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Licensing Acquired Patents

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LICENSING ACQUIRED PATENTS

Michael Risch[*]

INTRODUCTION

Patents have always been licensed.[1] Patents have always been acquired.[2] Patents have even been acquired for the purpose of licensing new entrants.[3] In short, there have always been secondary markets.[4] It turns out, however, that the current trend of acquiring patents to license those already practicing the patent is a relatively recent phenomenon, one almost unique in our history.[5] This Essay, presented at the "New Business Models and New Opportunities" panel of the "Commercial Function of Patents in Today's Innovation Economy" conference, makes two claims. First, it argues that broad-based patent acquisition for the purposes of licensing is a somewhat new business model, despite some historical counterexamples. If anything, the counterexamples shed light on today's marketplace. Second, it describes ways that acquired patent licensing might aid commercialization,

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[1] *See generally* Naomi R. Lamoreaux et al., *Patent Alchemy: The Market for Technology in US History*, 87 BUS. HIST. REV. 3, 5 (2013) ("The bulk of the patents came from inventors who exploited their intellectual property by selling off or licensing the rights."); B. Zorina Khan & Kenneth L. Sokoloff, *Institutions and Technological Innovation During Early Economic Growth: Evidence from the Great Inventors of the United States, 1790-1930*, at 38-39 (CESifo, Working Paper No. 1299, 2004), *available at* http://ssrn.com/abstract=614044 (describing a table showing that a majority of patent holders starting in 1739 sold or licensed their patents).

[2] Lamoreaux et al., *supra* note 1, at 4.

[3] *Id.* at 8-12 (describing inventors who went to great lengths to find buyers and assignees for their inventions, even going so far as to falsely represent their inventions or sell patents to which they had no right).

[4] *Demand Letters and Consumer Protection: Examining Deceptive Practices by Patent Assertion Entities: Hearing Before the S. Comm. on Commerce, Science, and Transportation*, 113th Cong. 6 (2013) (statement of Adam Mossoff, Professor of Law, George Mason University School of Law), *available at* http://cpip.gmu.edu/wp-content/uploads/2012/08/Adam-Mossoff-Testimony-11.7.13.pdf; Adam Mossoff, *The History of Patent Licensing and Secondary Markets in Patents: An Antidote to False Rhetoric*, CENTER FOR THE PROTECTION OF INTELL. PROP. (Dec. 9, 2013), http://cpip.gmu.edu/2013/12/09/the-history-of-patent-licensing-and-secondary-markets-in-patents-an-antidote-to-false-rhetoric/.

[5] Lamoreaux et al., *supra* note 1, at 20-22.

despite concerns about the business model's negative impact on social benefits.

Despite a growing literature about patent assertion, nonpracticing entities ("NPEs"), and patent trolls, very few articles explicitly study acquired patent licensing as a separate category, nor do many articles consider the timing of licensing agreements:

> The task of empirically measuring the *net* economic impact of any intellectual property intermediary and deciding whether it is harmful to society is inherently difficult. Such an analysis would require measuring the net effect on operating companies, inventors, universities, and financial investors, both in terms of short-run payments made or received and in terms of long-run innovation incentives. These effects seem dauntingly complex to measure. For this reason, most recent empirical studies only estimate the effects on one side of the market—and thus are by definition incomplete.[6]

It is no surprise, then, that incumbents—those companies already practicing the patented invention when they learn that a patent owner wants to receive compensation—are deeply unhappy with the licensing of acquired patents (among other old patents), even those that are valid. Who can blame them? Of course, some of these companies are infringing valid patents, so it is not as if every license demand is completely unfounded.[7]

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[6] Andrei Hagiu & David B. Yoffie, *The New Patent Intermediaries: Platforms, Defensive Aggregators, and Super-Aggregators*, 27 J. ECON. PERSP. 45, 62 (2013); *see also* Damien Geradin et al., *Elves or Trolls? The Role of Nonpracticing Patent Owners in the Innovation Economy*, 21 INDUS. & CORP. CHANGE 73, 87 (2011) (noting failure to distinguish between different types of NPEs, and itself not distinguishing between original-owner trolls and acquired-owner trolls); James F. McDonough III, Comment, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 190 (2006) (describing intermediary function of acquirers, but not considering timing). For exceptions, see Timo Fischer & Joachim Henkel, *Patent Trolls on Markets for Technology - An Empirical Analysis of NPEs' Patent Acquisitions*, 41 RES. POL'Y 1519, 1520 (2012) (studying types of patents acquired by NPEs); Alberto Galasso et al., *Trading and Enforcing Patent Rights*, 44 RAND J. ECON. 275, 276 (2013) ("The main focus of this article is to identify empirically the causal effect of trade on litigation, and to assess the relative importance of commercialization and enforcement gains from trading patent rights . . . ."); Julien Pénin, *Strategic Uses of Patents in Markets for Technology: A Story of Fabless Firms, Brokers and Trolls*, 84 J. ECON. BEHAVIOR & ORG. 633, 634-635 (2012) (modeling role of patent brokers and acquisition of patents); Jorge Lemus & Emil Temnyalov, Patent Assertion and the Rate of Innovation 3 (Oct. 31, 2013) (unpublished manuscript), *available at* http://ssrn.com/abstract=2308136 (modeling effect of acquired patent enforcement on innovation); Fiona Scott Morton & Carl Shapiro, Strategic Patent Acquisitions 12-14 (July 2, 2013) (unpublished manuscript), *available at* http://ssrn.com/abstract=2288911 (modeling welfare effects of patent enforcement with distinctions between acquired and internally developed patents).

[7] A matter of great debate today is just how many such demands are unfounded, a question beyond the scope of this Essay. John R. Allison, Mark A. Lemley & Joshua Walker, *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 678-81 (2011) (examining win rates of most litigated patents); Feng Gu & Baruch Lev, *The Information Content of Royalty Income*, 18 ACCT. HORIZONS, March 2004, at 1, 2-3 (arguing that royalty information disclosure increases company value, and expressing surprise that many companies choose not to report it); Shawn P. Miller, *Where's the Innovation: An Analysis of the Quantity and Qualities of Anticipated and Obvious Patents*, 18 VA. J.L.

Ex post, licensing acquired patents looks like a complete waste of social resources. The patentee has invented. Any early transfer of the patent has already occurred, if it is going to. And the older the patent the more likely the infringer's product is already completed and available to the public. From this viewpoint, any costs resulting from the transfer of wealth from the infringer to the acquirer amount to deadweight-loss rent-seeking, and the transfer away from the infringer slows future innovation to the benefit of an acquirer who builds nothing. This is especially true when license fees do not go back to the inventor.

But patents do not live solely in an ex post world. They simultaneously live in an ex ante world, one where research, development, and licensing opportunities begin even before the patent is acquired. As such, the commonplace "ex ante/ex post" patent licensing delineation is less instructive than a view that divides licensing into four stages based on the commercialization status for a given patent relative to its age.

While these four stages of licensing apply to any type of patent owner, this Essay focuses on acquired patent licensing for three reasons. First, acquired patents are most likely to be asserted at a later stage. Second, acquired patent licensing is the newer business model. Third, inventors and product companies are much closer to the inventive activity; they are more likely to obtain the full benefits of their patents, and their business models are older and more developed. Thus, original inventors, the companies they form to assert patents, and product companies may cause some of the same problems as acquirers, but they have always done so. However, this Essay is concerned with commercial benefits of the acquisition business model. The lessons discussed here may apply to individual patent owners and product companies, but that is a topic for another paper.

Part I begins by describing the four phases of potential licensing and technology transfer. Part II then explains where licensing acquired patents fits into the system, now and historically. Finally, Part III argues that acquired patent licensing may provide some commercialization benefits, even for patents that are likely to lose in court. If so, the current state of affairs may be a transitional period in which licensing acquired patents enables improved future technology transfer.

& TECH. 1, 30-31 (2013) (comparing validity results for NPEs and non-NPEs); Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457, 481-82 (2012) (comparing invalidity rates between NPEs and non-NPEs).

I. THE STAGES OF PATENT LICENSING

While licensing might occur any time during an invention's life, certain time periods can be grouped based on the timing and type of license:[8]

(1) exclusive transfer and commercialization of new patents;
(2) nonexclusive commercialization of new patents;
(3) enforcement licenses of new patents; and
(4) enforcement licenses of old patents.

None of these stages depends on whether the patent was acquired, but the different categories have different effects on commercialization and innovation.[9] Although the categories are acquisition-agnostic, acquired patents currently tend to be in the fourth category, which leads to concerns about their effect on commercialization. In preparing to analyze patents on the basis of these four categories, this Essay will first examine the nature and characteristics of each.

In examining and applying these four categories, and throughout this Essay, the terms "new" and "old," rather than the more popular "ex ante" and "ex post," will be used to describe licensing. New patents are those that are not yet broadly commercialized. Old patents are those that have been broadly commercialized by the owner or others. In contrast, ex ante and ex post can refer to various time periods, many of which might occur even before the first patent is obtained. In other words, applying those terms to licensing puts the focus in the wrong place, as if analysts should consider only what comes before and after the second user's development. This leaves out a large piece of the puzzle—namely patentee investments and licensing before and after patenting.

A. *Exclusive Transfer and Commercialization*

Inventors will often license their inventions out to a single early adopter, who takes an exclusive license to commercialize the invention.

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[8] Markus Reitzig et al., *On Sharks, Trolls, and Their Patent Prey—Unrealistic Damage Awards and Firms' Strategies of "Being Infringed,"* 36 RES. POL'Y 134, 143-44 (2007) (describing game theory model of different stages of licensing and technology transfer).

[9] Hagiu & Yoffie, *supra* note 6, at 63 ("For example, an important contributing factor to the effect of nonpracticing entities (including super-aggregators) on innovation incentives is whether they seek to enforce *proven* patents on *existing* products or to facilitate the commercialization of *unproven* patents. Thus, perhaps one could categorize and measure the mix of patents monetized by nonpracticing entities (even without transaction prices) to provide a valuable proxy for their likely effect on innovation.").

This often is the type of license associated with university technology transfer: a single start-up takes over exclusive rights to pursue the patent. Such transfers often take place before the patent even issues and might also include know-how and other trade secret transfers from the inventor to the company.[10]

This form of license is a common goal of patent licensing because it transcends the patent.[11] The patent is transferred along with sufficient know-how to maximize its potential, but only one company has the rights to use, issue any further sublicenses, or otherwise defend its interests as if it were the patent holder.[12]

Further, exclusive licensing occur at an early stage, when new products might incorporate the invention and *before* there is any litigation demand. Again, "new" simply implies that the invention has not yet been widely commercialized, not that the patent itself is new. Some patents might exist for years before they can be practically implemented, and some scholars believe the goal of the patent system is to hasten such commercialization.[13]

But an exclusive license is not without its shortcomings. First, at an early stage the value of the patent is mostly unknown. The invention is new, and thus products implementing it may be before their time.[14] Further, the patent protecting the invention is new and thus untested against validity attacks. The licensee might be a new start-up and thus subject to financing or other risk. Because the patent is exclusive, if there are any failures unre-

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10 *See generally* Bharat N. Anand & Tarun Khanna, *The Structure of Licensing Contracts*, 48 J. INDUS. ECON. 103, 114 (2000) (describing ex ante licensing for research and development); Peter Lee, *Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer*, 100 CALIF. L. REV. 1503 (2012) (describing personal dimensions of technology transfer).

