell the machine, it changed its “use” of the machine to an “other commercial process” in 35 U.S.C. § 273(a), where that “other commercial process” was to sell the machine. This might be a tautology, but selling business assets likely fits within the meaning of the phrase “other commercial process.” One the other hand, however, in the linear sequence contemplated in this note, the “use” of selling business assets is not sufficiently prior to vest the defense.

The business method that is the “other commercial process” could alternatively be to use the machine for a while in manufacturing and then sell it. Once that meaning attaches, the machine to staple can be a “useful end result” of the process of selling business assets. This interpretive approach could be buttressed or diminished with a variety of policy arguments and perhaps other interpretive arguments. *But see Matal*, *supra* note 5, at 571 n.212 (reporting legislative history applicable to the earlier inventor defense of the AIPA of 1999 that is potentially contrary to this interpretive approach). The purpose in this footnote is to point out the technical complexity of exhaustion in the context of the test case stapler technology example.

Process of making raindrop staples	Same as the process of stapling. <sup>89</sup>	This is a qualifying commercial use “in connection with . . . an actual arm’s length sale or other arm’s length commercial transfer of a useful end result” {273(a)(1)} of subject matter that is a “process . . . used in a manufacturing or other commercial process” {273(a)} that infringes a “claimed invention” to a process {273(a)} <sup>90</sup>
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<sup>89</sup> In the scenario for the process of making raindrop staples in time frame one, there is an argument that the prior use defense is qualifying because the staples are used internally by Manufacturer to make another product. Put another way, if Manufacturer merely made the staples and put them into storage without ever intending to use them and without actually using them after making them, one can argue that the requisite parts of 35 U.S.C. § 273(a) and 35 U.S.C. § 273(a)(1) are not fully invoked to qualify and vest the defense.

<sup>90</sup> In the scenario for the process of making raindrop staples in time frame or scenario two, a hypothetical to consider is to eliminate Patentee’s patent on technology four for the product/apparatus claims of claim 1 and claim 2 to the raindrop staples. This potentially raises the issue of infringement under section 271(g) for Patentee’s patent claim on the process of making staples. That provision gives an infringement right to exclude importations, sales, and uses for the product that is the result of a patented process. 35 U.S.C. § 271(g). It is often thought to apply only to situations where the product is made outside the United States, but some argue that it also applies when operating the process in the United States to make the product. See *Eli Lilly v. American Cyanamid Co.*, 82 F.3d 1568, 1571 (Fed. Cir. 1996) (noting that § 271(g) applies when a product “was made abroad by a process protected by a U.S. patent”); but see *CHISUM*, *SUPRA* NOTE 41, § 16.02[6][d][ii] (arguing that while the primary purpose of 35 U.S.C. § 271(g) was to create infringement for products of processes practiced abroad, the statutory language is not so limited); *Hitchcock & Nard*, *supra* note 18, at 441 (arguing that 35 U.S.C. § 271(g) is effective “regardless of the location where the process is practiced (i.e. in the United States or in a foreign location)”).

This article does not seek to resolve this point, but rather use the possibility that 35 U.S.C. § 271(g) might cover domestic operation of the process. If so, that would fit within the hypothetical of the scenario for the process of making staples in time frame or scenario two. Patentee would have a 35 U.S.C. 271(g) right from its patent on the process of making raindrop staples to exclude sales and uses of the resulting staples in the hands of staple buyers. Note that Patentee would not have a 35 U.S.C. § 271(a) infringement right for the staples because the present hypothetical eliminated the raindrop staple patent and its two claims from Patentee’s stock. But if all this were so, it seems clear that exhaustion within the prior use defense, 35 U.S.C. 273(d), would eliminate Patentee’s 35 U.S.C. § 271(g) rights against the staple buyers. *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 628–30 (2008) (holding that method claims can be exhausted). The staples seem clearly a “useful end result” of the process of making staples. 35 U.S.C. § 273(d); *Quanta Computer*, 553 U.S. at 628–29 (holding that methods “may be ‘embodied’ in a product, the sale of which exhausts patent rights” and that the court’s “precedents do not differentiate transactions involving embodiments of patented methods or processes from those involving patented apparatuses or materials”); *Matal*, *supra* note 5, at 569–70.

Raindrop staples	Claim 1: It is the same as the machine to staple. Claim 2: The defense is not available. 273(e)(3). This subject matter was not used in a way “prior” by Manufacturer.	Claim 1: See the discussion in the main text below this table. Claim 2: Same analysis as claim 2 under time frame or scenario one.
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There are a few points to consider for claim 1 in the second time frame. The first point considers analysis of a specialized exhaustion scenario related to the potential applicability of § 271(g) infringement rights in the hands of the Patentee from its patent on the process of making staples.<sup>91</sup> In sum, on that point, even if there are § 271(g) rights, they are likely exhausted by § 273(d) of the prior use defense.

But what of Patentee’s patent on the staples with claim 1 and claim 2? Patentee has § 271(a) exclusionary rights. Are the use and sell rights exhausted? On one hand, the staples, although made by Manufacturer, were not used in a “manufacturing process” in time frame two. The staples were not an input to or a step in a process. They were merely the output of a manufacturing process.

On the other hand, one could argue that they were used in an “other commercial process” as given in § 273(a), where that other commercial process *is the business process of making and selling staples*. If that move is viable, it seems that the other interlocking pieces in § 273(a)(1) and exhaustion in § 273(d) allow the staples to be a “useful end result” to which exhaustion attaches.<sup>92</sup>

If a prevailing interpretation, this applies only to claim 1. Claim 2 never had a prior use defense because it was never used “prior.” If Manufacturer would start to make and sell pull-arm raindrop staples, the last clause of § 273(e)(3) would disallow the defense: “the defense shall also extend to . . . improvements in the claimed subject matter that do not infringe additional specifically claimed subject matter of the patent.”<sup>93</sup> The pull arm raindrop staple is “additional specifically claimed subject matter.”<sup>94</sup>

<sup>91</sup> See *supra* note 90.

<sup>92</sup> See *Matal*, *supra* note 5, at 563–64 (reporting AIA legislative history statements potentially giving support to the defense’s applicability to the staples and also potentially discounting such support).

<sup>93</sup> 35 U.S.C. § 273(e)(3).

<sup>94</sup> *Id.* Section 273(e)(3) eliminates from the prior use defense any scope for improvements that are specifically claimed, while, by the same words in the provision, also affirmatively gives to the defense scope improvements not specifically claimed. A potential interpretive question for the provision is how it might interact with patent law’s doctrine of equivalents (DOE). The DOE allows patent owners in certain situations to prove an infringement claim even when a part of the accused infringing technology does not literally fit within a limitation of the asserted claim. For an improvement to the subject matter vested with the prior use defense, the language of 35 U.S.C. § 273(e)(3) suggests, with its reference to “specifically claimed,” that the DOE should perhaps not be available to the patent owner in assertion against that improvement.

The example test case with the four technologies relating to the hypothetical raindrop staple shows that little interpretive reach is needed for the defense to cover internal uses of either product or process patent claims owned by another. On the other hand, uses that lead to “end results” departing from the prior user into the stream of commerce clearly have some degree of coverage under the defense even if cabining the scope of that coverage is interpretatively more complex.

The treatment above in this part organized the AIA’s prior use defense into three areas: (1) baseline provisions, (2) procedural considerations, and (3) cabining items. One could apply this same taxonomy to the earlier inventor defense under the AIPA of 1999 and have much the same result. For example, the AIPA earlier inventor defense also has an exhaustion provision using the words “or other disposition.”<sup>95</sup> Even with this parallelism, the stark difference between the earlier inventor defense under the AIPA and the AIA’s prior use defense is subject matter applicability.

The expansion to all subject matter may make the prior commercial use defense of greater relevance to patent law than the earlier inventor defense. Even at this relatively early hour after the AIA’s enactment, however, some commenters seek clarifications for or revisions to the defense.

### C. Potential General Clarifications

Prior user rights are a feature of many nation’s patent systems.<sup>96</sup> For decades, the U.S. considered adding the defense to its patent law before the implementation in U.S. law as the earlier inventor defense, which was later expanded under the AIA as the prior commercial use defense.<sup>97</sup> This section will relate some commentary from around the time of the AIA’s implementation and since then. These commenters give or imply specific suggestions for revising the AIA prior use defense or for clarifying its provisions. The purpose is to set off these general suggestions in anticipation of the next part’s more specific discussion of potential interpretations or alterations for software.

Various commenters seek clarification for some of the critical concepts in the baseline provisions. For example, understanding when a use is “commercial” would be helpful.<sup>98</sup> The university lineage patent exception raises different worries. Some commenters refer to it as a “university owned” patent exception, but it actual-

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<sup>95</sup> The “sale or other disposition” under the AIPA earlier inventor defense exhaustion provision applied to a “useful end product,” whereas under the AIA prior use defense it applies to a “useful end result.” *See supra* note 63.

<sup>96</sup> From a comparative law perspective, there are many potential alterations one could suggest to the AIA’s prior use defense. PRIOR USER RIGHTS REPORT, *supra* note 3, at 13–28. But that approach is more abstract than what is desired here and would somewhat replay the historical discussions during the decades when the United States considered enacting the defense. Matal, *supra* note 5, at 551–62.

<sup>97</sup> Before the Patent Act of 1952, the United States had a form of prior user rights. *See supra* note 18.

<sup>98</sup> McCall, *supra* note 12, at 30–31.



ly has to do with the provenance of the patent's ownership.<sup>99</sup> Thus, upon being sued for patent infringement, a prior user might happily discover that he can meet the defense in all other ways in part because it kept strong records of its temporal use of the subject matter. Then, as the defense is litigated, if the patent owner reveals or discovers that the asserted patent has a university lineage, the defense potentially evaporates.<sup>100</sup> Tracing the lineage of patent ownership is often not particularly easy and the system of keeping provenance information is not highly transparent.<sup>101</sup> Finally, the question of what "good faith" requires is a desired clarification. Most commenters note that answers for these questions must wait for the courts to interpret the prior use defense.

