

# NOTE

## THE GREAT FAILURE OF THE IPXI EXPERIMENT: WHY COMMODITIZATION OF INTELLECTUAL PROPERTY FAILED

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### INTRODUCTION

I have not failed. I've just found 10,000 ways that won't work. – Thomas Edison

The modern U.S. patent system is plagued with high transaction costs, secrecy, and legal risks. Due to these pitfalls, many innovators simply do not have the resources to participate in the intellectual property market. In 2008, the Intellectual Property Exchange International, Inc. (IPXI) was organized to develop a new model for licensing intellectual property based

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on “transparency, price discovery, efficiency, and liquidity.”<sup>1</sup> IPXI sought to replace costly bilateral licensing negotiations with a more accessible “market-based trading platform”<sup>2</sup> for patent licensing rights. IPXI sought to standardize and commoditize patent licenses in order to facilitate trading on these licensing rights on an open market.<sup>3</sup> The model created a standard, non-exclusive contract called a Unit License Right (ULR), which could be traded on the exchange.<sup>4</sup> This new innovative model garnered support from leading companies such as Ford, JP Morgan Chase, Sony, and even notable research institutions.<sup>5</sup> Despite this promising beginning, the IPXI experiment ended only two years after its first offering.<sup>6</sup> This Note seeks to determine why this market-based model failed and what it means for the U.S. patent system.

IPXI executives have publicly attributed the failure of the world’s first electronic financial exchange for patent licensing rights to the refusal of licensees to engage in negotiations until they face legal action by licensors. In a public statement about its closing, IPXI lamented, “IPXI’s business model offered fairness and transparency and relied upon patented technology users to be good corporate citizens. In the end, potential licensees made it clear that the only way IPXI would really get their attention was through litigation, and that’s exactly what our business model tried to overcome.”<sup>7</sup> This Note evaluates whether the great failure of the IPXI business model truly stems from licensors refusing to engage in good-faith licensing agreements as claimed. Professor Jorge Contreras has previ-

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<sup>1</sup> Letter from Garrard R. Beeney, on behalf of IPXI Holdings, LLC & Intellectual Property Exchange International, Inc., to Renata B. Hesse, Deputy Ass’t Att’y Gen., Antitrust Division, Dep’t of Justice (Nov. 30, 2012) (on file with the Dep’t of Justice).

<sup>2</sup> *Id.*

<sup>3</sup> *See id.* at 2–3.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *See* Ian D. McClure, *From a Patent Market for Lemons to a Marketplace for Patents: Benchmarking IP in Its Evolution to Asset Class Status*, 18 CHAP. L. REV. 759, 795–96 (2015).

<sup>7</sup> Joff Wild, *IPXI Demise Caused by a US Patent System That Offers No Incentive for Good-Faith Licensing, Says Exchange’s CEO*, IAM (Apr. 7, 2015), <http://www.iam-media.com/blog/detail.aspx?g=93e8d407-b24c-4d9a-a59c-da9fe9e3f578> [<https://perma.cc/QJ67-LZU8>]; *see also* David L. Newman, *The Unfortunate Fall Of The IPXI Marketplace*, LAW360 (Dec. 8, 2015, 10:24 AM), <http://www.law360.com/articles/734578/the-unfortunate-fall-of-the-ipxi-marketplace> [<https://perma.cc/CD2M-XEBX>] (discussing IPXI’s attempt at transparency to instill fairness giving way to a “litigation-driven, patent licensing system”).

ously grappled with this question from a FRAND<sup>8</sup> perspective.<sup>9</sup> However, this Note employs an economic analysis of ex ante and ex post licensing to examine this question. Part I outlines problems with traditional patent licensing and then describes how the IPXI business model proposed to fix these problems. Next, Part II proceeds to deconstruct the IPXI business model to highlight why the commoditization of patents is problematic. Part III offers direction for potential future initiatives to encourage good-faith licensing negotiations. Finally, this Note concludes by discussing what the failure of IPXI means for the U.S. patent system.