11 Jerry R. Green & Suzanne Scotchmer, *On the Division of Profit in Sequential Innovation*, 26 RAND J. ECON. 20, 24 (1995) (arguing that ex ante licensing expands incentives to invest in future development); Bonwoo Koo & Brian D. Wright, *Dynamic Effects of Patent Policy on Sequential Innovation*, 19 J. ECON. MGMT. STRATEGY 489, 500-01 (2010) (arguing ex ante licensing hastens downstream innovations, especially where future innovation is costly).

12 Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 276 (1977) (presenting prospect theory of patents, which allows patent owners to coordinate efforts to commercialize).

13 Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 878 (1990) ("[W]hen it comes to invention and innovation, faster is better."); *see also* Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 CORNELL L. REV. 1065, 1081 n.63 (2007); Michael Risch, *Reinventing Usefulness*, 2010 BYU L. REV. 1195, 1235 ("This Article argues that a direct commercial utility requirement would provide an additional and better method to incentivize commercialization than new or collateral requirements."); Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 402-03 (2010) (proposing new right given to those that commercialize dormant patents).

14 Abramowicz, *supra* note 13, at 1081 n.63 ("[I]t might not make sense to commercialize a particular invention until another, complementary invention is developed.").

lated to the invention the patent will lay fallow and unused (until some later stage).[15]

Finally, even if the invention is implemented, an exclusive licensee may hold it closely and refuse to license the patent further.[16] In this case, the invention would be limited to a single manufacturer and would not be widely distributed.[17]

B. *Nonexclusive Transfer and Commercialization*

This licensing stage shares many features with its exclusive license counterpart, except that the original owner licenses multiple early adopters rather than just one. The choice of an exclusive versus nonexclusive license at this stage is often mutually negotiated and depends on the patent, the technology, and any potential licensees' willingness to pay. This leads to somewhat predictable commercialization tradeoffs. On the one hand, the odds of any one company implementing the invention increase with a larger number of licensees.[18] On the other hand, the reduced exclusivity may decrease the amount any company is willing to invest in implementation, though granting exclusivity by field of use or geography sometimes solves this problem. One study found that nonexclusive licenses were far more prevalent in computer and electronics fields than in chemistry, though very few of those licenses were new.[19]

Another risk is that nonexclusive licensees cannot enforce the patent and must rely upon the patentee to enforce the patent against infringers.[20] But if the patentee fails to do so after others have licensed the patent, the value of the license is reduced for all the licensees, because infringing companies have a competitive advantage by not paying the license fee. Failing to enforce patents can also affect the patentee's future attempts to license.

As a result, many license agreements require the patentee to enforce the patent against infringers. It is worth noting that, whether obligated or

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15 Merges & Nelson, *supra* note 13, at 873 ("The real problem is not controlling overfishing, but preventing *underfishing* after exclusive rights have been granted.").

16 Mariko Sakakibara, *An Empirical Analysis of Pricing in Patent Licensing Contracts*, 19 INDUS. & CORP. CHANGE 927, 939 (2010) (empirically confirming that companies tend to license only their least valuable patents).

17 Mark A Lemley, *Are Universities Patent Trolls?*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 611-12 (2008) (arguing that universities might better serve commercialization by not always exclusively licensing their patents).

18 Ashish Arora & Andrea Fosfuri, *Licensing in the Presence of Competing Technologies* 2 (Univ. Carlos III de Madrid, Bus. Econ. Series, Working Paper No. 98-72, 1998), *available at* http://ssrn.com/abstract=138524 (discussing nonexclusive licensing and technology diffusion).

19 Anand & Khanna, *supra* note 10, at 114.

20 WiAV Solutions LLC v. Motorola, Inc., 631 F.3d 1257, 1264-65 (Fed. Cir. 2010) (noting that only holder of exclusive rights may sue); *see also* 35 U.S.C. § 100(d) (2006) (defining "patentee").

not, a patentee's later attempts to enforce or license a given patent will not have the same commercialization benefits as early attempts, and so will look more like category four enforcement of older patents.

C. *Enforcement Licenses of New Patents*

In some cases, the patentee may not secure early commercialization licenses. Of course, this may be due to patentee failure to seek licenses, or due to manufacturer lack of licensing interest prior to development. When this happens, patent holders will send a request that an alleged infringer take a license. This is generally termed enforcement, though the requests are not always worded with a litigation threat.

It is important to note, though, that this category is for *new* inventions—those that are not widely commercialized. In other words, this stage should be considered part of the first two stages: as a way to commercialize a patented improvement while it is still new. It just happens that someone infringed before a license could be negotiated.[21]

Some patent owners, including acquirers, might recount how they approached potential licensees but were rejected, and how they later had to sue for infringement. Such stories, assuming they are pre-implementation, fall into this category. But this is not always the case. Sometimes timing is a problem. Because of the delay between patent filing and issuance, a manufacturer might develop a product before a patent even issues, only to become an infringer after it issues. More typically, though, the infringement involves a newer patent that was unknown to the alleged infringer.

With new enforcement, the patent owner is still attempting to license early and broadly, thus maximizing commercialization of the invention. Once taken, these licenses share the same shortcomings of other early licenses: every infringer that does not pay has a competitive advantage over those that do.

However, this stage adds one complication not present in the adoption stage. Except in cases of the rebuffed patentee, the infringer does not have the choice to implement the invention or not; the infringer has already done so.

This category exemplifies the difference between "ex ante" and "new." Post-development enforcement is no longer ex ante; the manufacturer has invested in a product. But this does not mean that the patent has been sitting dormant or that the teachings of the patent have become common knowledge or widely used. The patent is still young enough that the patentee might wish to commercialize it in some way, either through manufacturing, standards, or technology licenses to other parties.

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[21] Of course, simultaneous invention might be evidence of obviousness, but that issue is beyond the scope of this Essay.

As a result, this category differs from the usual economic model of licensing transactions.[22] Most models consider only a single negotiation, while this category considers aggregate licensing efforts and implies that there is a grace period during which more patent enforcement will be beneficial. Thus, even if some patent enforcement occurs post-development, other attempts to license should still be considered.

But new patent enforcement leads to an unavoidable tension. It is costly, and sometimes impossible, to seek out every patent holder in order to obtain a license. As a result, few efforts are made, but when the patent holder closes that gap by approaching the manufacturer, attempts to license the patent are viewed as "aggressive and predatory."[23]

This natural distaste for active enforcement of patent rights is why the focus on newness of the patent is important. If the patent is new, then so must be the product. The infringer's reliance (and consequently the public's reliance) on the product as designed is likely less than it would be for an older patent.

To be sure, it may be expensive or even impossible to design around the patent, in which case the infringer would have to take a license. This is a concern with all after-implementation licensing and will be discussed in more detail below because the concern is even greater for old patents.

Finally, it should be noted that patent-owning companies might choose *not* to license their patents to others, especially exclusive licensees or companies that sell products incorporating inventions. In this case, patent enforcement would be achieved through injunctions rather than licenses, and diffusion of the new technology would be limited to the initial patentee.

D. *Enforcement Licenses of Old Patents*

A fourth category of licensing includes the licensing of old inventions, ones that are fairly widely commercialized whether with the patentee's blessing or not. Patents in this category often "sit on the table," while producers pass them by. At some point long after patent issuance and investment in product design, the patentee might seek a license. Such licensing efforts often involve enforcement approaches such as litigation.

Producers that do not look for existing patents—which is nearly all of them in the high-tech area[24]—are usually surprised to learn that a patent

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22 *See, e.g.*, Reitzig et al., *supra* note 8, at 142-45 (setting out a model for infringement rules and market characteristics).

23 John M. Golden, *Patent Privateers: Private Enforcement's Historical Survivors*, 26 HARV. J.L. & TECH. 545, 590-91 (2013).

24 *Hearsay Culture*, STAN. U. (July 10, 2013), http://cyberlaw.stanford.edu/podcasts/20130708-Levin-188-Epstein.mp3 (interview by David S. Levine, Professor of Law, Elon Univ. Sch. of Law, with Ron Epstein, CEO, Epicenter IP Grp., LLC) ("[I]n 23 years of being in the licensing business I have yet to be involved in a negotiation where the operating company . . . being accused of using a patented

exists to cover the claimed feature or product, so the product's pricing does not include the cost of such a license.[25] Further, the age of the patent and lack of prior commercial exploitation implies—to some at least—that the patent must have little value, either due to likely invalidity or design alternatives. In short, producers resist payment, and litigation is required to force infringers to pay a license fee.

Facially, this category has the least amount of social value from a licensing perspective.[26] Because the patents are old, and the inventions independently implemented, the conventional wisdom implies that licenses have no additional value.[27] Post-implementation licensing merely allows commercial "innovators" to continue using inventions that they were already using in the first place, but only after bearing the added cost of a licensing fee.[28]

Even worse, it might seem, are patents acquired for licensing. These patents are not only old—they are not even asserted by the original inventor. Thus, such licensing efforts are even further removed from commercial-

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invention seeks to understand whether they are doing that."); *see also* Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1102 (2003) ("[T]he patent system discourages searching for prior patents . . . ."); Doug Lichtman, *Substitutes for the Doctrine of Equivalents: A Response to Meurer and Nard*, 93 GEO. L.J. 2013, 2022-23 (2005) ("[N]otice is a relevant consideration only to the extent that patents are actually read, and in reality very few patents are."); Benjamin N. Roin, Note, *The Disclosure Function of the Patent System (or Lack Thereof)*, 118 HARV. L. REV. 2007, 2017-18 (2005) ("Due to the Federal Circuit's willful infringement rules, however, many innovators now avoid reading patents to protect themselves from treble damage awards in infringement suits.").

25 Anand & Khanna, *supra* note 10, at 114 (finding that only 6 percent of licenses entered between computer and software companies—not including NPEs—were entered prior to development).

26 John F. Duffy, *Reviving the Paper Patent Doctrine*, 98 CORNELL L. REV. 1359, 1363 (2013) ("The practices of NPEs are least justifiable where the patents have never been practiced by any entity in the chain of patent ownership and are asserted against entrepreneurial firms that not only developed the technology independently but also took the risks associated with bringing the technology to market."); Geradin et al., *supra* note 6, at 74 ("After potential licensees have made investments or might be 'locked-in' to using a certain production technology, trolls emerge to charge 'excessive' royalty rates for the patents necessary for production. . . . [L]icensees will likely pass on the higher licensing costs to their customers, meaning higher consumer prices, lower quantities sold, and reduced social welfare.").

27 *See, e.g.*, Erin Fuchs, *Obama Calls Patent Trolls Extortionists Who 'Hijack' People's Ideas*, BUS. INSIDER (Feb. 15, 2013, 11:32 AM), http://www.businessinsider.com/obamas-patent-comments-at-google-chat-2013-2 ("They are essentially trying to leverage and hijack somebody else's idea and see if they can extort some money out of them." (quoting President Barack Obama) (internal quotation marks omitted)). The irony of this statement is that—assuming the patent is valid and infringed—the idea was first that of the patentee. *See, e.g.*, Duffy, *supra* note 26, at 1364 ("If the documentary disclosure theory is the foundation of the patent system, then any hostility toward NPEs or trolls is inexplicable.").

28 Pénin, *supra* note 6, at 635 ("Hence, while patent brokers in their pure form try hard to grant licenses (they look for customers, advertise their technologies on the Internet, etc.), patent trolls keep their patent portfolios hidden and want to be infringed." (citation omitted)); Reitzig et al., *supra* note 8, at 146 ("But even if the law 'only' offers a reasonable royalty fee as compensation for the infringement, 'being infringed' may be far more profitable than entering real licensing negotiations ex ante." (emphasis omitted)).

ization goals. Some go so far as to imply that positive spillovers from acquired patents essentially end if the original firm went out of business.[29]

To be sure, not every old patent in this category fits the "low commercialization value" story. For example, standards-essential patents presumably fit in either category two (new commercialization license) or four (old patent license), depending on when the standardized product is manufactured. Early products will take commercialization licenses. A few early products might require enforcement threats (category three), but early standards litigation against the masses is relatively rare. Later products will take old patent licenses or face enforcement (category four).