Among the procedural requirements, an item often remarked upon for clarification or revision is the penalty for unreasonable assertion of the defense. The penalty is that the case becomes exceptional for the possible award of attorney fees. The question for clarification is as follows: what is failure "to demonstrate a reasonable basis for asserting the defense"?<sup>102</sup> Finally, among the cabining provisions, the concept of a "site" is an item remarked upon as needing clarification.<sup>103</sup>

Professor David McGowan proposes several revisions to the prior commercial use defense as part of an argument about how intellectual property rights should follow investment.<sup>104</sup> The insight is that both the eventual patentee and the prior user have invested in the technology, so the patentee should not have the power to stop the prior user. The nature and mode of investment for each party is different to a degree. The patent owner invested in the patent system but may or may not have developed the subject matter commercially. The prior user invested in trade secrecy for the technology and in working the technology. Under the AIA defense, the prior

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<sup>99</sup> Anthony A. Hartmann, *The New Prior-User-Rights Defense: What Trade Secret Holders Need to Consider*, NATL. L.J., June 18, 2012, available at <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=45f2d5a9-1005-4466-afac-2078abeaa1e0> (noting that the university exception requires one to consider the "provenance of the patent," and also arguing that under burden of proof differences for the defense compared to infringement, "one risks inadvertently establishing the patentee's infringement case" in an attempt to establish the defense).

<sup>100</sup> The defense might not evaporate against a patent of university lineage if the exception to the exception is applicable. 35 U.S.C. § 273(e)(5)(B).

<sup>101</sup> Colleen V. Chien, *Predicting Patent Litigation*, 90 TEX. L. REV. 283, 326–28 (2011); David Kappos, Under Sec'y of Commerce for IP & Dir. of the USPTO, Keynote Address at the Center for American Progress: An Examination of Software Patents (Nov. 20, 2012), available at [http://www.uspto.gov/news/speeches/2012/kappos\\_CAP.jsp](http://www.uspto.gov/news/speeches/2012/kappos_CAP.jsp).

<sup>102</sup> 35 U.S.C. § 273(f). See Hartmann, *supra* note 99 (noting that reasonable basis to assert the defense is undefined).

<sup>103</sup> Paul C. Onderick, *Expanded Prior User Rights Under the America Invents Act*, PATTERSON THUENTE IP, available at <http://www.ptslaw.com/news/AIAPriorUser.pdf> (positing that courts will need to determine the breadth of the concept of a "site" under the defense) (last visited April 2, 2015).

<sup>104</sup> McGowan, *supra* note 12, at 360 (the argument that rights should follow investment is part of a larger story in the McGowan article about academic perceptions as to which types of policy prescriptions are perceived to hail calamity for the state of, or for changes to, intellectual property law).

user might have obtained the technology from others, but those others invested as well.

The core of McGowan's argument is that defenses like prior user rights or independent development partition rights among the parties in a more efficacious way as compared to the patentee prevailing in a winner-takes-all game.<sup>105</sup> The prior user or the independent developer should receive some rights, at least the right to use (in spite of the patent) for the investment. In McGowan's account, this does the patent owner no injustice because the prior user or independent developer is reaping where the user or developer sowed.<sup>106</sup> While the exclusionary power of the patent is less, that lessening is a better policy mixture considering the rubric that rights should follow investment.

From these insights, McGowan argues for removal of the university lineage exception to the defense, along with a few other modifications of less relevance to this article.<sup>107</sup> Elimination of the university lineage patent exception is consistent with McGowan's thesis because the goal is to give prior users their just desserts for having invested in working the technology. In this approach, it should not matter who owned the patent when it originated. Moreover, sometimes university patents end up in the hands of non-practicing entities.<sup>108</sup> Suits by these parties against prior users working the technology are especially odious to the thesis underlying McGowan's argument.<sup>109</sup>

As the patent community moves forward under the AIA, it seems likely that additional suggestions will come forth to clarify or revise the prior commercial use defense. The general suggestions recounted here serve as contrast to the more specific treatment of the defense for software.

#### IV. Shaping the Prior Use Defense for Software

The pervasiveness of prior user rights in the patent systems of the world's nations signals notions of equity and fairness given that the prior user is already working the technology when the patent comes to the scene. A variety of policy arguments can diminish or amplify this notion. Moreover, prior user rights share the general history of patent rights: they arose and grew as industrialization and manufacturing became the business of the world's developed economies. Although manufacturing complements and underlies the modern economy, the manufacturing motif of a factory making and shipping goods is in contrast with the modern information technology economy.

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<sup>105</sup> *Id.*

<sup>106</sup> *Id.* at 361–62.

<sup>107</sup> McGowan, *supra* note 12, at 360–61. McGowan also argues that the period of time to be “prior” should be lessened. *Id.* at 366–68.

<sup>108</sup> Christopher A. Cotropia, *The Individual Inventor Motif in the Age of the Patent Troll*, 12 YALE J. L. & TECH. 52, 63 (2009–2010); Arti K. Rai, John R. Allison & Bhaven N. Sampat, *University Software Ownership and Litigation: A First Examination*, 87 N.C. L. REV. 1519, 1552–57 (2009).

<sup>109</sup> McGowan, *supra* note 12, at 359–60.

This part will evaluate to what extent the AIA's prior commercial use defense, with its nuances and complexity as described in Part III above, might benefit software when there is a prior use. Are the benefits to different modes or models of deploying software greater or less than the benefits the traditional factory might take from the defense? Answering this depends on further interpretive work for some of the defense's provisions, including revisiting some provisions reviewed in the prior part. The progression begins by assessing a prototypical enterprise software product supplier that is treated in a general fashion. Then, it proceeds to specific evaluations of three prototypical software modes.

#### A. Application to Software

Similar to the hypothetical test case of the stapling technology, this section illustrates the prior commercial use defense against a hypothetical prior user. In this case, the hypothetical prior user is a software product company.

##### *1. Explanatory Test Case: A Hypothetical Software Product Company*

Assume we have a hypothetical software company called HospitalSoft. It has many hospitals in the U.S. that use its software product called SkeletonWare, which is licensed under a proprietary model with secret source code.<sup>110</sup> SkeletonWare runs a method every day called SyncRadiology, in which various computers on the hospital's network collect current copies of radiology images and place them in a central location on that network. The method includes sophisticated digital fingerprinting techniques to double-check the identity and placement of image files. All installations of SkeletonWare run the SyncRadiology method. HospitalSoft itself runs the method on a daily basis in its software development facility with test suites of images.

Patentee comes along later and independently develops the SyncRadiology method, obtaining a U.S. patent for it claimed as a process. Patentee makes no public disclosures before filing. The prior use vesting date, which is one year before Patentee files, HospitalSoft has exactly one thousand hospitals using SkeletonWare.

To what extent can HospitalSoft deploy the prior commercial use defense to continue its business with the SkeletonWare product? To what extent is there protection for its pre-vesting date user base?

These questions will be addressed in three points: (1) by tracing the applicability of the defense under § 273(a) and § 273(a)(1); (2) by evaluating the personal na-

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<sup>110</sup> Other typical characteristics for a proprietary software end-user license agreement (EULA) relevant to this example are: under the standard license, each end-user hospital has the right, as a license right conditioned on copyright and trade secret rights, to operate the software at a single hospital; the hospital is allowed to use SkeletonWare for its operations but cannot provide the functionality to others nor the hospital lease, transfer, or sublicense its use rights; the source code is kept secret from everyone, and the hospital does not receive source code; and the hospital promises to keep secret the functionality of the software observable by the hospital.

ture of the defense as applied to the current hospital users; and (3) by considering the possibility of new, future users of SkeletonWare at new allowed sites or as allowed in some other way by the defense.

First, as with the process of stapling in time frame one in the stapler example, the SyncRadiology method seems to satisfy the applicable baseline requirements. SyncRadiology is an “internal commercial use,” § 273(a)(1), of subject matter that is a “process . . . used in a[n] other commercial process,” § 273(a), that infringes a “claimed invention” to a process, § 273(a). It was prior,<sup>111</sup> it seems indisputably “commercial,”<sup>112</sup> and this example will stipulate that “good faith” is satisfied.<sup>113</sup> Thus, it seems that the defense qualifies and vests for this prior commercial use of the subject matter.

Second, to whom does the defense vest? One might assert that only HospitalSoft vests the defense, but that view is too narrow. Section 273(e)(1)(A) says that the defense is personal: it “may be asserted only by the person who performed or directed the performance of the commercial use described in subsection (a).”<sup>114</sup> There should be strong consideration of an interpretation in which each and every prior hospital user of SkeletonWare “performed” the method SyncRadiology and is thus entitled to the defense. All of the one thousand hospitals that were “prior” at the vesting date for the defense were running the method as an internal process. While it is true that the hospitals obtained the technological capability to run the method as a software licensee in relation to HospitalSoft, it seems inconsequential with regard to § 273.<sup>115</sup> The defense has no explicit requirement that the prior users develop the technology themselves. Further, the defense can vest with one who merely “directed the performance” of the use, perhaps hinting that the director need not necessarily understand all details of implementation.

An interpretative counter-argument is that the hospitals did not “perform” the method because they do not have the source code and perhaps do not understand the full scope of how the method operates inside the software.<sup>116</sup> The nature of the

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<sup>111</sup> 35 U.S.C. § 273(a)(2).

<sup>112</sup> *Id.* § 273(a)(1).

<sup>113</sup> To avoid any complications from 35 U.S.C. § 273(c)(2) and its special mode of commercial use for nonprofits, the HospitalSoft example will also stipulate that all of the user hospitals of SkeletonWare are for-profit hospitals. Additionally, the example stipulates that Patentee’s claim to the SyncRadiology method is not written so abstractly so as to be ineligible under § 101 of the patent act. The final stipulation to cover is “fit” within the claim language. Patentee’s claim to the SyncRadiology method is literally met by SkeletonWare’s practicing of that method, which stipulates that 35 U.S.C. § 273(a) is satisfied.

<sup>114</sup> 35 U.S.C. § 273(e)(1)(A).

<sup>115</sup> See ROGER M. MILGRIM & ERIC E. BENSON, MILGRIM ON LICENSING § 2.00 text accompanying nn. 33.7–33.10 (Matthew Bender ed., 2015) (discussing licensees potentially qualifying for the prior commercial use defense where the licensees practice subject matter later covered by a patent, the inference being that the license covered know-how, trade secrets, or copyright protected material).