## I

### BACKGROUND

#### A. The Problem: The Patent Licensing Dilemma

The course to innovation is by no means simple. The path is paved with expense, risk, and uncertainty.<sup>10</sup> However, Congress has attempted to create a patent system that eases the burden of the innovator. The United States Constitution grants Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>11</sup> In accordance with this clause, Congress developed the patent system to promote innovation by granting “patent owners the right to exclude others from making, using or selling a patented invention for 20 years.”<sup>12</sup> The patent owner’s right to exclude prevents other individuals from decreasing prices by merely copying their invention.<sup>13</sup> By giving patent owners a temporary monopoly over their discoveries, the patent system permits the patent owner to recoup their investment in research and development.<sup>14</sup> Thus, the right to exclude in the patent system helps offset the expense, risk, and uncertainty of innovation.

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<sup>8</sup> The term “FRAND” refers to “Fair, Reasonable and Non-Discriminatory” licensing terms. See FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 192 (Mar. 2011).

<sup>9</sup> See generally McClure, *supra* note 6, at 761–63 (analyzing the downfall of IPXI from a FRAND perspective).

<sup>10</sup> FED. TRADE COMM’N, *supra* note 8, at 1.

<sup>11</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>12</sup> FED. TRADE COMM’N, *supra* note 8, at 1, 40.

<sup>13</sup> *Id.*; see also ECON. AND STATISTICS ADMIN. & U.S. PATENT AND TRADEMARK OFFICE, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: INDUSTRIES IN FOCUS v (Mar. 2012) (explaining that intellectual property protection prevents other firms from copying the inventor’s innovations at lower investment costs).

<sup>14</sup> FED. TRADE COMM’N, *supra* note 8, at 1.

The patent owner's temporary monopoly benefits society by promoting the "development of new products, processes and services that improve lives and address unmet needs."<sup>15</sup> However, the same monopolistic hand that gives also takes from society. The patent owner's temporary monopoly can cut against the competition policy espoused in antitrust law.<sup>16</sup> Competition encourages "firms to produce new products and services in the hope of obtaining an advantage in the market," and most importantly drives down prices for consumers.<sup>17</sup> But during the patent term, the right to exclude prevents others from using the patented technology and improving upon it without the permission of the patent owner. "A patent does not necessarily confer market power,"<sup>18</sup> though, because patented inventions often must compete with alternative, fungible technologies.<sup>19</sup> Therefore, despite the temporary monopoly granted by the patent system, "competition from acceptable alternatives will limit the market reward that a patent owner receives."<sup>20</sup>

When a patent owner commercializes its invention and produces an end product, then competition with alternative technologies occurs in the consumer market. Within the consumer market, there is a natural "balance between exclusivity and competition."<sup>21</sup> For example, both Apple and Samsung have patented technology incorporated into their respective smartphones. This patent technology does not preclude either company from competing in the smartphone market. Instead, consumers choose between alternative technologies incorporated in each end product within the smartphone market. But, many firms have moved away from a "traditional or closed model of innovation, [where] a firm relies on its own research and development (R&D) to create the products it markets."<sup>22</sup>

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<sup>15</sup> *Id.*

<sup>16</sup> *See id.*

<sup>17</sup> *Id.* at 32.

<sup>18</sup> *Id.* at 2.

<sup>19</sup> *See Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 470 (1992) (concluding that the relevant market for antitrust purposes is determined by the choices available to the consumer); *see also* PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS: PROBLEMS, TEXT, CASES* 571, ¶ 340(b) (4th ed. 1988) ("[T]he existence of significant substitution in the event of *further* price increases or even at the *current* price does not tell us whether the defendant *already* exercises significant market power.").

<sup>20</sup> FED. TRADE COMM'N, *supra* note 8, at 2.

<sup>21</sup> *Id.* at 46.

<sup>22</sup> *Id.* at 7.