The question, then, is why old standards patents in category four are routinely licensed without public outcry,[30] while acquired patents in category four have been subject to harsh criticism.[31] Though it does not attempt to answer all such criticism, the remainder of this Essay will focus on the commercialization benefits of licensing acquired patents.

II. THE NEWNESS OF ACQUIRED PATENT LICENSING

Defenders of acquired patent licensing often argue that our patent system has always supported licensing, and current times are no different. However, and while longstanding secondary markets surely existed, the comparison to today is incomplete. It is true that patentees have always licensed their inventions, and even used intermediaries to do so.[32] However,

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29 Morton & Shapiro, *supra* note 6, at 13 (stating that "in cases where the original patentee's operating business failed and the patent was sold to a PAE and then asserted against a downstream firm with large revenues, we would expect" that investments by licensees would be far more beneficial than R&D investments of defunct businesses). This argument, though intuitively attractive, is false. Assuming money is returned to the failed businesses' founders and investors, such founders and investors will have more funds to invest in serial innovation. *See, e.g.*, Paul Gompers et al., *Performance Persistence in Entrepreneurship*, 96 J. FIN. ECON. 18, 18 (2010) (discussing which entrepreneurs become serial entrepreneurs, and showing that prior success is more likely to lead to future success).

30 *See* U.S. DEP'T OF JUSTICE, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 5.5 (1995), *available at* http://www.justice.gov/atr/public/guidelines/0558.pdf (describing general legality of pools, within limitations). *But see* David A. Balto & Brendan Coffman, *When Patent Pools Attack: Competitive Concerns from the Devolution of MPEG LA*, PATENTLY-O BLOG (Mar. 1, 2013), http://www.patentlyo.com/patent/2013/03/guest-editorial-on-patent-pools-and-competition.html (arguing that MPEG-LA pool's enforcement of older patents is no different than that of any other patent assertion entity and is anticompetitive).

31 Jiaqing "Jack" Lu, *The Economics and Controversies of Nonpracticing Entities (NPEs): How NPEs and Defensive Patent Aggregators Will Change License Market: Part 1*, LES NOUVELLES, Mar. 2012, at 55, 56, *available at* http://ssrn.com/abstract=1935524 ("Apparently, within the span of barely a decade, independent patent holders who used to be perceived as victims have now been portrayed as victimizers or trolls.").

32 Lamoreaux et al., *supra* note 1, at 9-10.

those licenses were usually early-stage licenses,[33] described supra in categories one and two. Additionally, complaints about intermediaries during the growth of secondary markets (approximately 1850-1880) were not associated with acquisition or the nonpracticing status of patent owners, but rather with asymmetric information associated with the license.[34] For example, some patents were not really improvements, and others were not well understood.[35] Using history to support acquired patent licensing thus downplays negative aspects of non-manufacturers.

There is also a lack of evidence supporting claims of a long, unbroken history of business models based on acquisition licensing.[36] While there are some historical examples of broad-based patent acquisition and enforcement, as well as a few individual patent purchasers throughout history, patent acquisition as a business model appears to be relatively new. Historical accounts show almost no discussion of such activities at the time in the non-specialized press, along with few assignments to nonmanufacturing companies.[37]

Indeed, only one notable time period in our past involved high-profile enforcement of just a few acquired patents: the era of railroad, agriculture, and denture sharks. This is not to say that there is nothing to learn from the historical exceptions.

A. *Historical Exceptions*

The most reviled railroad patent owner (or at least the most active) appears to have been Thomas Sayles, who acquired three double-braking railroad patents, licensed one, and then sued for infringement on the others.[38] Sayles also acquired an important agricultural cultivator patent and sued manufacturers for infringement.[39]

Despite several proposed patent law reforms that were rejected as affecting "good" inventors,[40] in 1878 the Supreme Court finally put an end to the dispute through application of a simple rule: if you practice the prior art, but not the patent, then you cannot be infringing.[41] This, of course, is a ves-

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33 *Id.* at 10, 20.

34 *Id.* at 9 ("Such long-distance arrangements were fraught with information problems.").

35 *Id.* at 10.

36 Golden, *supra* note 23, at 598 (discussing historical equilibrium that excluded "outsiders" from patent enforcement).

37 Lamoreaux et al., *supra* note 1, at 22.

38 *Id.* at 21.

39 Sayles v. Hapgood, 21 F. Cas. 605, 605-06 (C.C.N.D. Ill. 1869) (No. 12,420); *The Cultivator Litigation*, PRAIRIE FARMER, Mar. 30, 1872, at 97.

40 Colleen V. Chien, *Reforming Software Patents*, 50 HOUS. L. REV. 325, 346-48 (2012).

41 Ry. Co. v. Sayles, 97 U.S. 554, 563 (1878) ("In a word, the construction and mode of operation of the Stevens brake are altogether so different from that of Thompson and Bachelder's, or Tanner's,

tige of central claiming when patentees did not have to explicitly claim their inventions, thus making it difficult to determine when infringement occurred.[42] The problems raised by unclear claiming have application to today's disputes about the meaning of software patent claims and problems associated with such disputes.[43]

However, it is not as though there was some court campaign being mounted against the idea of acquired patents.[44] For instance, earlier patent speculators received damages awards that courts upheld.[45] Further, contrary to some historical reports,[46] Sayles did not slink away because of damages reform. To be sure, the Supreme Court limited damages by eliminating the "savings doctrine,"[47] which measured damages by calculating the amount of money the patented invention saved. But seven years later, in the case most often cited as "reforming" the savings doctrine, Sayles's damages were only cut in half, and even that was in a *prior* proceeding, not in the Su-

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that [there is no liability]."); *By Telegraph*, DESERET NEWS, Nov. 27, 1878, at 686, *available at* http://news.google.com/newspapers?nid=336&dat=18781127&id=X58EAAAAIBAJ&sjid=CDEDAAAAIBAJ&pg=6926,1803086 (reporting on the Supreme Court's finding in favor of the railroads in the "Tanner brake case"). *But see* STEVEN W. USSELMAN, REGULATING RAILROAD INNOVATION: BUSINESS, TECHNOLOGY, AND POLITICS IN AMERICA, 1840-1920, at 109-12 (2002) (describing series of wins by Sayles for infringement of Tanner patent).

42 Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1746-47 (2009) (describing central claiming approach to patents). *Merrill v. Yeomans*, which established the primacy of the patent claim, was decided only two years before *Railway Co. v. Sayles*. 94 U.S. 568, 569 (1876) ("We use the word 'claim' as distinct from 'description.'").

43 U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 19-22, 28 (2013) (unclear patent boundaries and growth in software patents lead to rise in litigation); Lamoreaux et al., *supra* note 1, at 36 ("As in the past, the growth of the market for technology has given rise to new problems of asymmetric information that opportunists can exploit to their advantage. . . . As in the past, moreover, such opportunists are particularly active in the segments of the market most afflicted by information problems—in software, for example . . . ."); *see generally* JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 187-93 (2008) (describing the problems associated with software patents, including high rates of litigation and claim-construction review).

44 *But see* Chien, *supra* note 40, at 349 (arguing that "Court leadership" helped to end patent shark activity).

45 USSELMAN, *supra* note 41, at 117.

46 *Id.*; Lamoreaux et al., *supra* note 1, at 21 ("[T]he Court effectively limited the amount that sharks could extract by ruling that infringers were liable only for the incremental benefits they garnered from using a particular invention over possible substitutes."). *But see* Steven W. Usselman & Richard R. John, *Patent Politics: Intellectual Property, the Railroad Industry, and the Problem of Monopoly*, 18 J. POL'Y HIST. 96, 116 (2006) (providing a view of the key cases consistent with this Essay).

47 Mowry v. Whitney, 81 U.S. (14 Wall.) 620, 650 (1871) ("It is as true of a process invented as an improvement in a manufacture, as it is of an improvement in a machine, that an infringer is not liable to the extent of his entire profits in the manufacture.").

preme Court.[48] In fact, Sayles continued to make high damages demands after 1878.[49]

Sayles's downfall, it seems, was that his patents were not particularly good and did not survive judicial review—a failing that is attributed to some, but not all, of today's acquired patents.[50] With the railroad patent, for instance, the Court ruled there was no infringement.[51] Sayles took nothing for that reason alone, not because the patents he held were acquired. Sayles also lost on his cultivator patent on the basis of a weak claim, specifically lack of novelty.[52]

Looking beyond the reasons for Sayles's courtroom losses, there is other evidence that the Supreme Court was not concerned about acquired patents. As if to emphasize that the Court did not have a bias against acquired patents, later in the same year that Sayles lost his railroad case the Court ruled that Sayles could purchase a patent and then seek its renewal, thus further enforcing an old, acquired patent.[53] The ruling led to significant consternation and a new round of proposed legislation limiting renewals.[54] But here, too, the concern was not the acquired nature of the patents, or even the renewals of old patents per se. Instead, the concern was that the renewals *broadened* the scope of the patent to cover what had previously been considered to be in the public domain. This congressional testimony vividly describes the concerns associated with Sayles:

> Then along comes what I call one of these patent sharks or patent speculators. He goes down to the [patent] office and rakes that class over with a fine-tooth comb to see if he cannot find an old patent which can be reissued to cover this successful machine. He comes across the old defunct patent and goes and buys it. The owner, of course, is glad to get what he spent on it . . . . Very frequently the man is dead, and he will go to the widow or heirs, and they will take anything he offers them for it. He reissues that patent. . . . [I]t was put through the *enlarging* process, not for the purpose of what that patentee invented, but for the purpose of covering other inventions.[55]

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48 Ry. Co. v. Sayles, 97 U.S. 554, 556 (1878) (citing *Mowry*, 81 U.S. (14 Wall.) 620) (holding that a reduction in damages caused by savings is appropriate).

49 Root v. Ry. Co., 105 U.S. 189, 215-17 (1881) (dismissing bill in equity seeking profits when action in law seeking damages would have been sufficient).

50 *See supra* note 7.

51 *Sayles*, 97 U.S. at 556.

52 Sayles v. Hapgood, 21 F. Cas. 605, 607 (C.C.N.D. Ill. 1869) (No. 12,420) (ruling that the cultivator patent assigned to Sayles was invalid for lack of novelty).

53 Hendrie v. Sayles, 98 U.S. 546, 554-55 (1878).

54 *Arguments Before the S. and H. Comms. on Patents, in Support of, and Suggesting Amendments to, the Bills (S. No. 300 and H.R. 1612) to Amend the Statutes in Relation to Patents, and for Other Purposes*, 45th Cong. 155 (1878) [hereinafter *H.R. 1612 Arguments*]. The proposed bill drastically shortened the statute of limitations to two years, among other things. *Id.* at 1.

55 *Id.* at 79. One such case involving a non-acquired patent related to an inventor named Marsh. Upon learning that his patent anticipated the Sayles cultivator patent in *Hapgood*, 21 F. Cas. at 607, Marsh sought to expand his patent to claim previously public domain aspects of his patent disclosure.

The proposed legislation in 1878 would have increased fees on owners to keep reissues from happening,[56] and voided all assignments not recorded with the Patent Office within a very short period of time.[57] But even then, the proposed legislation continued the rule set by the Supreme Court: an acquirer could still obtain a reissue, but now only if the inventor signed the application.[58] This provision, unlike the others, clearly targeted acquirers.