<sup>116</sup> If “performing the method” were to be interpreted as having and understanding the source code implementing the method, FOSS project users might be better situated than proprietary software

method used in this example, however, is one that indicates some awareness by the hospital's personnel of the actions of the SyncRadiology method. Radiologists read images to contribute to diagnoses; they likely have an understanding about when images are available from different resources on the network.<sup>117</sup> A larger point is that it might be unwieldy to interpret the word "performed" in § 273(e)(1)(A) to require a knowledge or understanding threshold for the use performed. Certainly the more predictable interpretation, as opposed to the factual inquiry, is whether the hospital site caused the method to be performed,<sup>118</sup> and whether the thus-caused use met the other baseline requirements.

Third, what is the possibility that after the vesting date HospitalSoft can license new users? To the extent that a new user is by nature operating at a new site, this formulation is useful to the treatment of sites in the prior use defense. Section 273 does not contain an explicit restriction limiting qualifying uses to those sites that were "prior" until after a transfer of the defense through the transfer of the business. There is an interpretation, based in part on the defense's post-transfer site restriction in § 273(e)(1)(C), that site expansion is allowed before a transfer of the defense along with the business.<sup>119</sup> Section 273(e)(3) allows the defense to extend to "variations in the quantity or volume of use."<sup>120</sup> As long as the new SkeletonWare licensee uses the specific subject matter, that is, the same SyncRadiology method, site expansion is to be considered.<sup>121</sup>

This third point regarding use of the defense for new users, however, might have an inconsistent basis as compared to the second point regarding the personal nature of the defense. In the second point, each preexisting end user hospital is in-

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product users. To the extent a FOSS project has users of its software making use of the software in a commercial way, there is source code availability, and thus the opportunity to be fully aware of how the later-claimed method is implemented. Whether a particular FOSS user has downloaded the source code or studied it is a case-by-case assessment.

<sup>117</sup> Also, after Patentee's patent issues, some information is available about how the SyncRadiology method works. The degree of information disclosed about the method to eliminate disclosure validity threats against the claims in the patent should be a level of technical information to enable a skilled artisan to practice it and to meet patent law's written description requirement. 35 U.S.C. § 112(a); Vetter, *supra* note 17, at 777–80, 793–96.

<sup>118</sup> The type of inquiry hoped for by the argument in the main text is something akin to the patent law notion of "necessarily present" as a part of the inherent anticipation doctrine in patent law.

<sup>119</sup> See *supra* Part III.A.3.

<sup>120</sup> 35 U.S.C. § 273(e)(3).

<sup>121</sup> However, under a slightly different interpretive approach that would characterize a "site" more narrowly, the legislative history of the earlier inventor defense in the AIPA of 1999 points away from the main text's software-friendly approach to what is a "site." See Matal, *supra* note 5, at 570–71 (noting that the AIPA restriction on sites after a transfer, found in the earlier inventor defense, was a provision "carried over with only minor modifications" to the AIA's prior use defense, and then reporting statements in the AIPA legislative history that posit a site as a "factory site or other major facility" based on a "significant capital investment, and does not include, for example, offsite locations for development of software components . . .").

dependently using the subject matter, which vests the defense with that end user.<sup>122</sup> The third point posits that the new sites depend on HospitalSoft having itself vested the right to the defense and thus having the right to expand to new sites.<sup>123</sup> One resolution to the inconsistency is to argue that the preexisting sites and the new sites each have a different pathway through the provisions of the defense, both validly allowing deployment of the defense.<sup>124</sup>

Another interpretive counter-argument is that the licensing of a new user is itself an attempted transfer of the defense. Such a transfer is prohibited because the licensee is not a successor to the prior user's business as required in the allowed transfer provision of § 273(e)(1)(B). The defense is personal, as emphasized by § 273(e)(1)(A), so it cannot be licensed.<sup>125</sup> Licensing new users after the vesting date might seem like a violation of the spirit of sections 273(e)(1)(A) – (B) when read together.

Another approach to applying the defense to new SkeletonWare users is perhaps weaker interpretatively in light of the defense's personal nature. This approach is to characterize the licensed software as a "useful end result" of the "other commercial process" of distributing software by HospitalSoft.<sup>126</sup> Patentee owns a

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<sup>122</sup> The legal power for the hospital end users to run the SkeletonWare software is based on a license of copyright and trade secret rights from HospitalSoft to the hospital. But that legal linkage does not relate to the prior commercial use defense; it is simply what allows, as a matter of fact, for the preexisting hospital end users to perform the method in a way prior, and thus to vest the defense.

<sup>123</sup> HospitalSoft owns the other intellectual property rights in SkeletonWare, specifically the copyright in the software and trade secrecy for the source code and other parts of the software. Before the patent issues, these rights give HospitalSoft clearance to authorize others, under a license of those rights, to operate the software.

<sup>124</sup> Based on the copyright held by HospitalSoft (assuming a typical proprietary software license approach), none of the end users have the legal power to deploy new sites even if they separately have the legal power to do so under the prior commercial use defense.

To further illustrate, assume that one of the preexisting SkeletonWare users has a license allowing it to deploy the software at five other hospitals, each in a different state from where the first end user hospital was located. The argument in the main text for the third point would be as applicable to this hospital as it is to HospitalSoft, but merely for expansion to five more hospitals. This limit comes only from the software and copyright license, not from the scope of the prior commercial use defense.

<sup>125</sup> See Matal, *supra* note 5, at 571 n.212 (reporting legislative history statements concerning the earlier inventor defense of the AIPA of 1999 tending to show the concern that the defense not become a compulsory licensing scheme).

<sup>126</sup> The main text contemplates a scenario where the "useful end result" applies patent law's exhaustion doctrine, per 35 U.S.C. § 273(d), to the new software end user, while the defense also immunizes HospitalSoft from secondary infringement liability. It is conceivable that by applying the personal limitation of 35 U.S.C. § 273(e)(1)(A) in a strict fashion, that only HospitalSoft is immunized. With the end users not having the benefit of the defense, even while HospitalSoft has it for secondary liability, the effect of indemnification is an interesting issue. A common feature of software licenses is for the software vendor to provide indemnification to the end user for patent infringement for using the software. The software provider often wants to control these infringement actions to defend the product even though the end user has been sued. Contractual indemnification

patent on SyncRadiology. HospitalSoft operates the “other commercial process” of the business method of programming, testing, and distributing SkeletonWare. In that distribution, there is eventually infringement of the “claimed invention” (in this example, the SyncRadiology method) when the end user hospitals run SkeletonWare.<sup>127</sup> The specific act of infringement immunized by the prior use defense might be the “commercial transfer,” via the software license, of the causal instrument (SkeletonWare) that can operate the claimed method (SyncRadiology), but the doctrine is unsettled on the extent to which “selling” or “offering to sell” is an act of infringement for a process claim.<sup>128</sup>

To summarize, after the vesting date, the defense seems to apply to the SyncRadiology method. It seems to apply to HospitalSoft and all existing users, and there are arguments that the defense might allow expansion by HospitalSoft to license SkeletonWare to new hospital end-users but only for material or use that was “prior.”

Extending the HospitalSoft example, consider the limitation to “specific subject matter” that was prior,<sup>129</sup> hypothetically adding new facts to the example. Patentee gets a second patent covering SyncRadiology2.0, a non-obvious variant of the method (stipulated as non-obvious so the patent claim can be valid). Sometime

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fication seemingly would not, as a matter of law, apply the software vendor’s defense to the end user, but it might be an equitable factor in a remedies analysis should infringement be found.

<sup>127</sup> A consideration related to whether newly licensed hospital end users fall under the notion of a “useful end result” relates to the practice of most software licensors characterizing the transaction as not being a sale, or at least to say that no ownership of anything is transferred. This practice is prevalent so licensors can maximize the contractual ability to condition the license rights on the intellectual property rights in the software, where most of the work is done by the copyright rights in the software and its source code. Thus, this practice might point away from calling a typical proprietary software license a “sale” even though money changes hands, although the prior use defense also includes the broader category of “commercial transfer.” 35 U.S.C. § 273(a)(1). A license is more plausibly a “commercial transfer” than a “sale,” even though many software licenses eschew characterizations of any ownership transfer.

<sup>128</sup> Unless the claims in the software patent are written with an unusual or atypical approach, the mere “selling” by licensing of SkeletonWare to the end user hospitals might not be an act of infringement of Patentee’s patent covering SyncRadiology. See CHISUM, *SUPRA* NOTE 41, § 16.02[5][e] (focusing on product claims and noting that “[c]ourt decisions hold that licensing others to make and sell the invention constitutes infringement. However, this would seem to be inducement of infringement under Section 271(b) rather than direct infringement by sale”) (footnotes omitted).

For process claims, the acts of infringement in 35 U.S.C. § 271(a) collapse somewhat—“making” a method seems the same as “using” it; and the courts have questioned whether the “sell” and “offer to sell” acts of infringement apply to a process/method claim. See *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1319–21 (Fed. Cir. 2005) (holding that there was no infringement of the claimed process under the “sell” or “offer to sell” rights (the process being an information processing system related to email) because the accused infringer itself performed some of the steps of the method, making the infringement mostly an act of “use,” and taking the facts outside what the court might have been willing to count as a “sale” of subject matter that fits in a process claim, and further remarking that it “need not and do[es] not hold that method claims may not be infringed under the ‘sells’ and ‘offers to sell’ prongs of section 271(a)’”).

<sup>129</sup> 35 U.S.C. § 273(e)(3).

after that, without copying from Patentee, HospitalSoft also adds SyncRadiology2.0 to SkeletonWare.<sup>130</sup> The process of adding the new method to the software causes updates to promulgate to all of HospitalSoft's users of SkeletonWare. None of these users enjoy the prior commercial use defense because SyncRadiology2.0 was not used in a way that is "prior" under the defense. This extension of the original SyncRadiology example shows a rigid feature of the defense: it only applies to the *specific* subject matter that was prior.

### *2. Summary of General Considerations for Software*

The specific subject matter issue can be compared to site expansion from the perspective of both a manufacturer and a software product supplier. Table 3 presents this comparison, focusing on the two primary cabining features of the prior commercial use defense. The presentation incorporates practical factors along with legal considerations.

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<sup>130</sup> The SyncRadiology2.0 scenario is similar to the pull arm raindrop staple example except for a process claim rather than an apparatus claim. *See supra* Part III.B.