Today, firms have increasingly embraced an “open innovation” model<sup>23</sup>: “[A] firm that pursues an open innovation strategy recognizes that valuable ideas can originate with others and seeks to acquire those inventions that fit its business model.”<sup>24</sup> When a manufacturing firm finds such an invention, the firm will negotiate a patent licensing agreement with the patent owner to gain permission to incorporate the technology into its product. Licensing agreements “that occur as part of a technology transfer agreement can be considered *ex ante* because they occur *before* the purchaser has obtained the technology through other means.”<sup>25</sup> This technology transfer under the open innovation model allows for a more efficient “division of labor between” those who manufacture and those who invent, including startups and small companies.<sup>26</sup> Technology transfer lowers the barrier of entry for these startups and small companies by providing a less expensive pathway to invention.<sup>27</sup> Easier entry in turn spurs competition among technologies for incorporation into end products.<sup>28</sup> This competition “generat[es] better, cheaper products” for consumers.<sup>29</sup> Thus, technology transfers through *ex ante* licensing advance innovation and create wealth by striking an ideal balance between exclusivity and competition.<sup>30</sup>

In contrast, *ex post* licensing deprives consumers of the benefits of competition between fungible technologies.<sup>31</sup> When the patent owner approaches the licensee or manufacturer *after* the manufacturer accused of infringement has incorporated the technology, the patent licensing agreement with the owner occurs *ex post*.<sup>32</sup> Since patent infringement is a strict liability offense, the manufacturers must negotiate an *ex post* licensing agreement to avoid liability.<sup>33</sup> Such *ex post* licensing is inefficient and costly. The manufacturer selected a technology for its product without complete information about the costs and thus could not make an informed choice between alternatives, depriving consumers of lower prices.<sup>34</sup> Further, if the manu-

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23 *Id.*

24 *Id.* at 33.

25 *Id.* at 7–8.

26 *Id.* at 33.

27 *Id.*

28 *Id.*

29 *Id.* at 7.

30 *Id.* at 8.

31 *Id.* at 54.

32 *Id.* at 8.

33 *Id.*

34 *Id.*

facturer has already incorporated the technology into its product, the firm will have already sunk costs into using the technology and may have to settle for a higher ex post royalty than the owner could have demanded ex ante.<sup>35</sup> The higher costs of ex post licensing deter technology transfers.

Ex post licensing is particularly problematic given the “explosion of patent litigation initiated by parties called ‘Non-practicing Entities’ (NPEs).”<sup>36</sup> The term “non-practicing entities” refers to “parties who own and sometimes assert patents but do not practice the technology covered by their patents.”<sup>37</sup> The business model of NPEs relies on asserting patents against a manufacturer after the firm has incorporated the technology.<sup>38</sup> NPEs then coerce manufacturers into entering an ex post licensing agreement by threatening to sue for patent infringement.<sup>39</sup> Patent infringement suits are expensive and very risky for the manufacturer.<sup>40</sup> If the NPE wins its suit, the court may not only award damages for past infringement, but also grant a permanent injunction prohibiting the manufacturer’s use of the technology.<sup>41</sup> A permanent injunction would force the manufacturer to endure considerable costs to design around the technology or abandon the product.<sup>42</sup> Although NPEs argue that their firms spur innovation by compensating the original inventors and engaging in ex post licensing with manufacturers,<sup>43</sup> this argument ignores the substantial costs

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<sup>35</sup> *Id.*

<sup>36</sup> James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 388 (2014).

<sup>37</sup> *Id.*

<sup>38</sup> *See id.* at 390, 394 (“Rather than transferring technology and aiding R&D, it appears that NPEs usually arrive on the scene after the targeted innovator has already commercialized some new technology.”); *see also* FED. TRADE COMM’N, *supra* note 8, at 8, 75–80 (discussing how failure of notice affects ex post patent assertion).

<sup>39</sup> *See* FED. TRADE COMM’N, *supra* note 8, at 8. *See generally* Bessen & Meurer, *supra* note 36, at 394 (“[N]otice failure means that innovative firms are targeted in patent infringement suits through no fault of their own.”).

<sup>40</sup> In a survey conducted by Bessen and Meurer, the “[m]edian total costs per [NPE] litigation defense [fe]ll roughly around half a million dollars . . . . However, mean total costs [were] *much* higher, nearly \$8 million for [their] survey sample.” Bessen & Meurer, *supra* note 36, at 399.

<sup>41</sup> *See* FED. TRADE COMM’N, *supra* note 8, at 5 (“[T]he threat of an injunction can lead an infringer to pay higher royalties than the patentee could have obtained in a competitive technology market.”).

<sup>42</sup> *See generally id.* at 26 (discussing the “serious consequences” of injunctions, like the loss of a sunk investment).