The draconian measures—targeted primarily at limiting broadening reissue by acquirers—failed.[59] Instead, a simpler solution served as one of the reasons Sayles lost his railroad patent suit: that same year, the Supreme Court recognized that Sayles's asserted renewal patent was broader than the initial patent application and simply did not allow it.[60]

This same broadening reissue concern bled through to agricultural patents, where old, "bottom" patents were renewed to include what had previously been considered unprotected equipment.[61] Farmers were routinely faced with patents on older technology, like milk cans, barbed wire, and drivewells.[62] The farmers approached by patent owners disliked acquired patents, to be sure, but they were distinctly anti-patent in all respects.[63] When agricultural product manufacturers reported that they had combined to buy potentially threatening patents (considered defensive patent acquisition today),[64] the response from farmers was that the manufacturers were no better than the patent sharks:

The court did not allow him to do so. Marsh v. Sayles, 16 F. Cas. 818, 820 (C.C.N.D. Ill. 1872) (No. 9,119).

56 *H.R. 1612 Arguments*, *supra* note 54, at 6, 11, 79. This was also the birth of the new matter rule, which disallows any new matter from being added to patent applications. *Id.* at 3.

57 *Id*. at 6.

58 *Id*. at 8.

59 Chien, *supra* note 40, at 347.

60 Ry. Co. v. Sayles, 97 U.S. 554, 563 (1878) ("It will be observed that we have given particular attention to the original application, drawings, and models filed in the Patent Office . . . . We have deemed it proper to do this, because, if the amended application and model, filed by Tanner five years later, embodied any material addition to or variance from the original,—any thing new that was not comprised in that,—such addition or variance cannot be sustained on the original application.").

61 Earl W. Hayter, *The Patent System and Agrarian Discontent, 1875-1888*, 34 MISS. VALLEY HIST. REV. 59, 62 (1947).

62 *Id*. at 64-65; Lamoreaux et al., *supra* note 1, at 21.

63 Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583, 1598 (2009) ("It is tempting to fit what came to be known as 'sharks' into [a framework of traditional secondary markets], dismiss the inflamed rhetoric of the time as excessive and short-lived, and conclude that the system for the most part worked just fine. I think this would be a mistake. It ignores the real dislocation felt by an entire class of economic actors—small farmers—and the resulting damage to the image and integrity of the patent system.").

64 *The Cultivator Litigation*, *supra* note 39, at 97 (describing joint attempts to fight and license patents).

> We are told that the object of the [defensive] "ring" is to "give the farmers the benefit" of what they have done, "without adding to the price" of cultivators, and to "make all the manufacturers who failed to join" them in [the] "fight with the patent sharks" pay them a royalty. To this we answer that the "ring" refused to let others join them in the fight; and further, it is well known that they have considered, and are now contemplating an advance in the price of cultivators . . . . There is not a farmer in the country who does not indignantly repudiate the pretentions of the "Ten Ring."[65]

By resisting the end user impact of defensive patent acquisition strategies, these historical farmers closely mirror the players in today's anti-software patent movement.[66] It is another lesson from our limited history with acquired patent licensing.

But not all acquired patent holders lost because of a broadening reissue. Perhaps the most active acquired patent enforcer of the late-nineteenth century was the Goodyear Vulcanite Denture Company. Its patent survived and thrived, despite application of the same rule applied to defeat Sayles.[67] Josiah Bacon purchased a denture-related patent from its inventor, Dr. Cummings.[68] Though named "Goodyear," the company was not actually associated with Charles Goodyear, the famous inventor of rubber, nor his brother Nelson Goodyear, who obtained a patent on "Vulcanite Rubber," a cured, hardened version.[69]

In 1855, Cummings filed for a patent on dentures in which false teeth were implanted on a hard plate embedded in gum-shaped vulcanite rubber dentures.[70] This was a critically important invention; by the 1860s, virtually every dentist in America used dentures made this way. The problem for the dentists was that Cummings's patent was what we now call a submarine

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65 Anti-Monopoly, *The Cultivator War*, PRAIRIE FARMER, May 4, 1872, at 137 (May 4, 1872). *Compare* Patron, *Hints and Suggestions*, PRAIRIE FARMER, Feb. 22, 1873, at 57, *with* Michael Risch, *Don't Blame the Trolls for the Patent Problem*, WIRED (Mar. 15, 2013, 6:30 AM), http://www.wired.com/opinion/2013/03/stop-blaming-the-trolls-or-we-wont-be-able-to-fix-the-patent-system/ ("But cross-licensing against the threat of mutual destruction is no panacea to the patent problem, either. Cross-licensors are happy to exclude individuals and startups, which could halt disruptive innovation . . . .").

66 *See, e.g.*, Richard Stallman, *Let's Limit the* Effect *of Software Patents, Since We Can't Eliminate Them*, WIRED (Nov. 1, 2012, 6:30 AM), http://www.wired.com/opinion/2012/11/richard-stallman-software-patents (arguing that Apple may be the most dangerous patent holder).

67 Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486, 499 (1876) (affirming the original patent and a reissue that was supported in the original specification).

68 JAMES WYNBRANDT, THE EXCRUCIATING HISTORY OF DENTISTRY 165-68 (1998); *see also* Christopher Beauchamp, Technology's Trials: Patent Litigation in the United States Courts, 1860-1910, at 39-40 (unpublished manuscript) (on file with author) (showing more than two thousand cases filed by Goodyear Vulcanite Denture Company in just a few judicial districts).

69 WYNBRANDT, *supra* note 68, at 166. The company did have exclusive rights to the vulcanite patent as it applied to dentistry. Henry Coy, Correspondence, *Hard-Rubber Patents*, *in* 11 DENTAL COSMOS: A MONTHLY RECORD OF DENTAL SCIENCE 424, 424 (J. H. McQuillen & Geo. J. Ziegler eds., 1869).

70 E. Ernest Caduc, Letter to the Editor, *The Murder of Josiah Bacon*, N.Y. TIMES, May 4, 1879, at 2.

patent; it did not issue until 1864 and was a secret before that time.[71] Further, Nelson Goodyear's vulcanite patent expired in 1861, so dentists believed that they were not infringing any patents (but that patent was reissued for a term expiring in 1872 and was asserted against dentists in the late-1860s). That's when Bacon and his company started seeking license fees.[72] Enforcement continued until a disgruntled dentist—one who had moved to Denver and then San Francisco to avoid the patent—shot Bacon dead in San Francisco following an infringement verdict.[73] The shooter's defense was that Bacon refused to grant a license after the ruling but instead insisted on an injunction to make an example out of dentists who refused to license.[74]

Here, too, the concern was not the acquisition of Cummings's patent, but instead its age and apparent application to technology that the dentists considered old (in addition, obviously, to the aggressive enforcement, which included sending spies to dentists to order dentures).

Despite periodic reference to "speculators," these few cases are about the only documented examples of acquired utility patent enforcement.[75] To be sure, there were plenty of cases. Bacon filed hundreds of lawsuits against dentists.[76] Sayles was responsible for at least twenty-three cases[77] and thirteen court decisions.[78] Of these, only one decision related to agriculture.[79] But even with all these cases, Sayles only acquired a few patents to assert,

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71 The delayed patent was later upheld by the Supreme Court. *Goodyear Dental Vulcanite*, 93 U.S. at 501 ("That he never intended an abandonment of his invention is perfectly clear; and it was not his fault that granting the patent was so long delayed.").

72 Caduc, *supra* note 70 (implying that Cummings, the inventor, started the company and that Bacon received a salary rather than a share of any earnings). Most historical accounts (and the Supreme Court case) imply that Bacon purchased the rights. If, however, Cummings did form the company, then this would not be an instance of acquired patent licensing, but merely old patent licensing.

73 WYNBRANDT, *supra* note 68, at 169. Upon his release, grateful San Francisco dentists set the shooter up with his own practice.

74 *Dr. Chalfant: He Attempts an Explanation of the Murder of Mr. Bacon*, N.Y. TIMES, May 6, 1879, at 3.

75 Speculators enforced design patents as well, but even with these, claims via patent shark suits were isolated. Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1822-25, 1833-34 (2007).

76 Beauchamp, *supra* note 68, at 39-40.

77 USSELMAN, *supra* note 41, at 110-12 (describing cases brought by Sayles); Beauchamp, *supra* note 68, at 39 (counting cases, though only a small percentage of Sayles's cases were in railroad);

78 DIGEST OF DECISIONS OF THE UNITED STATES CIRCUIT AND DISTRICT COURTS, FROM 1789 TO 1880, AS CONTAINED IN THE THIRTY VOLUMES OF THE FEDERAL CASES 181 (1898).

79 *Id.*

and Bacon only one.[80] Only one non-manufacturer acquired more than ten patents during the relevant time period.[81]

B. *Lessons from the Past*

Three lessons from this brief historical experience inform acquired licensing today: why it may have occurred, why it may have waned, and how acquired patents relate to commercialization.

1. Lessons from the Rise

One parallel to the rise of acquired patents regards information asymmetries associated with patent scope.[82] In the 1870s, this asymmetry related to the shift from central claiming to peripheral claiming. Patents written prior to 1870 did not require the patentee to specifically point out the claimed subject matter. But when these patents were renewed and/or enforced after 1870, courts faced an uncertain transition about claim scope. Speculators used this deficiency to their advantage, until the Supreme Court clarified and narrowed infringement rules.

Similarly, today the growth in acquired patent licensing is primarily in software patents,[83] an area long criticized for unclear patent claims.[84] Uncertain claim scope surely also has a role in acquired patent licensing to-

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80 Due to more primitive corporate structures, one might not expect to have seen mass aggregators during the nineteenth century. However, there was nothing holding individuals back from buying patents, especially because they were the primary agents.

81 Lamoreaux et al., *supra* note 1, at 22.

82 *Id.* at 36.

83 U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 43, at 28.

84 *See* BESSEN & MEURER, *supra* note 43, at 187-88; *see generally* Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities*, 5 J. LEGAL ANALYSIS 1, 5, 9-10 (2013) (describing costs associated with poorly defined scope); Shawn P. Miller, Do "Fuzzy" Software Patent Boundaries Explain High Claim Construction Reversal Rates? 2-3 (Feb. 7, 2013) (unpublished manuscript), *available at* http://papers.ssrn.com/abstract=2139146. *But see* J. Jonas Anderson & Peter S. Menell, *Informal Deference: An Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. (forthcoming 2013) (manuscript at 35), *available at* http://papers.ssrn.com/abstract=2150360 (showing fewer appellate reversals of software and computer claim constructions since July 2005).

day.[85] Economists have noted that weak property delineation has led to reduced licensing.[86]

These are not the only asymmetries, however. Differing licensing expectations also result in asymmetry. Professor Steven W. Usselman attributes this to the "cavalier" licensing practices of the railroads:

> The ultimate intent of railroads was apparent in their willingness to forego paying any fee and risk infringement. Latecomers who encountered escalating prices were especially prone to flaunt claims of patentees. Instead of paying what they considered an inflated fee, railroads would infringe and claim the lower fee as the established one if taken to court. With each passing year in a patent's life, moreover, the possibility arose that another patent covering a similar principle would come to light. If this happened, railroads stopped paying fees and left the inventors to battle over the question of priority.[87]

This description mirrors very closely many of the stories that come from high technology patent licensing today, and the parallels to modern acquired patent licensing in software are stunning. For example, many claim that software companies were started and grown without the need for any patenting.[88] Google was famously caught unprepared for its competitors' assertions of patents,[89] and since that time has been leading the lobbying charge to limit patent assertions.[90]

Furthermore, patent clearance was difficult then just as it is difficult now, though for different reasons. Even so, companies today resist paying license fees when they do learn of patents, just as the railroads did in the 1870s.