**Table 3: Comparative Cabining for Manufacturers Versus Software**

Type of Prior User	Specific Subject Matter (the prior user defense does not apply for later uses beyond the specific subject matter that was prior)	Sites (site expansion is allowed before a transfer of the defense by transfer of the entire enterprise or line of business)
Manufacturer	Asset specificity is likely higher as compared to software products, and infrastructure costs are likely higher. This may mean that there is a beneficial value to the manufacturer from the defense for a longer period of time on average, as compared to software. A possible counter-point to the asset specificity observation is the rise of increasingly flexible manufacturing in the last several decades of the twentieth century. Some manufacturing plants relying on the prior use, depending on the product made and the technologies involved, might keep commercial relevance with the specific subject matter vested in the defense until the patent expires.	If the Manufacturer has become aware of the patent and concludes that the prior commercial use defense is Manufacturer's strongest defense (assuming no assertion or litigation has yet occurred), the high cost of building a new site coupled with the uncertainties of the new AIA prior commercial use defense may be a disincentive to building new sites without an actual license from the Patentee. In addition, if a manufacturer builds new sites based on the defense, it may have a reduced desirability as an acquisition target because, after the sale of the entire enterprise or line of business, the acquirer could not expand by opening new sites to operate the "manufacturing or other commercial process."

Type of Prior User	Specific Subject Matter (the prior user defense does not apply for later uses beyond the specific subject matter that was prior)	Sites (site expansion is allowed before a transfer of the defense by transfer of the entire enterprise or line of business)
Software Product Company	Compared to a Manufacturer, the restriction to specific subject matter may be more constraining for many types of software. Information technology is pliant, and, given the internet's existence, allows for continually updating and revising technological infrastructure at a frequency and in ways not undertaken or possible with manufacturing. Thus, there might be greater market need for software updating, which may increase the chances of revising away from the specific subject matter that was prior and vested the defense. <sup>131</sup>	Compared to a Manufacturer, and if an interpretation of the defense covers new end-users, the cost to put new sites in place is dramatically lower. One can imagine a software company having much greater willingness to run the risks of the defense's uncertainty as compared to a manufacturer contemplating a billion dollar investment in a new manufacturing plant. Another aspect of locality for software companies, however, might work against software companies if computing resources used to attempt to vest the prior use defense are remotely located outside the U.S. <sup>132</sup>

<sup>131</sup> While software technology has many influences necessitating regular updates, and while this might skew revisions of prior subject matter in such a way as to move it beyond what the defense covers, software might also be able to solve this problem and preserve the defense. The architecture of software technology is encoding and abstraction. Thus, if a software developer becomes aware that some method exercised by the software is saved from infringement by the prior commercial use defense, it might be possible to isolate that method within the software and freeze migration of that part of the code. The isolation is by other code working around the frozen method. This will not always be possible because, as a solution, this approach depends on numerous technological factors. However, it is a possibility worth mentioning. Analogous approaches are possible with hard assets such as factory machinery, except that the costs to work around the old machinery might be substantially higher.

One aspect of regular updates, coupled with how software is given precise versioning information, might help software on average, compared to manufacturing, prove that specific subject matter was used at a specific point in time. Both internal versions, as software is developed, as well as external versions distributed as updates, are highly granular. Many software development projects recompile all the code and rebuild the product on a daily basis. This incremental progression of the code base is tracked in a highly specific way using other software tools commonly called, as a class, source code control systems. These tools, and the precision with which they track change in the evolution of the technology, might help prove a prior use at a particular point in time more readily than with hard asset technology.

<sup>132</sup> Section 273(a)(1) requires that the prior use be in the United States. However, the concept of a "site" with information technology resources is becoming increasingly meaningless. For example,

Table 3 notes that software, as a technology compared to hard assets used in manufacturing, requires regular updates. Much of the software updating need arises from standards, and the fact that information technology is layered. De jure standards, such as the protocol suite of TCP/IP, generate the need for revised software to implement revised protocol standards. Marketplace based standards, often called de facto standards, generate similar needs, such as the need for data security software products to continually receive updates to lists of known threats. When an underlying layer changes, such as an operating system like Microsoft releasing Windows 8 as an update to Windows 7, the software that runs above the lower-layer operating system oftentimes needs revision.

### 3. Four Clarifications for Software

Building on the presentation in this section, first with the HospitalSoft example and then with the comparison to manufacturing applicability of the defense, Table 4 continues the analysis. It presents the clarifications or interpretations most beneficial to software.<sup>133</sup>

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two technologies of recent vintage, cloud computing and virtualization, allow user companies to deploy and use resources available potentially anywhere in the world. Greater availability of higher bandwidth connections to the Internet accelerates these technologies. Virtualization is the concept of a computer environment being delivered with software mimicking all of the hardware of a physical computer. Cloud computing is a general term indicating remote resources, oftentimes provided by third-parties. Both of these technologies could potentially disqualify a prior user from the benefit of the defense if it meant that part of the performance of the subject matter that infringed the later process claim occurred in another country. *NTP*, 418 F.3d at 1319–21.

<sup>133</sup> The list of suggested clarifications for software could be implemented specifically for software or generally for all technologies, particularly and most importantly as to items 1 and 2 for all technologies. If implemented specifically for software, this raises a long-standing debate about the degree to which the patent system should depart from a common approach with uniformity across all or most technologies. See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT*, 62–65 (2009). Burk and Lemley summarize their discussion on industry specific patent law as follows:

[I]nnovation occurs differently among different industries and . . . those differences extend to the way in which industry players experience every stage of that system . . . . The evidence is overwhelming that, at virtually every stage of both the innovation and patent processes, different industries have different needs and experience the patent system differently. We do not have a unitary patent system today, if by unitary you mean one system that works the same way everywhere.

*Id.* at 65.

**Table 4: Clarifications to Shape the Defense for Software**

No.	Clarification
(1) New Users	Expansion of the user base for a software technology should be covered by the defense because this is analogous to a manufacturer making and selling more goods. This might be implemented in the prior commercial use defense either via the concept of sites, the concept of exhaustion, or perhaps some combination of the two. There is some potential for this clarification/alteration to occur through statutory interpretation.
(2) Updates	Consider allowing updates to the use after vesting the defense for the “specific subject matter” for: (i) obvious variations of the specific subject matter, when those variations are (ii) technological changes driven by objectively verifiable external influences, such as standards. This clarification/alteration would likely require changing the statutory language.
(3) Divided Prior Use	Situations where multiple actors are involved in a method claim, known as divided infringement, should be clarified and perhaps handled. For example, there is the possibility for the opposite of “divided infringement” to occur. Multiple actors together might exercise subject matter that later are patented, where each actor independently practices one step of a claimed method. This might be called “divided prior use.” Would this vest the defense for any or all of the actors involved? <sup>134</sup> A related issue is when geographic “divided prior use” occurs because some of the computing resources implementing the subject matter are located outside the U.S. Whether this clarification/alteration requires changing the statutory language is an open question and might depend on further development in patent law doctrine to handle situations of divided infringement.

<sup>134</sup> There is an argument that “divided prior users” would not vest the defense with any one person or entity given the emphasis in 35 U.S.C. § 273(e)(1)(a) on the personal nature of the defense, and in light of the fact that the infringement doctrine in 35 U.S.C. § 271(a) still requires a single actor to practice the full scope of what the patent claim recites. *See generally*, Mark A. Lemley et al., *Divided Infringement Claims*, 6 SEDONA CONF. J. 117, 117–20 (2005) (discussing the doctrinal issues arising when multiple actors perform the steps of a claimed method, but no one actor performs them all).

In tension with that point, however, is the question of secondary liability in U.S. patent law under 35 U.S.C. § 271(b), inducement, and 35 U.S.C. § 271(c), contributory infringement. Using the HospitalSoft example, even if all of the preexisting end-users of SkeletonWare have the defense, does the personal nature of the defense sweep it away from HospitalSoft for an inducement claim under 35 U.S.C. § 271(b)? *See generally* *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 134 S. Ct. 2111, 2117 (2014) (discussing the doctrinal need to find a predicate of “direct infringement” in which one actor performs all steps of a method for purposes of secondary infringement under inducement in 35 U.S.C. § 271(b) in the patent statute). There are additional complications if the target of the secondary infringement claim is also one of the actors practicing one of the method steps for the claimed process.

No.	Clarification
(4) Nonprofit FOSS	In reference to FOSS projects, which are sometimes operated from a nonprofit entity, the confined mode of commercialization allowed to nonprofit entities in § 273(c)(2) (allowing only use “by and in” the nonprofit) should be equalized to other entities. Additionally, commerciality should not be a barrier to FOSS projects vesting the defense. This clarification/alteration would likely require changing the statutory language.

While taken in aggregate, these suggestions expand the prior commercial use defense and thus diminish somewhat the exclusionary power of a patent. However, none of these suggestions come close to the more drastic move of converting the prior use defense into an independent development defense that would be applicable even after the patent issues.

The first clarification, expanding the user base for the software provider, relates to the issue of site expansion under the defense and is discussed in Part IV.A.

The second clarification for “updates” is helpful to any technology where advancement is incremental and frequent. The prior user might desire to operate into the future with the old technology, but movement in standards or the incremental progression of a technology within software might make advancement necessary. Under proposal two above, there would be some flexibility to update to new technology but in a constrained way. The proposal would expand the scope of the prior use defense to include obvious variations of the original subject matter, vesting the defense when those obvious variations are necessary to the technology as dictated by objective external influences such as standards or a change in a dependency in a lower layer in the software stack underlying the software at issue.<sup>135</sup>

This change to the prior commercial use defense would likely require an amendment to the AIA. There seems to be no textual or structural interpretative approach to viably suggest this meaning. However, the policy need for software updates associated with software’s layered nature suggests a potential approach for the argument. A related policy question is whether to implement it as a technology specific change applicable only to software.<sup>136</sup> While there is oftentimes resistance to making patent law technology-specific, the earlier inventor defense, as a predecessor form of prior user rights, was categorically specific for business methods.<sup>137</sup>

<sup>135</sup> See Maureen A. O’Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1179, 1179–81, 1211–19, 1227–29 (2000) (noting the impact of standards and the interrelated progression of software and information technology in the context of a proposal for a general fair use doctrine in patent law).

<sup>136</sup> See BURK & LEMLEY, *supra* note 133, at 61–62 (discussing several patent law doctrines that tend to resolve differently in different industries).