<sup>43</sup> *See* 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, 210 (“Individual inventors and small entities rarely have the financial resources to commence and sustain a lawsuit . . . . [The] relatively high cost

and risks NPEs impose on “later stages” of innovation without making *any* technological contribution.<sup>44</sup>

The Federal Trade Commission has emphasized that “an important goal in aligning the patent system and competition policy is to facilitate ex ante transactions while making ex post transactions less necessary or frequent.”<sup>45</sup> Although this objective appears straightforward at first glance, it has proven more difficult to achieve in practice. The next section outlines how IPXI, one of the most promising intellectual property experiments in recent years, proposed to solve this problem.

## B. The Hypothesis: The IPXI Model

In 2008, IPXI created the world’s first electronic financial exchange for patent license rights modeled after existing commodity exchanges such as the Chicago Mercantile Exchange.<sup>46</sup> “The basic tradable unit on the IPXI exchange, analogous to a purchase contract on a traditional commodities exchange, was the Unit License Right or ULR.”<sup>47</sup> Each ULR represents a sublicense for the right to use a package of patents for “a pre-established number of instances in the manufacturing and/or sale of a product or use of a process.”<sup>48</sup> For example, if a manufacturer wanted to produce 100,000 cars using patented technology available through IPXI, the manufacturer would buy 100,000 ULRs at market price and essentially “consume” a ULR each time it manufactures a car.<sup>49</sup> “IPXI’s theory was

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has the effect of inhibiting the abilities of individual inventors and small entities to enforce their patents against large corporations.”); see also Sannu K. Shrestha, Note, *Trolls or Market-Makers? An Empirical Analysis of Nonpracticing Entities*, 110 COLUM. L. REV. 114, 126–30 (2010) (arguing that an NPE’s resources provide more negotiating power for small inventors).

<sup>44</sup> FED. TRADE COMM’N, *supra* note 8, at 51, 72; Bessen & Meurer, *supra* note 36, at 392 (“NPEs impose costs not only on large technology companies but also on many small and medium-sized firms, making it even less likely that innovative start-ups are net beneficiaries of NPE activity.”); Tom Groenfeldt, *New IP Exchange Promises Transparency in Patent Pricing*, FORBES (Dec. 6, 2013, 8:46 AM), <http://www.forbes.com/sites/tomgroenfeldt/2013/12/06/new-ip-exchange-promises-transparency-in-patent-pricing/#5f4ac5e1af5e> [https://perma.cc/B9QJ-DGQN] (estimating that NPEs cost companies, primarily small and medium-sized, \$29 billion in 2011 alone).

<sup>45</sup> FED. TRADE COMM’N, *supra* note 8, at 9.

<sup>46</sup> See Stéphanie Chuffart-Finsterwald, *Patent Markets: An Opportunity for Technology Diffusion and FRAND Licensing?*, 18 MARQ. INTELL. PROP. L. REV. 335, 356 (2014); Jorge L. Contreras, *FRAND Market Failure: IPXI’s Standards-Essential Patent License Exchange*, 15 CHI.-KENT J. INTELL. PROP. 419, 421 (2016).

<sup>47</sup> Contreras, *supra* note 46, at 423–24.

<sup>48</sup> Chuffart-Finsterwald, *supra* note 46, at 356.

<sup>49</sup> *Marketplace of Ideas*, THE ECONOMIST (May 12, 2012), <http://www.economist.com/node/21554540> [https://perma.cc/68PD-3DUW].

that, like . . . physical goods, non-exclusive patent licenses could be standardized and commoditized, and thereby traded, on an open market.”<sup>50</sup> Market trading would eliminate the need for “costly, inefficient, and time-consuming bilateral negotiations”<sup>51</sup> for ex ante licensing rights. IPXI would act as a “neutral transaction facilitator,”<sup>52</sup> connecting the patent owner with prospective purchasers.