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85 U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 43, at 28; Seongkyoon Jeong et al., *Licensing Versus Selling in Transactions for Exploiting Patented Technological Knowledge Assets in the Markets for Technology*, 38 J. TECH. TRANSFER 251, 269-70 (2013) (finding that owners are more likely to sell patents when technology value is uncertain).

86 Anand & Khanna, *supra* note 10, at 128 ("For weakly protected technologies, licensing is likely to be less desirable . . . . Hence, both the aggregate incidence of licensing activity, as well as the ratio of licenses to joint ventures . . . is likely to be greater when property rights over technology are strong, ceteris paribus."). *But see* McDonough, *supra* note 6, at 215 (arguing that acquirers reduce information asymmetries). It is unclear if this is true in practice.

87 USSELMAN, *supra* note 41, at 106.

88 *See, e.g.*, James Bessen, *A Generation of Software Patents* 15 (Boston Univ. Sch. of Law, Working Paper No. 11-31, 2011); Mike Masnick, *The Myth that Software Startups Need or Want Patents*, TECHDIRT (Aug. 17, 2011, 1:10 AM), http://www.techdirt.com/articles/20110815/12340315535/myth-that-software-startups-need-want-patents.shtml.

89 Joff Wild, *We Got It Wrong on Patents Says Google VP*, INTELL. ASSET MGMT. BLOG (Sept. 13, 2012), http://www.iam-magazine.com/blog/detail.aspx?g=098e20df-86ee-4dc8-9ad3-526d7707bdae&q.

90 Catherine Ho, *As Patent Trolling Goes Mainstream, So Too Does a Lobbying Group Created to Fight It*, WASH. POST (Aug. 11, 2013), http://articles.washingtonpost.com/2013-08-11/business/41299701_1_patent-claims-america-invents-act-coalition.

Ron Epstein, a licensing executive with experience representing everyone from individuals to large companies, explained the rise of acquired patent licensing in a radio interview:

> The reason that these patent investors showed up in the market place is . . . the second oldest business transaction, which is arbitrage . . . . These patents are worth more than nothing. The large operating companies are paying inventors nothing. You therefore have a difference in value between what the inventors are getting, which is nothing, and what they're worth, which is more than nothing. And these patent investors walk in and play an arbitrage role. They give the inventor something *and* they have both the economic resources *and* the business acumen and experience necessary to force the operating companies to pay *something*. So, one of the reasons why they are so scary is, "Boy, I'd rather negotiate with an inventor for whom this is his one and only negotiation with me than I would someone who is well funded and experienced."[91]

This behavior is supported by empirical evidence; a study of licensing by public companies shows that those in computer industries almost never license patents prior to development and are more likely than those in other industries to enter licenses when they have a prior relationship with the licensor.[92]

Like many companies today, sometimes railroads did take early category one- and two-type licenses—at least until they developed non-infringing alternatives or otherwise stopped paying.[93]

2. Lessons from the Fall

While today's acquired patent licensing story is not over—far from it, it seems—the gradual fade of the few patent speculators in the late 1800s may provide some lessons for today. One account is that certain judicial and legislative reforms helped diminish the market value of patents.[94] That is certainly true of design patent sharks that preyed on farmers. Changing the subject matter of design patents to exclude "useful" items reduced the

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91 *Hearsay Culture*, *supra* note 24; *see also* Arora & Fosfuri, *supra* note 18, at 17 ("[P]atent holders might have incentives to collude in order to reduce or stop licensing and hence increase profits."); Hagiu & Yoffie, *supra* note 6, at 52-53 (describing arbitrage opportunities for acquired patents); George Stalk, Jr. & Rob Lachenauer, *Hardball: Five Killer Strategies for Trouncing the Competition*, HARV. BUS. REV., Apr. 2004, at 62, 68 ("[H]ardball players know better. They're willing to steal any good idea they see—as long as it isn't nailed down by a *robust* patent . . . ." (emphasis added)). At a recent event, a founder of patent acquirer Rembrandt IP Management noted that the company was founded because patents have the unusual trait of being worth different amounts depending on who owns them.

92 Anand & Khanna, *supra* note 10, at 114 ("[F]ewer than 6 percent of contracts in Computers and Electronics involve ex-ante technology transfers.").

93 USSELMAN, *supra* note 41, at 106.

94 Chien, *supra* note 40, at 347-48.

sharks' ability to assert those patents.[95] The irony, of course, is that courts have since allowed design patenting of useful objects.[96] The real reform is that, like broadening reissues, prior useful objects could not get *new* design protection for the same shapes.[97] As noted above, the railroad patents similarly waned as infringement standards settled and damages exposure shrank and became more predictable.[98]

But there is another reason why the few speculators acquiring patents faded into oblivion: the nature of research and development shifted. It is now well documented that individual and small inventors became less important in the patent system around the turn of the twentieth century.[99] This shift coincided with the growth of large firm invention and patenting.[100]

In short, acquired patent licensing diminished as inventors joined companies and assigned their patents to those companies rather than to patent agents. Thus, acquired patents may follow the ebb and flow of small and independent inventors. As corporate research grows, small and independent patenting and licensing shrinks.[101]

Today, as companies have downsized their investments in research and development,[102] acquisition of patents for licensing has risen. Indeed,

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95 Magliocca, *supra* note 75, at 1832 (stating that legislative action was required to stop design patent sharks in agriculture).

96 *See, e.g.*, Michael Risch, *Functionality and Graphical User Interface Design Patents*, 17 STAN. TECH. L. REV. 53, 54-55 (2014).

97 *See, e.g.*, Theberath v. Rubber & Celluloid Harness Trimming Co., 15 F. 246, 250 (C.C.D.N.J. 1883) ("There is, therefore, no foundation for the argument of the learned counsel for the complainant, that design patents are not avoided from being in public use or on sale for more than two years prior to the application for a patent. The limitation applies to them, and an inventor is not permitted to exhibit his skill and taste in decorative art by the publication of elegant designs through a course of years, and then debar the public from any further use by obtaining letters patent for the same.").

98 *See* Chien, *supra* note 40, at 349.

99 *See generally* Naomi R. Lamoreaux, Kenneth L. Sokoloff & Dhanoos Sutthiphisal, *The Reorganization of Inventive Activity in the United States During the Early Twentieth Century*, *in* UNDERSTANDING LONG-RUN ECONOMIC GROWTH 235 (Dora L. Costa & Naomi R. Lamoreaux eds., 2011); Lamoreaux et al., *supra* note 1, at 34 n.99.

100 Lamoreaux et al., *supra* note 1, at 34.

101 Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900-2000*, 88 CALIF. L. REV. 2187, 2216 (2000) ("As the twentieth century progressed, inventions were more and more likely to be the product of large-scale corporate R&D rather than of the lone workshop tinkerer."); Justin E. Gray & Harold C. Wegner, Top 150 "Customers": Increasing Domination of the Patent System 3 (Nov. 23, 2009), *available at* http://www.grayonclaims.com/storage/GrayWegnerTop300Nov23REV.pdf (noting concentration of patents in large companies).

102 Ashish Arora & Alfonso Gambardella, *The Market for Technology*, *in* 1 HANDBOOK OF THE ECONOMICS OF INNOVATION 641, 650-51 (Bronwyn H. Hall & Nathan Rosenberg eds., 1st ed. 2010); Lamoreaux et al., *supra* note 1, at 34 ("In the face of stepped-up competition, large firms began to cut their research budgets and acquire more of their technology from outside sources. In the process, their share of non-federal R&D expenditures dropped from about two-thirds in 1980 to only about one-third in 2005."); Charles Duhigg & Steve Lohr, *The Patent, Used as a Sword*, N.Y. TIMES (Oct. 7, 2012), http://www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition

many large companies have assigned their patents to others for licensing, rather than hold them within the firm.[103] Furthermore, software has allowed many more small and independent inventors to obtain patents.[104] This parallel implies that acquired patent licensing might become less important if companies invested more money in early-stage research and development, rather than late-stage product commercialization and manufacturing.

3. Lessons for Commercialization

Even if acquired license patenting persists, history might still provide some lessons for the commercialization of inventions. Professor Usselman explains how increased patent enforcement of old patents led to potential licensees paying more vigilant attention to early patents. "Managers, . . . caught off-guard, realized belatedly that they would need to maintain close watch over inventive activities or risk losing access to channels of innovation they had come to take for granted."[105]

Railroads similarly changed their practices based on a relatively limited number of plaintiffs. Given the scale of acquired patent licensing today, these lessons in licensee behavior might apply even more soundly.

III. THE BENEFITS OF LICENSING ACQUIRED PATENTS

Contrary to the conventional wisdom, there are several benefits associated with licensing acquired patents, and this Part will now consider how acquired patent licensing might change early commercialization in the future. As a part of that consideration, this Part does not claim that all such benefits will increase social welfare.[106] Indeed, and as suggested in the In-

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.html?pagewanted=all&_r=0 ("Last year, for the first time, spending by Apple and Google on patent lawsuits and unusually big-dollar patent purchases exceeded spending on research and development of new products, according to public filings."); John Gertner, *Like Building Refrigerators: Bell Labs and the End of Game-Changing Innovation*, TIME (Mar. 27, 2012), http://business.time.com/2012/03/27/like-building-refrigerators-bell-labs-and-the-end-of-game-changing-innovation (commenting on the closing of Bell Labs: "[I]t had become difficult, and perhaps unnecessary, for a company to capture the value of a big breakthrough. So why do it?").

103 Leslie A. Gordon, *'Patent Privateers' Do Legal Legwork for Big-Time Tech Companies*, A.B.A. J. (July 1, 2013, 2:30 AM), http://www.abajournal.com/magazine/article/small_companies_pick_up_the_cost_of_patent_privateering_litigation/.

104 *See* Lamoreaux et al., *supra* note 1, at 34 ("By the end of the [twentieth] century, however, small firms and independent inventors were once again major participants in the market."); Risch, *supra* note 7, at 486 (tracing provenance of NPE patents to individuals and small businesses).

105 USSELMAN, *supra* note 41, at 117.

106 Arora & Fosfuri, *supra* note 18, at 13 ("Does a policy which stimulates licensing always increase welfare? The answer is not always in the affirmative and it turns out that under certain circumstances we might have too much licensing with respect to the socially efficient level."). *But see* Reiko

troduction, social welfare might be maximized if everyone spent resources inventing and then freely shared their inventions with the world.

Stopping short of such a lofty goal, this Essay instead seeks a private ordering solution that incorporates the likelihood of parties acting strategically with respect to competitors. In all cases, the Essay assumes that earlier commercialization is better than later commercialization.[107] It also recognizes that while diffusion is beneficial, sometimes lack of diffusion can spur further innovation by forcing the design of alternative solutions. After all, necessity is the mother of invention.

And finally, this Essay assumes good faith negotiations on both sides, where patent quality is handled through pricing rather than litigation.[108] This assumption is more likely than it might appear. Patentees will surely overclaim, seeking payment on patents where the chances of winning infringement claims are very low. Even so, licensing a patent with a 5 percent chance of winning can produce strategic and commercial advantages over those who do not do so. Reasonable licensing and pricing attempts will fail when patentees overvalue their patents (and odds of winning), but the goal should be to determine and rectify the causes of failure rather than discard the entire system.

Based on the assumptions above, contrary to conventional wisdom, and despite their relegation to the least beneficial category of licensing, attempts to license acquired patents can provide commercialization benefits—even for companies that have already developed infringing technology. By identifying important patents; settling litigation licensing terms that grant some freedom to operate; and allowing manufacturers to decide whether and when to pay attention to patents—as opposed to leaving the uncertain outcomes lurking in a context of undefended but extant patents—licensing of acquired patents can benefit commercialization through certainty and ordering of the market.