<sup>137</sup> The pre-AIA earlier inventor defense was “technology specific” in the sense that it applied only to business methods. 35 U.S.C. § 273(a)(3) (pre-AIA).

The third clarification, concerning the issue of “divided prior use” as the inverse concept of divided infringement, is more amorphous than the first two. While it is important to recognize the possibility that the defense might not vest in cases of divided prior use, whether the defense should be revised for this possibility is an open question. It seems clear that the possibility of divided prior use is more likely with information technology. This is for the same reasons that divided infringement is more likely with software patent claims. The fundamental issue arises from the increasingly networked nature of software technology.

The prior use might be divided in two ways, by geography or by entities. Consider the example software method, SyncRadiology. Assume that the steps of the method, when later claimed in a patent, correspond to these five steps: (1) search the network for radiology images; (2) copy found images to a central location on the network; (3) compare the newly found images to previously found images; (4) make the comparison with image-fingerprinting samples; and (5) keep and catalog images found to be new. Assume, for the example, that the term “image-fingerprinting samples” is a well-known term of art and technique in computer science for image processing.

If the prior commercial user performs steps 1 through 5 in the U.S., the defense will vest, assuming all its other particulars are satisfied. But if we change the example so that step 4 occurs in Canada, the hospital has programmed the other steps itself but contracts with a company in Canada for step 4. The samples are actually copied to a computer in Canada, and the “image-fingerprinting” step therefore occurs outside the U.S. This is “divided prior use” in a geographic sense and might not vest the defense.<sup>138</sup> Note in this example that the hospital is the single actor implementing all the steps; it merely uses its agent to implement step 4.

Another change to the example can illustrate infringement divided among entities. Assume SyncRadiology is used to refresh a central repository of radiology images used for teaching purposes. None of the images can be used to identify a particular patient. The network across which SyncRadiology operates is a private research network shared by every medical center hospital in the U.S. Those hospitals perform steps 1 and 2, searching for images and copying them to a repository on the private network. A first entity performs steps 3 and 4, and a second entity performs step 5. Both the first and second entities have access to the private network. None of the hospitals are agents of the two entities, nor does the reverse rela-

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<sup>138</sup> The prior use defense vests if the prior actions with subject matter would “infringe a claimed invention.” *Id.* § 273(a). Infringement of a method claim requires all steps of the method to be performed in the United States. *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1319–21 (Fed. Cir. 2005). This chain of argument is in addition to the requirement in 35 U.S.C. § 273(a)(1) that the prior actions with the subject matter be in the United States. If the patent claim is to a system, however, some elements of the claim can occur outside the United States. *Id.* at 1317 (“The use of a claimed system under section 271(a) is the place at which the system as a whole is put into service, *i.e.*, the place where control of the system is exercised and beneficial use of the system obtained.”).

tionship exist. This scenario is the classic situation of divided infringement by entities but applied to a prior use example.<sup>139</sup> The defense is personal as emphasized by § 273(e)(1). Thus, there is a chance that no single hospital or nonprofit entity will vest the defense due to the loose mode of collaboration. Or, perhaps all of the entities vest the defense because they were together involved in actions that might produce secondary infringement liability for the software vendor facilitating their collective activity.

The fourth clarification, the odd confining mode of commercialization for nonprofit entities, is discussed below in Part 0. The recommendation discussed in that part is to put FOSS projects that happen to be housed or governed by a nonprofit entity on the same posture as other software providers. Additionally, commerciality should not be a barrier to FOSS projects vesting the defense.

In aggregate, these four suggested clarifications to the prior commercial use defense increase its efficacy for the software prior user, putting aside the larger question as to whether they are implemented across all technologies. The impacts of the defense are complex in a variety of ways—policy, social welfare effects, industrial structure, and deployment of intellectual property with software. Only the last of these complexities will be discussed in the last part of this article.

But before then, the next section considers these clarifications and the defense generally to contextualize the discussion to specific modes of software. Software deploys both as a technology and in markets, meaning that companies needing information technology face a complex build versus buy decision process.

## B. Considerations for Particular Software Modes

This section divides software into three modes: internally developed enterprise software, proprietary product software, and FOSS. The purpose is to evaluate the defense in general and then assess the applicability and benefits of the four clarifications given above. The initial two modes represent, first, building software internally, and second, “buying” it by licensing it from software product companies. The third mode, free and open source software, is its own special category.

### 1. Internally Developed Enterprise Software

This subsection discusses enterprise software, which is software used internally by a company. “Internally developed” software refers to the fact that that the company paid its programmer employees or contractors to write the source code for the software.<sup>140</sup> In the sense of § 273(a), this software seems to be subject matter that is a process and an internal commercial use.

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<sup>139</sup> After *Limelight*, one may state that there was no “direct infringement” for purposes of inducement under 35 U.S.C. § 271(b) in the SyncRadiology divided prior use example in the main text. *Limelight Networks*, 134 S. Ct. at 2117–18 (2014).

<sup>140</sup> Typically, the company would keep the software source code secret. The software in operation might or might not have public-facing functionality. To the extent it was public, this might create

Sometimes, enterprise software operates completely internally. Other times, some of its functionality is exposed to customers of the company. Consider, for example, an online banking site for a large national bank. There is a tremendous amount of software functionality underlying the delivery of banking services to a customer via the Internet and a web site. If a third party has a later-in-time patent to assert against the banking software, one question is the extent to which the patent's claims cover software functionality that is exposed to bank customers. For example, consider a person who becomes a bank customer after the bank's vesting date for the defense. This is relevant to the prior commercial use defense in light of its personal nature in § 273(e)(1)(A). Even if the patent claims reach to some of the software's interactions with the customer, it seems that the "in connection with . . . a useful end result" provision of § 273(a)(1) should lead to an interpretation that the commercial use defense applies. The first clarification/alteration for "new users" would perhaps also help the company in this interpretation.<sup>141</sup>

Among the three remaining clarifications, the second and third, "updates" and considering divided prior use scenarios, might also help. Internally developed enterprise software is almost always operating as a layer among many stacked or connected layers of software. Allowing for some change in these other layers is the purpose of the "updates" proposal. Divided prior use is almost always a possibility for any company using computing resources given the highly networked nature of software technology and the significant extent of data exchange with other entities or with customers. The banking customer example given above is potentially a divided prior use scenario depending on how the patent claim is drafted.

The internally developed enterprise software mode is the most straightforward of the three. When software is thought of as something a process patent claim can cover, internal operation of the software is analogous to a manufacturer operating a process inside a factory. The production inputs and outputs and mode of processing are dramatically different, as is the capability to redeploy the process assets in an agile way. Internal enterprise software is a significant percentage of all code in use, but proprietary product software also has an important presence in the enterprise use of software.

## 2. *Proprietary Product Software*

Software product companies typically license their software by distributing executable code while keeping the source code secret. The proprietary licensing mod-

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public prior art against the later-in-time patent claims, eliminating the need for the prior commercial use defense. *See supra* text associated with notes 27 and 28.

<sup>141</sup> The HospitalSoft scenario is different from that of the paragraph in the main text. In the HospitalSoft example, the software ran inside the hospital end user on its own computers. The use that was prior was completely internal, even while the hospital's ability to make the use was because it licensed the software (under copyright and trade secrecy) from HospitalSoft. In the scenario in the main text, a networked application deployed over the Internet has its functionality divided among networked computers not owned or controlled by a single entity.



el has many other typical features as well as common variations. But for purposes of the prior commercial use defense, the key point is that the software end user is a separate entity or person that runs the software on its own computers. The end user is authorized by a licensing contract to a range of use with the trade secret and copyright protected software. The license deploys those intellectual property rights by granting a scope of permission applicable to end user actions with the software. The license might also cover patent rights held by the software vendor, but that possibility will be put aside.<sup>142</sup>

The HospitalSoft example in Part IV.A.1 discusses the baseline applicability of the defense for a proprietary software product company. Building on the concepts presented in that example, existing end users at the time of vesting seem to have the defense. Any end user could deploy the software at new sites before a sale of the entire enterprise of the end user, but such deployment would need the software copyright license permission from the software vendor.<sup>143</sup> Similarly, the software vendor could deploy new sites under its operation, but licensing new end users is the important question. The first clarification/alternation addressed this issue. The second and third, updates and divided prior use respectively, might also help a software products company and its end users.

Increasingly, software product companies are using cloud computing to provide functionality to customers. Instead of downloading and installing software, an end user might merely access functionality on a web site. This increases the chance that the software will internally express a method that vests the prior commercial use defense. Rather than the method running in the end user's facility under its control on its computers, the method runs in whole or in part on the software vendor's servers in the cloud. This diminishes the threat to the defense from its personal nature; the end user is involved in operating the method, but the actual software running the method might be under the control of the software vendor.

While the trend toward cloud computing is a multifactor phenomenon, if the prior commercial use defense is not clarified or altered to apply to end users who receive executable software to run locally, this could be another minor nudge in the direction of software product deployment via the cloud.<sup>144</sup> In the cloud, there is a

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<sup>142</sup> It is possible for the software vendor to have patent rights in one part of the software while another part of the software operates a method that is unpatented by the vendor and that vests the prior commercial use defense against a later-in-time patentee of that method.

<sup>143</sup> See *supra* note 124.

<sup>144</sup> If a software product company had a vested prior commercial use defense against a key patent, it could potentially arrange its licensing in a different fashion to try to remain within the defense even if the clarifications for new users discussed in this article do not emerge. For example, particularly for high-value enterprise software, the software vendor might own and control a computer that it locates in the end user's facility or locates in the "cloud" somewhere. This move is an arrangement of assets and legal rights to attempt to keep the personal nature of the license with the software vendor while providing the benefit of the functionality to the new end user. This arrangement is at its zenith with respect to the prior commercial use defense when the patented method is practiced by the software vendor "internally" within the computer it placed at the cus-

greater chance that the defense will apply because the method, implemented by running software, is being operated under the control of the software product vendor.

The last subsection in this part examines FOSS, which is the philosophical opposite of proprietary software. This mode of software development and distribution has its own unique challenges with the prior commercial use defense.