Under the Unit Licensing Right program, IPXI would first enter into an agreement with the patent owner, transferring control over the patent to IPXI, either by selling the patent to IPXI or appointing the firm as “the master licensing agent.”<sup>53</sup> Pursuant to this agreement, IPXI would have the authority to sublicense ULRs and enforce any patent rights.<sup>54</sup> There are abounding advantages for patent owners to transferring control over their intellectual property to IPXI. For example, the patent owner can still capture the economic value of his or her invention without the ongoing risk, such as enforcement or identifying prospective purchasers.<sup>55</sup>

Next, IPXI would conduct due diligence on the patent to ascertain its value. In order to determine whether the patent could withstand validity challenges, patent experts hired by IPXI would conduct patent clearance.<sup>56</sup> Patent clearance requires experts to interpret existing claims, “predict[] what claims might emerge from pending patent applications,” and “identify[] potentially relevant patents or applications.”<sup>57</sup> After patent clearance, the patent experts would then seek to identify the ex ante demand for the technology in the market.<sup>58</sup> Over-

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<sup>50</sup> Contreras, *supra* note 46, at 421.

<sup>51</sup> *Id.*

<sup>52</sup> Chuffart-Finsterwald, *supra* note 46 (quoting *Frequently Asked Questions*, IPXI TRADING INNOVATION, <http://www.ipxi.com/inside-ipxi/faw.html> (last visited Aug. 2, 2013)).

<sup>53</sup> See Cameron Gray, *A New Era in IP Licensing: The Unit License Right™ Program*, 28 THE LICENSING J. 1, 3 (2008) (discussing the unit license right program as contrasted with patent pools and royalty purchase agreements). When the patent owner appoints IPXI as a “master licensing agent,” “IPXI assumes a role similar to ASCAP in the music industry or ARS in the visual arts industry.” *Id.*

<sup>54</sup> See *id.* at 4.

<sup>55</sup> *Id.* at 4, 5 (“For owners of IP, issuance of ULRs entails little upfront costs, no negotiations with prospective licensees, and rapid monetization. In this sense, the ULR program levels the playing field for corporations, universities, and public sector entities, allowing high-quality IP to be monetized regardless of whether the owner has access to legal resources and technology marketing expertise.”).

<sup>56</sup> *E.g.*, Daryl Lim, *Standard Essential Patents, Trolls, and the Smartphone Wars: Triangulating the End Game*, 119 PENN ST. L. REV. 1, 53 (2014) (discussing the patent due diligence process of IPXI).

<sup>57</sup> FED. TRADE COMM’N, *supra* note 8, at 4.

<sup>58</sup> See Lim, *supra* note 56, at 53.



all, IPXI conducted 95% of the due diligence required by licensees.<sup>59</sup> IPXI made this analysis available to “implementers, or anyone with credentials.”<sup>60</sup> IPXI hoped that this system would help provide more complete information about the value of the patents offered.<sup>61</sup>

IPXI restricted trading only to “members that agreed to abide by its rules and procedures.”<sup>62</sup> The firm offered a range of membership options beginning with a no-fee “purchasing” membership that allowed an individual or entity to trade on the exchange.<sup>63</sup> Higher levels of membership permitted the individual or entity to participate in IPXI “governance and policymaking committees.”<sup>64</sup>

The initial offering price for ULRs was determined based on a complex process reflecting the patent expert’s due diligence and bids from prospective buyers.<sup>65</sup> First, IPXI would assign an estimated price for each ULR based on its due diligence.<sup>66</sup> Next, potential purchasers would submit bids to IPXI for the ULRs using the Dutch auction method.<sup>67</sup> Once IPXI received sufficient bids, the firm would sell the ULRs to the bidders at the final offering price.<sup>68</sup> Finally, IPXI would collect 20% of the profits and the patent owner would reap the remaining 80%.<sup>69</sup>

After the initial public offering of the ULRs, IPXI members could resell their unused ULRs on a secondary market through a “proprietary trading platform.”<sup>70</sup> This secondary market gave

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> Groenfeldt, *supra* note 44.

<sup>62</sup> Contreras, *supra* note 46, at 424 (internal quotations omitted) (discussing the requirements and varying levels of IPXI membership).

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*; see Letter from Garrard R. Beeney to Renata B. Hesse, *supra* note 1, at 4.

<sup>65</sup> *E.g.*, Contreras, *supra* note 46, at 424 (noting the specifics of sales of ULRs and the IPXI Exchange).