A. *Signaling*

First, acquired patent license requests (usually called assertion) provide signaling to companies about what patents might be relevant to their products and services. This signaling can disclose valuable information: the

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Aoki & Jin-Li Hu, *Licensing vs. Litigation: The Effect of the Legal System on Incentives to Innovate*, 8 J. ECON. & MGMT. STRATEGY 133, 135 (1999) (social welfare is optimized when litigation costs are high and both parties prefer licensing).

107 *See supra* note 13 and accompanying text.

108 Anand & Khanna, *supra* note 10, at 114 (finding that only 3 percent of licenses were signed as part of a litigation settlement); Joseph Farrell & Carl Shapiro, *How Strong Are Weak Patents?*, 98 AM. ECON. REV. 1347, 1348-49 (2008) (defining model for probabilistic patent royalty).

alleged infringer can now license, invent around, or challenge the patent.[109] Even if the license includes payment for past activities, these are more choices than were available before, when the company was unaware of the patent or patents.

Furthermore, the simple acquisition of a patent directly tells demand letter recipients that the sender is that much more likely to have the funds to litigate, if necessary. Potential licensees are thus better able to sort out which demands are associated with patents that might have more value, or at least are more likely to be enforced. It stands to reason, then, that those who acquire patents but only feign a willingness to enforce the patent create problems for the market; demand recipients no longer can tell whether the patentee believes the patent will withstand challenge or is otherwise willing to enforce the patent.

The signaling effect is beneficial, even if the demand recipients are end users of some other technology provider. Even in this case, the technology provider may learn of relevant patents in the area and has more information than before to license, challenge, or design around the patent.

A focus on this signaling function may seem trite; surely those accused of infringing an acquired patent would rather live on in blissful ignorance rather than receive any "information" (scare quotes and all). Skeptics who hate patent trolls would likely think this signaling is some sort of joke, a facetious play on an otherwise abhorrent practice.

But this is a serious proposition, supported by two observations. First, finding all of the patents that might apply to a product is difficult, and some even argue impossible.[110] Second, information asymmetries mean that inventors and those that acquire their patents know more than anyone else about whether their patents are relevant to a given product or service. This asymmetry is true regardless of whether the patent has merit. Once given notice, the potential licensee can use the signal to make its own decisions. A licensee cannot, however, determine the merits of an unknown patent.

Thus, if patent clearance truly is too expensive—a hotly debated proposition—then there are two primary options. The first is to eliminate protection for all patents asserted after infringer development. This option is unpalatable for most who believe that there should be *some* patent system. The second is to shift the burden of notification to the party with better in-

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109 *See* Ralph Siebert, *Are Ex Ante and Ex Post Licensing Agreements Useful Instruments to Lessen Uncertainty in R&D?* 17 (CESifo Working Paper No. 4535, 2013), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2378274 (finding that licensing can serve "as an instrument to lessen uncertainty in R&D and . . . as an instrument for firms to guarantee 'freedom to operate.'" (citation omitted)).

110 Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, 68 N.Y.U. ANN. SURV. AM. L. 289, 304-05 (2012) (theorizing that finding all potential relevant patents on all new products might cost $400 billion each year).

formation.[111] But doing so has its own issues. For example, the patent owner may not know how a product operates, and thus may provide notice improperly, or may not provide notice early. Or, a technology provider might not be infringing even if its customers are.

As a result, balancing the proper allocation of clearance duties and notice requirements is difficult. Patent reform suggestions, such as providing an innocent infringer defense or staying cases against end users, will surely affect calculation of the balance. Some adjustment may be for the better, such as consolidating defenses in a single manufacturer. Some adjustment, however, may be for the worse—for instance, by creating incentives to feign difficulty in finding patents or increasing false infringement notices due to opaque product operation.

Of course, all other things being equal, it would be better if producers knew about potential patents *before* they started producing. But there may be many reasons why category one, two, and three licenses did not occur, not the least of which is that it takes several years to obtain a patent from the time an application is filed. If early signaling is not possible, then later signaling can still be helpful for commercialization.

This is especially true when the acquirer is an aggregator who has obtained many patents relating to technology from a variety of different sources. Having done so, the aggregator can provide even more information to licensees. As the portfolio grows, more information can be provided. As a result, aggregators acquiring patents often provide market-defragmenting services that are unavailable from any other source. In turn, this defragmenting can aid in market transactions.[112]

In other words, the larger the portfolio, the more patent licensing will look like technology licensing instead of simply patent settlements. Licensees can use the technology in patents they are or are not already infringing, but the broad portfolio license provides the freedom to choose. In the absence of a large portfolio, it is no wonder that negotiations break down and litigation ensues as parties focus on paying *only* for valid claims, and even then *only* if the patentee could win in court, and ultimately *only* pay exactly the damages amount for *only* the claim the patentee could prove.

A more holistic, technology-oriented view might be beneficial, but it would require two things. First, patent owners cannot overvalue their portfolios. Second, manufacturers cannot undervalue portfolios; they must accept and license technology they may not yet be using, even if they are skeptical that one or more patents would withstand a court challenge. This

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111 *See* Tun-Jen Chiang, *The Reciprocity of Search*, 66 VAND. L. REV. 1, 31-32 (2013) (proposing that patentees have a duty of search for and contacting potential infringers).

112 Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2157 (2013); Lu, *supra* note 31, at 60-61; Michael Risch, *Patent Portfolios as Securities*, 63 DUKE L.J. 89, 103-04 (2013).

would move the transaction to earlier, more commercially beneficial licensing phases, with any lingering uncertainty reflected in the price.

B. *Freedom to Operate and Investment Incentives*

As discussed in Part I, and because only one company controls the patented technology, exclusive licensing can hamper diffusion where it is not imperative that one company coordinate and invest in development. Acquired patent licensing, however, is rarely subject to such constraints, and thus provides some of the commercialization benefits of nonexclusive licensing.

Obtaining a license can also reduce risk and support investment in product improvements. This is well documented in a study comparing sales of products subject to, and not subject to, a patent lawsuit.[113] Perhaps unsurprisingly, sales of the product subject to suit suffered during the lawsuit because manufacturers were unwilling to add more features to the product. As a result, sales of unencumbered competing products sold by the same firm were significantly higher due to their new features.[114] The study's author admits that the link to acquired patents is tenuous,[115] but the takeaway is clear: patent litigation is a drag on product development. Obtaining a license to a patent can improve product development and sales.

Empirical evidence shows that acquired licensing, in particular, is welfare enhancing as compared to inventor-owned licensing.[116] Avoided litigation costs provide an independent reason to settle cases and license patents. With the ever-present caveat that it might be better if parties never enforced their patents, strategic settling accelerates some innovation.

Note that this is a *future* commercialization benefit associated with licensing an older acquired patent. By settling disputes, investment in the product will continue and grow. It is not enough to assume that investment

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113 Catherine Tucker, Patent Trolls and Technology Diffusion 3 (Mar. 26, 2013) (unpublished manuscript), *available at* http://papers.ssrn.com/abstract=1976593.

114 *Id.* at 3-4.

115 *Id.* at 29 ("It is of course an open question about the extent to which this chilling of technology sales observed during the process of litigation is particular to technology cases that involve patent-assertion entities or would apply more generally to other patent litigation."). The primary support is that those who acquire patents like to draw out litigation. *Id.* ("[T]he patent-assertion entity business model means that there are fewer costs to them of prolonging litigation since they are not vulnerable to counter-claims . . . ."). This assumption is false as a matter of practice. AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 2013, at 34-35 (2013) (showing that NPE litigation is less expensive than competitive litigation).

116 Galasso et al., *supra* note 6, at 305 ("Second, . . . patent transactions can generate welfare gains by exploiting comparative advantages in *patent enforcement*. This occurs when the market for innovation reallocates patents to entities that are more effective at resolving disputes over these rights without resorting to the courts, which reduces litigation costs associated with disputes.").

would have grown in any event. Given the fact that patents are already out there, and non-acquired patents might have been asserted by competitors, individuals, or standards pools, product innovation will always be performed under the shadow of potential infringement assertions. Acquired patent licensing, especially of large portfolios, benefits commercialization by shrinking that shadow.

C. *Competitive Licensing*

A license can also benefit one company over competitors who do not license. Competitors must expend resources in litigation to challenge the patent. This follows from the general observation that patent challenges are a public good and therefore underutilized.[117] Scholars have suggested ways in which this dynamic might be reduced, by forcing non-challenging parties to participate or pay a bounty.[118] Nonetheless, the very existence of these proposals implies that the competitive value of licensing acquired patents can exceed their cost.[119]

Indeed, there is no reason why a company might not buy patents outright from the acquirer and then use those patents to the detriment of competitors.[120] This has happened in the past.[121] With competitors locked out of

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117 Farrell & Shapiro, *supra* note 108, at 1349; Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 BERKELEY TECH. L.J. 943, 952-53 (2004); Joseph Scott Miller, *Building a Better Bounty: Litigation-Stage Rewards for Defeating Patents*, 19 BERKELEY TECH. L.J. 667, 687-88 (2004); Michael Risch, *Patent Challenges and Royalty Inflation*, 85 IND. L.J. 1003, 1022 (2010); John R. Thomas, *Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties*, 2001 U. ILL. L. REV. 305, 333-36.

118 Roger Allan Ford, *Patent Invalidity Versus Noninfringement*, 99 CORNELL L. REV. 71, 123-24 (2013) (arguing for bounties collected from defendant's competitors on invalidity findings, but not on non-infringement findings); Miller, *supra* note 117, at 705-06 (arguing for full patentee profits bounty); Gideon Parchomovsky & Alex Stein, *Intellectual Property Defenses*, 113 COLUM. L. REV. 1483, 1489 (2013) (arguing that defendants should be able to implead other defendants); Edward Hsieh, Note, *Mandatory Joinder: An Indirect Method for Improving Patent Quality*, 77 S. CAL. L. REV. 683, 692-93 (2004) (arguing for mandatory joinder).

119 Charles W. Shifley, *Industry Perspectives on Patent Damages Including the Damages Component of Settlement Negotiations*, A.B.A. SECTION OF LITIG., http://www.ftp.abanet.org/litigation/committees/intellectual/articles.html (last visited Aug. 19, 2013) (discussing industry defendants' greater interest in having parity with their competitors than in their absolute costs).

120 *Cf.* Lemus & Temnyalov, *supra* note 6, at 22 (describing acquisition model in which a firm with two patents sells one to an NPE and holds one, thus maximizing extraction from competitor through two patent licenses).

121 *See, e.g.*, Press Release, Intellectual Ventures, Nest Enters into Patent Sale Agreement and License Agreement with Intellectual Ventures (Sept. 11, 2013), *available at* http://www.intellectualventures.com/index.php/news/press-releases/nest-enters-into-patent-sale-agreement-and-license-agreement-with-intellect.

the purchased technology, the buyers have even more incentive to invest in their own product development.[122]

This leads to an important issue when considering the commercialization benefits of acquired patents: whether the cost of the license exceeds what should be the proper, true value of a right to use the patented invention. One recent analysis, for example, explains how a large demand might lead to a settlement that is more than a court would otherwise award.[123] No doubt this is true—sometimes[124]—but it is only part of the equation. As the article notes, taking a case to verdict is risky and might result in a higher damages award than the one being negotiated.[125] Further, it is costly to litigate, and those costs might affect the license price even if the demanded fee is not simply to avoid the nuisance of a lawsuit.