### 3. *Free and Open Source Software*

FOSS is a multifaceted movement with two primary camps, the free software camp and the open source camp.<sup>145</sup> There is substantial diversity within and among the camps, as evidenced by the hundreds of FOSS licenses deployed since the late 1990s. Moreover, FOSS is not a movement separate from the rest of information technology. Indeed, it pervades networked computing even while delineating itself from proprietary licensing.<sup>146</sup> A key feature of many FOSS licenses is that conditions on copyright are used to defeat trade secrecy in the source code.<sup>147</sup>

Another key feature is that FOSS distribution is typically uncontrolled,<sup>148</sup> and this is a very significant departure from proprietary software licensing. Freely available source code is a key strength of the FOSS mode of software development

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tomers' site. Computing resources continue to reduce in cost for provided capability, and many information technology systems have much greater investment in the software as opposed to the hardware. These cost considerations suggest the economic viability of the arrangement possibilities contemplated in this footnote.

<sup>145</sup> Greg R. Vetter, *Exit and Voice in Free and Open Source Software Licensing: Moderating the Rein over Software Users*, 85 OR. L. REV. 183, 196, 240–44 (2006).

<sup>146</sup> Yochai Benkler, *Commons and Growth: The Essential Role of Open Commons in Market Economies*, 80 U. CHI. L. REV. 1499, 1553 (2013) (reviewing BRETT M. FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* (Oxford 2012)).

<sup>147</sup> The FOSS licensing movement uses several copyright-based licensing techniques to emphasize source code transparency and, for many licenses, requires subsequent development to occur under the same or a similar FOSS license. Sometimes the licenses include anti-royalty provisions for ongoing software use. At other times, they require extension of the FOSS terms to closely intermixed software, an effect sometimes called the reciprocity requirement. The primary basis of a FOSS license is typically copyright law, although some FOSS licenses include provisions relating to patent law. Often, FOSS licenses are classified into types. One type, attribution-only licenses (sometimes called BSD-style licenses), generally allows any use of the software, even in proprietary products without source code so long as attribution is given. Another type, the “copyleft” or reciprocal license, typically has several requirements: (1) royalty-free software use; (2) available with source code; (3) distributable in modified or unmodified form; (4) with recipient users and redistributors granting a copyright license to other recipients for any added development; and (5) with all these conditions applying to future generations of the software upon redistribution with or without modification, including modifications that intermix other software. Greg R. Vetter, *Commercial Free and Open Source Software: Knowledge Production, Hybrid Appropriability & Patents*, 77 *FORDHAM L. REV.* 2087, 2095–2100 (2009). In this article, unless a specific license or license type is named, I do not intend to single out any specific license.

<sup>148</sup> Distribution is controlled for FOSS in the sense that upon a “distribution” of the source code in a copyright sense, the distributor must be in compliance with the FOSS license to be spared the risk of liability from the FOSS project copyright owners. However, distribution is uncontrolled because anyone can obtain a copy of the source code from a public repository and do anything with it, including distributing it to anyone, so long as there is FOSS license compliance.

and licensing. Thus, some FOSS projects resemble a proprietary software vendor in that there is a web site where one can download and take and use the software. But, unlike the proprietary software provider, one can download *source code* if desired, and there is unlikely any royalty payment for the initial download or ongoing use.

To the extent a FOSS project looks like a proprietary software vendor, but where the products are “free” and come with source code, the new user issue is also a challenge for FOSS with respect to the prior commercial use defense.<sup>149</sup> Given the social value of the FOSS movement and its beneficial influences on information technology, there are policy arguments that the AIA’s prior commercial use defense should be more favorably shaped for FOSS. However, the opposite result occurred.

The first problem for FOSS is that many projects might be deemed by a court to be noncommercial and thus will not qualify for the defense for the FOSS development group. There are publically available web repositories where, without charge, programmers can simply create an account to use the web site as a place to keep and organize the FOSS project.<sup>150</sup> The AIA does not define the term “commercial use.”<sup>151</sup> It is thus unclear whether most FOSS projects are noncommercial given that the software and source code is available for free. It seems likely that no one factor will control this inquiry, but it is an open-ended problem for FOSS use of the defense.

Some FOSS projects of significance are organized around a nonprofit. One example is the Apache Software Foundation.<sup>152</sup> Under § 273(c)(2), Apache’s FOSS projects are deemed a commercial use so long as “the public is the intended beneficiary,” which is likely the case for Apache software.<sup>153</sup> But the defense, if it vests according to the other requirements in § 273(a), “may be asserted . . . only for continued and noncommercial use by and in the . . . nonprofit entity.”<sup>154</sup> Thus, the promising start of § 273(c) leads to a crabbed ending. Use “by and in” the nonprofit entity seems to diminish the arguments developed in Part IV.A.3 of this paper to facilitate new users through concepts of the patent doctrine of exhaustion, the defense

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<sup>149</sup> For existing users of a FOSS project, the analysis is similar to the existing user base for the proprietary software product example HospitalSoft. *See supra* Part IV.A.1. To the extent performing the later-patented method requires an understanding of the inner workings of the source code to vest the defense, FOSS users might be in a better position than users of proprietary software products. *See supra* note 115.

<sup>150</sup> *About*, SOURCEFORGE, <http://sourceforge.net/about> (last visited Apr. 2, 2015) (noting, as of January 2015, that the site has 3.7 million developers across 430,000 projects).

<sup>151</sup> The two activities that are deemed “commercial” in 35 U.S.C. § 273(c) do not provide a definitional structure or generalizable framework to understand the scope of commerciality.

<sup>152</sup> The Apache Software Foundation is a Non-Profit Organization, THE APACHE SOFTWARE FOUNDATION, <http://www.apache.org/foundation/sponsorship.html#tax-status> (last visited Apr. 2, 2015).

<sup>153</sup> 35 U.S.C. § 273(c)(2).

<sup>154</sup> *Id.* § 273(a).

in § 273(d), and the defense's allowance in § 273(a)(1) of a "useful end result"<sup>155</sup> covered by the defense.

However, there is some good news for FOSS use of the defense. It seems likely that existing users of a FOSS project vest the defense in the same way as users of any other software vendor, such as the HospitalSoft hypothetical example. These FOSS users simply need to be commercial in their activities and meet the rest of the defense. For example, if a medical practice downloads and uses a copy of FOSS encryption software that is distributed for free, but not by a nonprofit, the medical practice's use within its operations seems commercial. This is regardless of whether the encryption software FOSS developer itself qualifies for the defense given the issue of commerciality.

Among the four clarifications discussed in the first section of this part of the article, the new user issue and the nonprofit FOSS issue are prominent. The remaining two clarifications, updates and divided prior use, would also help any FOSS projects or users that vested the defense.

In Part 0, this article argues that the prior commercial use defense should be shaped in these four ways to give greater benefit to software technology. This seems particularly appropriate given that the U.S. patent system has become increasingly permissive during the last several decades as to patentable subject matter for software and business processes implemented with software. Next, Part V considers some possible impacts on intellectual property protection in software arising from the defense.

## V. Influences on Intellectual Property in Software

Patent law would take an ironic twist if courts interpreted the prior commercial use defense narrowly for software given that over the last few decades the courts have opened up the U.S. patent system to software patents. The use of the defense will, of course, depend on its scope. Its use for software will be greater if the four clarifications discussed in the part above become the law. Its use will also be greater if the term "other commercial process" in section 273(a) is interpreted broadly.<sup>156</sup>

The analysis in this part is sufficiently general that the points made can vary by degree with or without clarifications or qualifications. Litigation use of the defense, to the extent discussed below, is likely even greater for software with the clarifica-

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<sup>155</sup> *Id.* § 273(a)(1).

<sup>156</sup> The defense vests when one is "entitled to a defense under section 282(b) with respect to subject matter . . . used in a manufacturing or other commercial process, that would otherwise infringe a claimed invention being asserted against the person . . ." *Id.* § 273(a) (post-AIA). There are several approaches to the statutory juxtaposition of "manufacturing" with "or other commercial process." One suggestion is that "other commercial process" be understood from two broadening perspectives: (i) it means many other things above and beyond a manufacturing process because it is set off against that word and (ii) it should follow the expansive trend in patent law's eligible subject matter doctrine where practically any non-abstract business or nontechnical process is eligible.

tions. The trade secrecy analysis is mostly independent of them, but the impact on defense patenting will be greater or less depending on the scope of the defense.

The one category of potential influence that this part does not address is software-licensing practices. Part IV.B.2 discussed, for example, the potential for the defense to create a minor nudge in the already growing movement toward cloud computing, which is both a technological reconfiguration of IT assets and also a re-arrangement of licensing rights. Other potential impacts for software licensing norms are conceivable. But an attempt to exhaustively anticipate these and detail them in this article, given their speculative nature at this point in the history of the defense, seems not fruitful. Thus, potential changes in licensing practices arising from the defense will be put aside.

#### A. Litigation Impact—Explicit or Implicit

Frequent appearance of the prior commercial use defense in patent litigation might prove its importance and impact, but absence does not necessarily prove the opposite. If the defense is not litigated in a way that exposes the statutory nuances this article highlights, the next question would be the extent to which it influences the framing or posture of a case, the damages, or settlement before or after suit is filed.

There are procedural disincentives in the defense. The burden of proof is clear and convincing evidence.<sup>157</sup> If the judge does not believe an infringer had a “reasonable basis” to plea the defense, the judge “shall find” the case exceptional for attorney fees.<sup>158</sup> Issues of proof underpin both of these procedural subsections.

As a matter of forensics and electronic discovery, there are good reasons to believe that for software, on average compared to other technologies, proving facts underlying the defense will be a more certain exercise.<sup>159</sup> Software development projects almost always use some type of source code control technology.<sup>160</sup> These

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<sup>157</sup> *Id.* § 273(b).

<sup>158</sup> *Id.* § 273(f).

<sup>159</sup> The strength of this claim is of course an empirical point. It may be that hard-asset technology, such as manufacturing lines or process equipment, when designed with computerized tools and implemented in our modern technological economy, leave a reasonably clear trail of which functionality was used when. The proposition in the main text relies on a likelihood that traceability in a highly granular way of specific functionality will be better with software projects, and that this traceability might matter at the margin in proving the defense in some cases.

<sup>160</sup> In many aspects of the software development process, FOSS or otherwise, software tools facilitate and support development. One commonly used tool is a source code control system (SCCS). A variety of SCCS software products are available. They typically provide the following capabilities: (1) SCCS systems store all the source code in a common repository and programmers access the code through the SCCS; (2) programmers “check out” the code from the SCCS to work on it, and when finished, “check in” the code; (3) the SCCS tracks the changes made by individual programmers; (4) the SCCS manages versioning of the software, allowing programmers to work on specific versions, and, in some cases, the SCCS propagates changes across versions when appropriate; (5) the SCCS provides automated compilation of multiple source code components into a finished “build” of the product; and (6) the SCCS provides reports and other tracking tools for all

systems, along with the automated distribution records of which customers are running which version,<sup>161</sup> bring a temporal certainty that may help prove the defense.

As in other areas of patent litigation defense, there is a strategic tension. Efforts to prove the defense may contribute to making the plaintiff's infringement case.<sup>162</sup> To the extent a clearly documented progression of versions of the software helps ease this tension, this may set up the defense for more successful use with software technology.

Sometimes it may be clear to the parties that, for example, version 1.3 of the software is old enough to vest the defense (and is installed with a third of the software vendor's users), but that version 1.4 (installed with the rest of the users) is different with respect to the functionality that raises Patentee's infringement claim. This might cut the damages calculation by one-third in an early assessment of the case. For the infringement defendant's patent litigator, one question is the extent to which the admission that version 1.3 "infringes" to vest the defense weakens the non-infringement argument about version 1.4.

To change the example, assume that versions 1.1, 1.2, and 1.3 have an installed base of three quarters of the users, and all vest the defense, but version 1.4 is the new version (that cannot vest the defense because it is too new) where infringement is questionable. In the revised example, the damages only run to one quarter of the installed user base if version 1.4 is found to be infringing.

A background question for all these inquiries is claim construction.<sup>163</sup> Sometimes the infringement question among versions 1.1 through 1.4 will depend on the judge's interpretation of a word or phrase in the claim. Perhaps all versions will in-

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of its capabilities. Part of the design of a large software project is to determine granularity in subdividing the source code into components, such as specific files, or, in more modern programming languages, objects or object classes. The SCCS is a key facilitating tool to implement and manage the organizationally imposed coordination necessary in a large, multi-contributor software project.

<sup>161</sup> Many software products, even at the retail level, communicate on a regular basis in an automated fashion from their installed location on a user owned computer with the software vendor's computers located elsewhere. The purpose of these communications include to check validity of licensing, to manage version progression, and to deploy updates. DOUGLAS E. PHILLIPS, *THE SOFTWARE LICENSE UNVEILED* 39–41 (2009).

<sup>162</sup> See Hartmann, *supra* note 99; Vogel & Schultz, *supra*, note 8, at 12 ("The prior user's evidence may not satisfy the clear and convincing standard for the defense and yet may satisfy the preponderance standard for infringement."). Another example of strategic tension as a patent defendant is obviousness and enablement. Assume that the defendant wants to argue that the patent claim is obvious, but that it is also not enabled (either of which render the claim invalid). The more there is success on the obviousness point, but perhaps without full success, the more the non-enablement argument likely suffers. The defendant could lose both potential basis for claim invalidity. *N. Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 940–43 (Fed. Cir. 1990). Some commenters also note the possibility of heightened discovery in the defendant's trade secrets by asserting the defense. Vogel & Schultz, *supra*, note 8, at 12.

<sup>163</sup> Peter S. Menell, et al., *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 *BERKELEY TECH. L.J.* 711, 716 (2010) ("The boundaries of patent claims to software and business methods have proven particularly ambiguous.").

fringe under interpretation alternative A, but under alternative B, only versions 1.1 through 1.3 infringe. In alternative A, continuing the example, it helps the defendant that the prior commercial use defense sweeps away damages for three quarters of the user base, even while damages might be owing on version 1.4. In alternative B, which is even better, the defendant escapes all damages.

The damages examples of the prior three paragraphs can be examined in reverse. To the extent this information is known, or discovered early in litigation, it may influence whether the case is filed. It might also influence the degree of vigor in pre-filing enforcement activities. Finally, it might influence which versions of the software product are named as accused infringing technologies in the complaint.

Intellectual property protection in software includes the extent to which the rights are used for enforcement. Patent litigation over software technologies has grown dramatically in part due to the growth in software patenting.<sup>164</sup> But enforcement is only part of the story with intellectual property rights in software. The baseline modes of protection, trade secrecy and copyright, inform the topic of the next section.

#### B. Trade Secrecy Still Predominates (for Proprietary Software)

Even though software patenting has grown in an absolute sense and as a percentage of patents issued during the last decade, patent protection for software is not ubiquitous like copyright protection is for all software and trade secrecy and copyright is for proprietary software. There seems no way to empirically strike a good estimate, but it must be the case that only a small minority percentage of all software code in existence has patent protection or fits within the claims of some software patent. If this intuition is correct, it starts the argument as to why the prior commercial use defense is unlikely to alter in any meaningful way the preference among trade secrecy versus patent protection for software even if it creates an incentive toward trade secrecy with other technologies.<sup>165</sup>

With some other technologies, the rights owner must “elect” between patent protection and trade secret protection because obtaining the patent right will publicize the information that would otherwise comprise the trade secret. Sometimes the choice isn’t all or nothing because the patent system’s disclosure requirements do not reach to certain types of information.<sup>166</sup> Thus, a patent owner must give sufficient information to meet the enablement and written description patent law doctrines that measure the sufficiency of the disclosure from an objective perspective. But those doctrines do not require disclosure of implementing information outside the scope of the patent claims, such as how to manufacture at scale or with sufficient productivity to achieve profitability.

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<sup>164</sup> Bessen, *supra* note 10, at 259–61; Chien, *supra* note 10, at 332–33.

<sup>165</sup> Vogel & Schultz, *supra*, note 8, at 12.

<sup>166</sup> See Janicke, *supra* note 1, at 77 n.77.

For most software, however, there is an opportunity for the rights owner to have significant benefit from both trade secrecy and patents. This opportunity has several elements. First, the courts have interpreted the patent disclosure doctrines to allow very minimal disclosure for most software patents.<sup>167</sup> For example, there is no requirement that source code be disclosed in the software patent.

Second, the patent protection obtained by the software developer might cover only one portion or module of the code, but that module might be a small part of the overall software product. Thus, assuming all of the source code is secret, a patent on part of it, given that patent's minimal disclosure, is not a threat to keeping trade secrecy in the rest of the software product.

Third, software distribution practices for proprietary software are unlikely to migrate away from distribution of executable code that keeps the source code secret. In other words, software technology practices are biased toward keeping source code secret. To the extent that delivery of software functionality increasingly migrates to the cloud, this further heightens the bias in software technology toward keeping source code secret.

Given the opportunity to continue to rely on trade secrecy, most proprietary software vendors will continue to do so and obtain patents when it matters strategically. Patent protection is much more costly for the software product vendor than the other modes of protection. It requires a parallel stream of activity alongside the development of the patent. Patent prosecution, the activity of filing for a patent, consumes programmer time and requires the involvement of a patent attorney. In contrast, trade secret protection and copyright protection in the software is essentially without additional cost given that the business practices of the software industry give these modes of protection by default.<sup>168</sup>

At bottom, software technology companies need not choose between patenting and trade secrecy but can choose to patent when it is strategic. Whether the availability of the prior commercial use defense will alter this strategic calculus is the topic of the next section.

### *C. Potential Impacts on Software Patenting*

Patents allow competitors to gain leverage over other competitors or stakeholders in a market. Patent acquisition is sometimes characterized as offensive or defensive. The defensive patenting story is that a company uses the patents in a counter-claim for infringement when sued on a patent. The larger the defensive portfolio, the greater inhibition competitors might feel before suing. There is both a chilling effect on suits against the owner of the defensive portfolio and the specific opportunity to hopefully have patents to wield against a patent plaintiff's technolo-

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<sup>167</sup> Anderson, *supra* note 13, at 944; Greg R. Vetter, *supra* note 17, at 785–90.

<sup>168</sup> Copyright registration is a potential additional cost, but it is de minimis both as to the fees paid to the United States copyright office and as to the employee time it takes to file the registration.



gy when sued.<sup>169</sup> Of course, any patent in the portfolio could be used offensively as well.<sup>170</sup>

While defensive patenting helps a software technology competitor in a market, patenting is expensive and companies are typically interested in cost reduction opportunities. A potential impact of the prior commercial use defense is that perhaps a competitor could reduce its patenting expenditures. The hope is that in those situations when a defensive patent counter-claim made the infringement suit go away, the prior commercial use defense would provide a favorable judgment or limit damages. Thus, the more a company only used patents defensively, or never or rarely used them offensively, the more it might make sense to patent less and hope for some coverage from the prior commercial use defense. The internal strategic calculus would include numerous other considerations. One of these would be the rate of change for the particular software technology involved. Another would include to what extent the software is used internally versus being deployed to customers or external users.

Among the three modes of software discussed in Part 0, internal enterprise software, proprietary software products, and FOSS, the patent acquisition issues arise most prominently with proprietary information technology providers. The discussion will proceed then from FOSS projects to proprietary providers.

FOSS communities, particularly those without companies involved in the community, that collaboratively generate the software simply do not have the resources to acquire patents. Moreover, the philosophy of most of the FOSS movement would be against expending resources toward patent acquisition. Thus, defensive patent acquisition is not a part of most FOSS projects.<sup>171</sup> For some FOSS projects with high general importance, such as the Linux kernel, the companies involved with the FOSS project either directly or via conservancies, foundations, or other consortia have amassed defensive patent portfolios covering the technology.<sup>172</sup> But this is a rare exception compared to the overall number of FOSS projects. FOSS projects are sometimes a poor patent infringement target because the user base is small, and the developers are often not wealthy. But some FOSS projects with companies involved in the communities have been the target of patent infringement suits.<sup>173</sup> Even as occasional targets, however, defensive patenting is not a prominent part of FOSS technology development.

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<sup>169</sup> Parchomovsky & Wagner, *supra* note 25, at 26, 36.

<sup>170</sup> Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and its Implications for the Patent System*, 62 HASTINGS L.J. 297, 319–21 (2010).

<sup>171</sup> 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, 7–10 (2012).

<sup>172</sup> *Id.* at 8.

<sup>173</sup> Debra Brubaker Burns, *Titans and Trolls Enter the Open-Source Arena*, 5 HASTINGS SCI. & TECH. L.J. 33, 56, 65–79 (2013).