In addition to those two reasons why parties might rationally and reasonably license for a price higher than the amount a jury would award, the producer might also see a premium by not being the first to challenge the patent to judgment.[126] In other words, companies might pay for the luxury of watching their competitors deal with weak patents.[127] They likely would not admit to doing so openly, and maybe would not even admit to doing so privately. To that end, aggressive enforcement of an acquired patent is not

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122 Arora & Fosfuri, *supra* note 18, at 17 ("[A]n increase in transaction costs or a decrease in the bargaining power of the licensor (i.e. share of profits extractable from the licensee) might actually increases [sic] profits for innovators (and hence, the incentives to undertake R&D).").

123 Morton & Shapiro, *supra* note 6, at 6 & n.17 ("In this way, the use of the outsize threat can raise the negotiated royalties, i.e., increased monetization for the patent holder. Of course, the user may go to court to establish that it should pay [less] . . . . This approach is risky however, and requires the user to bear the cost of litigation. These factors may cause users, especially smaller ones, to pay more than the expected value of the reasonable royalty rate.").

124 John M. Golden, *"Patent Trolls" and Patent Remedies*, 85 TEX. L. REV. 2111, 2133-34 (2007) (describing settlement pressures faced by patent holders); Green & Scotchmer, *supra* note 11, at 25 (modeling transactions that show second innovator with bargaining power); Jiaqing "Jack" Lu, *The Myths and Facts of Patent Troll and Excessive Payment: Have Nonpracticing Entities (NPEs) Been Overcompensated?*, 47 BUS. ECON. 239, 242 (2012) (empirical study of royalty rates showing that NPEs do not obtain royalties that exceed those of product firms); Risch, *supra* note 112, at 152-53 (arguing that even large portfolios cannot command excessive premium due to realities of patent enforcement); *see also* Sakakibara, *supra* note 16, at 939 (showing that nonpracticing research firms have less bargaining power than large firms and that any additional royalties are due to strength of technology licensed).

125 Morton & Shapiro, *supra* note 6, at 6.

126 Farrell & Shapiro, *supra* note 108, at 1349 (deriving model showing that licensees who compete with others will pay a premium over licensees with no competitors); Rubén Hernández-Murillo & Gerard Llobet, *Patent Licensing Revisited: Heterogeneous Firms and Product Differentiation*, 24 INT'L J. INDUST. ORG. 149, 168 (2006) (showing that flat fee/royalty models cause social loss). Farrell and Shapiro and Hernández-Murillo and Llobet both examine two-tariff models, which include a flat fee coupled with a royalty. This implies that flat-fee licensing associated with many acquired patent licensors may not have the same deleterious welfare effects that many claim in the literature.

127 Anne Duchêne & Konstantinos Serfes, *Patent Settlements as a Barrier to Entry*, 21 J. ECON. & MGMT. STRATEGY 399, 414 (2012) (showing that benefits of licensing are enhanced with respect to creating barriers to entry when patents are weaker).

merely a benefit to current licensees; it is also a potential obligation to ensure that others may not infringe the patent without paying the requisite license.[128] Nor is this a new conception of licensing, as licensors recognized this in 1879: "Thousands of dentists take and pay for their licenses regularly every year, *taking a covenant from the Company to prosecute any dentist who* [*infringes*] *in the same city or town where the licensee resides*."[129]

It would always be better for patents to be more thoroughly tested by the U.S. Patent and Trademark Office ("PTO"),[130] and for license fees to reflect stable and predictable expectations of patent value.[131] Nonetheless, the strategic benefit is there even in uncertainty, and some premium might be explainable on that basis. Even with a premium and barriers to entry, the ability to license may still be preferable to barring any licenses and requiring every party to litigate every dispute to conclusion.[132]

D. *Changed Licensing Practices*

Perhaps the greatest potential benefit for commercialization has nothing to do with those acquiring patents, but instead has to do with potential licensees. Calling them licensees emphasizes the point that commercialization of patents is really in their control. The current rhetoric that labels them targets (anti-troll) or infringers (pro-patent) misses this point. Whether, when, and how to implement patented technology is in the control of the producer, the potential licensee.

In fact, acquired licenses may hold the key to improved commercialization. For example, Alberto Galasso, Mark Schankerman, and Carlos J. Serrano first model and then empirically demonstrate that when individuals transfer ownership to companies, the chance of litigation *decreases*.[133] Companies that acquire patents are better at licensing them than individuals, and they also have more of an incentive and ability to form credible relationships.[134] By examining all patents issued to individuals between

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128 Risch, *supra* note 112, at 111 ("But even a nuisance payment gives a licensee an edge against competitors who refuse to make such payments. Whereas a licensee may continue doing business in peace, the competitors must spend time and money defending a patent-infringement case, with the risk of damages in a loss.").

129 Caduc, *supra* note 70.

130 Farrell & Shapiro, *supra* note 108, at 1349 (arguing that enhanced examination would improve social welfare in patent licensing).

131 It turns out they could. *See* Michael J. Mazzeo et al., *Explaining the "Unpredictable": An Empirical Analysis of U.S. Patent Infringement Awards*, 35 INT'L REV. L. & ECON. 58, 69 (2013) (finding damages awards highly predictable).

132 Duchêne & Serfes, *supra* note 127, at 415.

133 Galasso et al., *supra* note 6, at 280.

134 *Id.*; *see also* Golden, *supra* note 124, at 2137-38 (noting the importance of bargaining skill in economic models of licensing).

1975 and 2000, the study found that less than 5 percent of acquired patents are litigated.[135] To be sure, companies that buy patents may still enforce,[136] but they find that litigation is often due to increased value of the patent(s) rather than simply due to acquisition.[137]

These data show that the next frontier for licensing is suggested by the past: acquired patent licensing could and should cause licensees to shift patent licensing to an earlier time period, and thus into categories one and two.[138] Professor Julien Pénin thus distinguishes between patent brokers and patent trolls.[139] Brokers are a social good. By aiding transfers of patent rights before manufacturer development, brokers increase incentives in research and development by both the manufacturer and the patentee.[140] Trolls are a social cost. By asserting patents after manufacturer development, trolls decrease research and development by both the manufacturer and the patentee.[141]

Note the fine line, though. Today's brokers become tomorrow's trolls based on the unfortunate happenstance that someone has invested in a product. Professor Pénin assumes that patent trolls purposefully hold patents to assert in category four (post development), but it is not clear that this is true, or whether it is just an artifact of when they purchase the patent.[142] It certainly need not always be true; inventors may try but be unable to license their patents early, even with brokers, and thus have no recourse but to enforce old patents. As a result, the patent system must tolerate some assertion of older patents so that earlier patent transactions can take place.[143]

A shift toward earlier license transactions and commercialization might occur in a few different ways, some of which have already happened.

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135 Galasso et al., *supra* note 6, at 283.

136 Indeed, the litigation rate is only about 0.5 percent for non-acquired patents. *Id.*

137 *Id.* at 279-80, 302-03.

138 *Cf.* Arora & Fosfuri, *supra* note 18, at 16 ("The presence of a research lab stimulates the licensing activity of the big firm at a level that it wouldn't have reached otherwise. . . . Using data from the chemical industry, we find both that firms without downstream facilities tend to license more and that in product groups where such firms operate more intensively, large chemical producers themselves tend to license more." (footnote omitted)).

139 Pénin, *supra* note 6, at 634-36.

140 *Id.* at 637.

141 *Id.*

142 *Id.*

143 Risch, *supra* note 7, at 490-91 (showing lag time until last patent acquisition, and lag time from acquisition until first lawsuit).

1. Earlier Licensing by Acquirers

In theory, acquirers should start acquiring and licensing younger patents.[144] If they did, licenses would more likely be new technology adoption licenses and theoretically indistinguishable from the original.[145] Acquirers would still be relevant, though, because they might have a competitive advantage in resolving disputes without litigation.[146] There is some hope for this: a comprehensive study of individually owned patents shows that, *even for patents that are acquired at age nine or ten from the individual*, the likelihood of litigation is higher *before* acquisition rather than after.[147] This implies that in some cases the acquirer can license the patent better than the original owner, and thus might consider acquiring patents earlier to do so.

Unfortunately, acquirers do not seem to be taking this approach. Patent age has not changed much in recent years. Data collected by others[148] and this Author[149] indicate that patents have not grown younger at the time of their first lawsuit.

This may be an example of theory missing some nuance from reality. The business model of today's acquirers is based on licensing from those who already use the technology. They have a hard enough time convincing infringers to pay, which makes a business model built around finding those who want to exploit new technology—or waiting for new ventures to approach them—less attractive. This does not mean that no one will invest in

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144 Acacia Research, for example, has presented a model in which success of a clearinghouse (presumably Acacia) is dependent in part on minimizing the passage of time. Ctr. for the Prot. of Intellectual Prop., Conference Materials, The Commercial Function of Patents in Today's Innovation Economy 174 (Sept. 12-13, 2013) [hereinafter CPIP Conference Materials], *available at* http://cpip.gmu.edu/wp-content/uploads/2013/09/CPIP-Conference-Presentation-Materials.pdf. Proposals to reduce patent terms will obviously affect this behavior.

145 Lu, *supra* note 31, at 60 ("If disintegration and specialization can enhance efficiency and productivity, and if [innovating] INPEs can be justified, there is no reason to discriminate against [noninnovating] NINPEs. It takes only . . . one more link down along the specialization chain to reach NINPEs . . . ."); *see also* McDonough, *supra* note 6, at 223 (arguing that patent dealers enhance public access to inventions).

146 Galasso et al., *supra* note 6, at 276 ("In this article, we identify a novel source of private, and social, gains from trade—comparative advantage in patent enforcement. The market for innovation can reduce litigation if it reallocates patents to entities that are more effective at resolving disputes over these rights without resorting to the courts."); Ashby H. B. Monk, *The Emerging Market for Intellectual Property: Drivers, Restrainers, and Implications*, 9 J. ECON. GEOGRAPHY 469, 480 (2009) (stating that intermediaries assist in transactions where buyer and seller wish to remain anonymous to each other).

147 Galasso et al., *supra* note 6, at 285.

148 RPX Corporation kindly provided a tally of mean and median ages for the top ten most active NPEs (some of which are acquirers) and for all NPEs (some of which are acquirers). Neither those patents directly attributable to acquirers, nor those attributable to NPEs generally, have grown appreciably younger at the time of first lawsuit during the last five years.

149 Risch, *supra* note 7, at 490 (noting that the average time to suit was seven years from patent grant).

the development of new intellectual property created with the plan to license adopters. Companies such as Qualcomm, InterDigital, and Tessera have done so, and Intellectual Ventures now represents many universities in their technology transfer efforts. But it does mean that investors in the acquired patent business model may be unwilling to acquire younger patents without some indication that potential revenues will be available.[150]

Thus, in order for acquirers to significantly reduce the age of their patents, they must change business models and rely on companies to license early, in categories one and two. While some acquirers may eventually trend in this direction, this particular potential benefit may be the last one realized.

2. Earlier Licensing of Patents for Commercialization

In the meantime, however, technology companies that grow weary of license demands relating to old, acquired patents might become more vigilant and sophisticated about early licensing.[151] This would be a good thing for commercialization and diffusion.[152] After all, these patents are for ideas that initially sat on the shelf but were eventually implemented and valuable enough that companies do not want to abandon them. If companies paid attention to such ideas earlier, then they might have been commercialized earlier.[153] This is true even if one believes that the early patents do not fully describe the technology that implements the idea (something patentees surely dispute). Learning about and deciding to implement the patented idea makes society better off due to the licensee's attempts to develop enabling

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150 *Cf.* Green & Scotchmer, *supra* note 11, at 25; Koo & Wright, *supra* note 11, at 500-01 (discussing scenarios in which ex ante licensing is not as profitable as ex post licensing, including an inability to create a product based on the first patent).