Given that patenting is mostly not a practice within FOSS, the existence of the new prior commercial use defense is not going to create an incentive to lessen defensive patenting. Patents remain a challenge for FOSS projects because the more prominent and important projects might become patent infringement targets. Perhaps the prior commercial use defense will help in those cases, but there seems no material impact on defensive patenting within FOSS arising from the defense's existence.

The next mode of software is internally developed and operated enterprise software. To the extent these organizations engage in defensive patenting, it is typically less than software technology suppliers. This article envisions that these organizations will have the strongest incentive to cutback on defensive patenting in light of the prior commercial use defense. If there is an incentive to cut back, it is one of degree. The incentive will of course depend on the scope and efficacy of the defense for software technology. It will also depend on the tendency toward stasis for the internal information technology assets that the company uses to operate its business. Even without this article's suggested clarifications to the defense, the defense has its greatest potential for coverage with fully internal systems.

If sued by a patent holder, the likely desired remedy is also perhaps less severe as compared to competitors suing each other. For example, a technology company that sues a bank for patent infringement likely wants a stream of royalties and likely does not want to stop the bank from operating with an injunction. If the bank wins on the prior commercial use defense, its costs do not rise. If it loses because the defense does not vest or qualify, the bank is likely going to be able to continue to operate but has the new cost of a patent royalty. Perhaps eventually the bank will upgrade its software or change it somehow so that the defense no longer applies, but it can plan that activity and perhaps migrate to non-infringing technology.

The last mode is proprietary information technology providers. The focus will be on the software components of the technology. These are companies that sell software products to customers. The hypothetical vendor HospitalSoft from Part IV.A.1 is an example. Among these companies, when sued by a competitor, the injunction power is a greater threat as compared to enterprise users such as a bank.

Software vendors need to keep their customers operating and need to be perceived as having the capability to bring forth the newest technology. Relying only on the prior commercial use defense is weak insurance for either need. Even if the clarifications for new users and updates were a part of the defense, these are still fundamentally tied to the increasingly old use that vested the defense. Maybe the defense helps some of the software vendor's users some of the time, but many vendors will want the capability to counter-punch with its own patents when sued by a competing software product supplier.

Assuming an interpretation of the defense allowing new users, any future licensee of a software product who knew that the prior use defense was the only thing that kept the licensee clear of patent infringement risk might hesitate to license the

software. Thus, the economic posture of the prior user software product company isn't necessarily ideal, even if it is better than it would be without a shaped-for-software defense. To be sure, a patent portfolio does not guarantee success either when a competitor sues a company. However, the larger the portfolio, the greater chance that the infringement suit's impact on the ability to license new customers and service the existing user base will be minimally impeded.

## VI. Conclusion

Software patents in finance were among Congress's concerns in the AIA. The AIA provides a specific opportunity for challenging patents covering data processing in relation to financial products.<sup>174</sup> While not the focus of this article, this feature of the AIA highlights the importance of software patents specifically within the act, which resonates with the many voices questioning how or whether software should be subject to patenting.<sup>175</sup>

Another feature of the AIA, the prior commercial use defense, is also relevant to software patents and software technology. The defense expands a predecessor defense that only vested for subject matter that was a "method of doing or conducting business."<sup>176</sup> The predecessor defense mostly applied to software patents since most business methods of consequence are implemented in an automated or semi-automated fashion with software. The AIA's prior commercial use defense expands prior user rights to any patentable subject matter. With this, the U.S. joined many other nations with a full scope prior user defense. That defense historically related to manufacturing processes because software patenting is a relatively recent phenomenon.

Whether the AIA's prior commercial use defense is good for software is a question with several facets. The current structure of § 273 implementing the defense might provide surprising flexibility for software providers to have benefits equivalent to what a manufacturing company might take, but much depends on how courts interpret the defense in the future. Also of significance is the interpretation courts ultimately give to a number of issues in the AIA's new § 102. This includes to what extent pre-AIA doctrines authorizing "secret prior art" will carry over into

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<sup>174</sup> Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 18(d)(1), 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.); Janicke, *supra* note 1, at 81. The program allowing persons to challenge financial business method patents uses the following definition of covered business methods: "a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions." Leahy-Smith America Invents Act § 18(d)(1). Of note is that this AIA definition of a business method is restricted to the "technology" of finance and is thus narrower than the pre-AIA earlier inventor defense, which applied to "a method of doing or conducting business". § 35 U.S.C. § 273(a)(3) (pre-AIA).

<sup>175</sup> Chien, *supra* note 12; Bessen, *supra* note 10; *Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 1537 (2014).

<sup>176</sup> 35 U.S.C. § 273(a)(3) (pre-AIA).

post-AIA jurisprudence. The more “secret prior art” is eliminated, the more important the prior commercial use defense will be, both generally and particularly for software.

Beyond the issue of whether the defense is a good fit for software are questions as to how it might be improved for software and what impact it will have on intellectual property protection in software. Among the improvements presented in this article is the need to modify the crabbed mode of nonprofit commercial use to better allow for FOSS projects organized around a nonprofit entity that will benefit from the defense. Additionally, commerciality should not be a barrier to FOSS projects vesting the defense.

The basic, longstanding mode of applying intellectual property protection to software is unlikely to be influenced by the defense because trade secrecy and copyright remain the ubiquitous forms of protection. There is little reason to think there will be increased use of trade secrecy in software even though some have predicted that generally the defense will promote use of trade secrecy over patenting. When software is patented, oftentimes very little trade secrecy is sacrificed. Since trade secrecy is a default mode of software protection for proprietary products, the prior commercial use defense has small effect in increasing the use of trade secrecy in software. Perhaps defensive patenting by software companies will change at the margin in light of the defense. The extent to which this occurs will be context specific. It will depend on the type of software technology, the product classes involved, and the market dynamics in the software niche. Particularly for proprietary software product companies, the need for defensive patenting seems mostly undiminished by the prior commercial use defense.

**Appendix: post-AIA 35 U.S.C. § 273 – Prior Commercial Use**

## § 273. Defense to infringement based on prior commercial use

(a) In general.— A person shall be entitled to a defense under section 282(b) with respect to subject matter consisting of a process, or consisting of a machine, manufacture, or composition of matter used in a manufacturing or other commercial process, that would otherwise infringe a claimed invention being asserted against the person if—

(1) such person, acting in good faith, commercially used the subject matter in the United States, either in connection with an internal commercial use or an actual arm's length sale or other arm's length commercial transfer of a useful end result of such commercial use; and

(2) such commercial use occurred at least 1 year before the earlier of either—

(A) the effective filing date of the claimed invention; or

(B) the date on which the claimed invention was disclosed to the public in a manner that qualified for the exception from prior art under section 102(b).

(b) Burden of proof. —A person asserting a defense under this section shall have the burden of establishing the defense by clear and convincing evidence.

(c) Additional commercial uses.—

(1) Premarketing regulatory review.—Subject matter for which commercial marketing or use is subject to a premarketing regulatory review period during which the safety or efficacy of the subject matter is established, including any period specified in section 156(g), shall be deemed to be commercially used for purposes of subsection (a)(1) during such regulatory review period.

(2) Nonprofit laboratory use.—A use of subject matter by a nonprofit research laboratory or other nonprofit entity, such as a university or hospital, for which the public is the intended beneficiary, shall be deemed to be a commercial use for purposes of subsection (a)(1), except that a defense under this section may be asserted pursuant to this paragraph only for continued and noncommercial use by and in the laboratory or other nonprofit entity.

(d) Exhaustion of rights.—Notwithstanding subsection (e)(1), the sale or other disposition of a useful end result by a person entitled to assert a defense under this section in connection with a patent with respect to that useful end result shall exhaust the patent owner's rights under the patent to the extent that such rights would have been exhausted had such sale or other disposition been made by the patent owner.

(e) Limitations and exceptions.—

(1) Personal defense.—

(A) In general.—A defense under this section may be asserted only by the person who performed or directed the performance of the commercial use described in subsection (a), or by an entity that controls, is controlled by, or is under common control with such person.

(B) Transfer of right.—Except for any transfer to the patent owner, the right to assert a defense under this section shall not be licensed or assigned or transferred to another person except as an ancillary and subordinate part of a good-faith assignment or transfer for other reasons of the entire enterprise or line of business to which the defense relates.

(C) Restriction on sites.—A defense under this section, when acquired by a person as part of an assignment or transfer described in subparagraph (B), may only be asserted for uses at sites where the subject matter that would otherwise infringe a claimed invention is in use before the later of the effective filing date of the claimed invention or the date of the assignment or transfer of such enterprise or line of business.

(2) Derivation.—A person may not assert a defense under this section if the subject matter on which the defense is based was derived from the patentee or persons in privity with the patentee.

(3) Not a general license.—The defense asserted by a person under this section is not a general license under all claims of the patent at issue, but extends only to the specific subject matter for which it has been established that a commercial use that qualifies under this section occurred, except that the defense shall also extend to variations in the quantity or volume of use of the claimed subject matter, and to improvements in the claimed subject matter that do not infringe additional specifically claimed subject matter of the patent.

(4) Abandonment of use.—A person who has abandoned commercial use (that qualifies under this section) of subject matter may not rely on activities performed before the date of such abandonment in establishing a defense under this section with respect to actions taken on or after the date of such abandonment.

(5) University exception.—

(A) In general.—A person commercially using subject matter to which subsection (a) applies may not assert a defense under this section if the claimed invention with respect to which the defense is asserted was, at the time the invention was made, owned or subject to an obligation of assignment to either an institution of higher education (as defined in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)), or a technology transfer organization whose primary purpose is to facilitate the commercialization of technologies developed by one or more such institutions of higher education.

(B) Exception.—Subparagraph (A) shall not apply if any of the activities required to reduce to practice the subject matter of the claimed invention could not have been undertaken using funds provided by the Federal Government.

(f) Unreasonable assertion of defense.—If the defense under this section is pleaded by a person who is found to infringe the patent and who subsequently fails to demonstrate a reasonable basis for asserting the defense, the court shall find the case exceptional for the purpose of awarding attorney fees under section 285.

(g) Invalidity.—A patent shall not be deemed to be invalid under section 102 or 103 solely because a defense is raised or established under this section.