151 Galasso et al., *supra* note 6, at 280 (showing that where the buyer of a patent is a potential infringer, acquisition reduces the likelihood of patent litigation, and generalizing that litigation will decline when acquisitions reduce infringing actions); Bernhard Ganglmair et al., *Patent Hold-Up and Antitrust: How a Well-Intentioned Rule Could Retard Innovation*, 60 J. INDUS. ECON. 249, 265-66 (2012) (arguing that ex ante licensing is welfare maximizing, and that manufacturers should not be allowed to sue for breach of RAND obligations unless ex ante licensing was infeasible).

152 In the parlance of Morton and Shapiro, *supra* note 6, at 12-13, the R&D investments of inventors would have more positive spillovers, even if such inventors go out of business. *See also* Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305, 306 (1992) (describing patent law as a way to decrease duplicative races to invent).

153 Deepak Hegde & Hong Luo, *Imperfect Information, Patent Publication, and the Market for Ideas* 18 (Harvard Bus. Sch., Working Paper No. 14-019, 2013), *available at* http://ssrn.com/abstract=2293225 (finding that published biotechnology patent applications are 3.8 times more likely to be licensed prior to patent issue than applications that remain secret).

technology.[154] In fact, it would also increase licensee bargaining power and decrease licensing costs.[155]

There is some evidence of this happening. One example is RPX Corporation. RPX advertises itself as a "defensive aggregator" that aids its members in settling disputes. One of these services is the purchase of patents directly from inventors on behalf of its members. The value proposition is that every patent not in the hands of an NPE is one more lawsuit avoided.[156] This alone shows heightened vigilance by technology companies, even though they are using the expertise of others to find older patents that they might be infringing.

As RPX has grown more active, however, it has begun to identify younger and younger patents (including applications) and has sought out its clients' views on whether such patents might be relevant to current or planned projects.[157] While some may call this defensive patenting, RPX is actually engaged in technology adoption licensing on behalf of its members.[158] The fact that several members might license technology only aids the commercialization story. Every young patent that RPX identifies as a potential future troll risk provides new ideas and technology to many members.

Another example of early patent sophistication is a new prior art site called AskPatents.[159] AskPatents identifies new patents and patent applications that have potentially important effects in the industry and asks its

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154 Lemus & Temnyalov, *supra* note 6, at 27 ("The impact of the NPE is to increase the difference between winning and losing for the firm that is behind. As a consequence, the firm without discoveries after the first stage exerts more effort to discover the second component when the NPE exists. In equilibrium, the extra effort of firm 2 impacts the effort of firm 1 in such a way that aggregate effort always increases.").

155 Green & Scotchmer, *supra* note 11, at 25 (showing that where a patent owner does not have the capability to produce a product, the licensee's bargaining power is greatest ex ante).

156 John A. Amster, *The Patent Troll Toll*, INTELL. PROP. MAG., June 2013, at 33, 34 ("Stopping NPEs at Source is Massively Efficient."); Mallun Yen, Exec. Vice President, RPX Corp., Public Comments Regarding the FTC and DOJ's Investigation of Patent Assertion Entities 5 (Apr. 5, 2013), *available at* http://www.justice.gov/atr/public/workshops/pae/comments/paew-0061.pdf (describing the collective action problem associated with differences between an owner offering price and the aggregate damages sought from all potential licensees).

157 *Why Join*, RPX CORP., http://www.rpxcorp.com/printfriendly.cfm?page=why-join-rpx&printF=1 (last visited Nov. 1, 2013) ("We treat each client engagement as an individual (and confidential) strategic relationship, and every RPX client works with a dedicated Client Relations team that provides regular intelligence, insights, and analysis of both general and client-specific trends in the patent market.").

158 Lu, *supra* note 31, at 67 ("By paying patent owners for their patents, DPAs [defensive patent aggregators] help shift money from the product market back to the upstream license market. As a result, the participation of DPAs will enhance market efficiency and liquidity."); *see also* CPIP Conference Materials, *supra* note 144, at 178 (showing the role of defensive aggregators in a patent clearinghouse system).

159 ASK PATENTS, http://patents.stackexchange.com (last visited Nov. 11, 2013).

members to find prior art to invalidate such patents. Though AskPatents is not a licensing service per se, it represents a new willingness among technology developers to follow inventions coming out of the PTO. Ideally, AskPatents will aid the PTO in rejecting unmeritorious applications, but it will also identify those applications that are likely to issue into important patents. At the very least, AskPatents may identify inventions that people were not practicing already. If AskPatents users are paying attention, they may be able to license the technology earlier rather than later.

A final example illustrating the trend toward patent acquisition for technology adoption (rather than waiting for patentees to come out of the woodwork) is the story of Ditto.com.[160] Ditto's story is often presented as illustrative of the cost of the patent system,[161] but it should instead be viewed as an example of a triumph of commercialization and a lesson about failing to consider patented technology.[162]

Ditto sells eyeglasses and, as part of its service, developed a method for measuring pupil distance with a mobile device. The problem is that someone else had already developed the same method and patented it. A large competitor of Ditto's discovered this fact, purchased the patent, and sued Ditto. This is category one technology adoption in action: a company not using a technology bought a patent to implement the technology and asserted it against its competitor who had not thought to license the patent. The competitor was no troll, though it clearly was enforcing an acquired patent.

The lesson should be clear: Ditto might have saved itself heartache (and money) by conducting a brief patent search. The pupillary measurement art is a crowded one; there are many improvements in self measurement, and Ditto's method is only one way. But the art is not so crowded that the core patents could not be found. Ditto could have found the patent and likely would have saved at least some research and development time. Its engineers surely spent some time deciding the best way to measure distance, and there were plenty such ideas in the patents.

However, Ditto could have also obtained some freedom to operate through a license or purchase of the patent. Perhaps Ditto *did* perform that search but dismissed the patent as a low risk due to its owner. Advocates of ownership transparency argue that better knowledge of ownership would protect companies, but here it was not that hard to find out who owned the

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160 Colleen V. Chien, *Patent Assertion and Startup Innovation*, NEW AM. FOUND., 48-49 (Sept. 2013), http://newamerica.net/sites/newamerica.net/files/policydocs/Patent%20Assertion%20and%20Startup%20Innovation.pdf (interview with Kate Endress, Founder and CEO of Ditto.com).

161 Nick Statt, *Weaponizing the Patent System: A Tiny Startup Faces Financial Extinction*, READWRITE (Apr. 29, 2013), http://readwrite.com/2013/04/29/weaponizing-the-patent-system-a-tiny-eyewear-startup-faces-financial-extinction#awesm=~ojBIBL5Eq4VmHy.

162 *Cf.* Robert H. Resis, *History of the Patent Troll and Lessons Learned*, 17 A.B.A. INTELL. PROP. LITIG., Winter 2006, at 1, 3 (recounting how Western Union failed to purchase Bell's telephone patent for $100,000, only to be sued later by Bell Telephone Company).

patent. In fact, *that's exactly what Ditto's competitor 1-800-Contacts did*.[163] While transparency might make licensing better, ignoring patents based on who owns them is risky business. Even with transparent ownership, an individually owned patent today can be sold to a competitor tomorrow. Rather than seeing this case as a failure of the patent system, future start-ups could instead use the case to modify patent licensing and commercialization behavior.

The ability to license and acquire patents is essential to innovation in a competitive system. A study by Professors Iain M. Cockburn and Megan J. MacGarvie found that patents held by incumbent firms—not trolls, but existing product companies—reduced entry into software markets.[164] However, when firms already held patents, they were much more likely to enter the market.[165] The practice of acquiring patents at an early stage can quickly give nascent firms the patents they need to enter new product markets and enhance competition and commercialization.

3. Inventing Around

Even if there is no licensing, paying earlier attention to patents can lead to commercialization benefits. The inability to practice a patent will inevitably lead some companies to invent around the patent and create non-infringing improvements. This, too, is a feature rather than a defect of the patent system.[166]

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163 E-mail to Daniel Nazer, Staff Attorney and Policy Analyst, Elec. Frontier Found., and Julie Samuels, Senior Staff Attorney and the Mark Cuban Chair to Eliminate Stupid Patents, Elec. Frontier Found. (Apr. 19, 2013, 7:47 AM), *available at* https://www.eff.org/sites/default/files/1-800_contacts_response_to_eff_0.pdf ("Moreover, as 1-800 CONTACTS moved forward in perfecting its 3D try on system, [it] invested significant time and resources to acquire and license the existing patent rights needed to practice its technology. Clearly, DITTO did not do the same. Further, 1-800 CONTACTS' action of ensuring that it either owned or licensed the relevant technology before launching its platform should be commended as a responsible business practice, not condemned.").

164 Iain M. Cockburn & Megan J. MacGarvie, *Entry and Patenting in the Software Industry*, 57 MGMT. SCI. 915, 915 (2011); *see also* Amalia Yiannaka & Murray Fulton, *Getting Away with Robbery? Patenting Behavior with the Threat of Infringement*, 20 J. ECON. & MGMT. STRATEGY 625, 647 (2011) (developing a model showing that firms will patent to ensure that new entrants do not enter or "locate" further away).

165 Cockburn & MacGarvie, *supra* note 164, at 915-16; *see also* Monk, *supra* note 146, at 477 ("If avoiding litigation and ensuring fair licensing negotiations requires a large patent portfolio, then these younger firms will be required to look to the patent market (which explains why large, new companies, such as Google, are working with 'buying-clubs', such as Allied Security Trust).").

166 Golden, *supra* note 124, at 2136-37 (describing design-around costs as important licensing consideration); Ryan Lampe & Petra Moser, *Patent Pools, Competition, and Innovation—Evidence from 20 U.S. Industries Under the New Deal* 7-8 (Stanford Law & Econ. Olin, Working Paper No. 417, 2013), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1967246 (showing reduced patenting in industries with patent pools that reduced competition).

Economists have long studied the costs of inferior standards.[167] To the extent that patents that seem to be standards cannot be effectively licensed, industry incumbents might create new and better standards for the future. Of course, this might seem costly in the short run, but long-term commercialization will benefit.

CONCLUSION

Ongoing debate about the role of NPEs suffers from at least two distinct analytical deficiencies, especially as it applies to commercialization goals. First, commentators often fail to distinguish between owner-held patents and acquired patents. Second, commentators fail to consider the role and timing of licensing. This Essay is a first step toward adding some rigor to the discussion in an effort to shed light on new business models in the commercialization of patents.

First, the Essay categorizes licensing into rough categories, each of which has its own commercialization benefits and drawbacks. Doing so reframes future discussions to focus not on who owns a patent, but on what is done with it and when.

Second, the Essay considers the history of one type of NPE—the acquired patent licensor. It turns out that widespread acquisitions are relatively new, but not unique, in our history. Understanding the rise and fall of historical acquisition business models reframes future discussions to focus on why acquired patent licensing might occur and what might decrease its negative effects.

Third, the Essay identifies some commercialization benefits associated with acquired patent licensing. Some of these benefits are welfare enhancing, which is something counterintuitive given that many acquired patents are old. In all events, though, such licensing might affect future behavior. This reframes future discussions to focus not merely on the costs of acquired patent licensing, but also on the current and future benefits—one of which may be to make acquired patent licensing less lucrative by improving early commercialization licensing via product companies.

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167 *See, e.g.*, Joseph Farrell, *Standardization and Intellectual Property*, 30 JURIMETRICS J. 35, 46 (1989).