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* “By setting an asking price for ULR contracts and lowering that price until bidders are willing to accept a minimum number of offered ULR contracts, the Dutch auction method determines an initial offering price based on market input.” Ian D. McClure, *The Value of Efficiency and Transparency in IP Licensing: Let the Market Decide*, INTELL. PROP. MAG., Feb. 2011, at 53, <http://www.ipo.gov.uk/ipreview-c4e-sub-mcclure.pdf> [<https://perma.cc/9THQ-SZPB>]; see also Chase Means, *IPXI: Creating an Efficient Patent License Marketplace*, TIMELY TECH @ THE UNIVERSITY OF ILLINOIS (Mar. 16, 2013), [http://illinoisjltip.com/timelytech/ipxi-creating-an-efficient-patent-license-marketplace/#\\_edn18](http://illinoisjltip.com/timelytech/ipxi-creating-an-efficient-patent-license-marketplace/#_edn18) [<https://perma.cc/5T7A-A62C>].

<sup>68</sup> *E.g.*, Contreras, *supra* note 46, at 424 (outlining the specifics of sales of ULRs and the IPXI Exchange).

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

rise to an entirely new channel for transferring intellectual property in the marketplace.<sup>71</sup> Suddenly, institutional investors could directly invest in promising technology rights based on their own outside research about the market.<sup>72</sup> For example, if a new study reported that an IPXI patented technology was superior to other alternatives, institutional investors might predict that demand for the ULRs will rise and decide to buy up ULRs on the secondary market with hopes of reselling later at a higher price. Thus, the price of ULRs on the secondary market was theoretically responsive to new information.<sup>73</sup>

Additionally, the secondary market permitted “operating companies to hedge their exposure to new technologies and manage exposure to the risk of patent infringement.”<sup>74</sup> For example, if an operating company finds a new technology on the IPXI exchange promising, the company could initially buy a small number of ULRs to test the technology and then return to the secondary market to buy more if necessary.<sup>75</sup> However, if the operating company decides to abandon the technology, the company can always resell the technology on the secondary market.<sup>76</sup> The opportunity to liquidate ULRs on the secondary market encouraged early adoption by minimizing the company’s upfront investment in the technology.<sup>77</sup> The firm no longer has to infringe on the patent to test it out briefly, it can buy a small number of ULRs before it fully adopts the technology. As a result, the secondary market for ULRs appears to offer substantial benefits to both institutional investors and operating companies alike.

This IPXI model received widespread acclaim, from academics to industry experts. The next section outlines the procompetitive benefits arising from this innovative model.

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<sup>71</sup> Gray, *supra* note 53, at 5 (“By allowing the market to price non-exclusive licenses to IP, with both practicing entities and sophisticated investors participating in price discovery in an open market, cross-licensing will assume a role markedly different from the status quo.”).

<sup>72</sup> *Id.* at 4.

<sup>73</sup> *Id.*

<sup>74</sup> Ian McClure, *IPXI to Launch First Offering on Exchange*, IPWATCHDOG (May 29, 2013), <http://www.ipwatchdog.com/2013/05/29/ipxi-to-launch-first-offering-on-exchange/id=40982/> [<https://perma.cc/JM5U-Y3YF>].

<sup>75</sup> Gray, *supra* note 53, at 4.

<sup>76</sup> *See id.* (“If the buyer procures 2.5 million ULRs at the initial sale, but later abandons the product line with excess inventory of 1.0 million ULRs, she can liquidate the rights at market.”).

<sup>77</sup> *See id.* (“[T]he secondary market assures [the buyer] that even if she is wrong, the market can accommodate her.”).

### C. Procompetitive Efficiencies of the IPXI Model

Intellectual property is an increasingly important part of the American economy. According to a report by the United States Patent and Trademark Office, “[t]he entire U.S. economy relies on some form of IP, because virtually every industry either produces or uses it.”<sup>78</sup> Intellectual property intensive industries account for over 27.1 million American jobs and added 5.6 trillion in value to the economy (or, in other words, 34.8% of the U.S. Gross Domestic Product).<sup>79</sup> Yet, licensing, one of the main sources of intellectual property revenue, remains costly, inefficient, and uncertain at best.<sup>80</sup> IPXI was attractive to many industry experts because its model offered new competitive efficiencies. One patent expert explained, “There are not a lot of great ways, other than the exchange, to do a lot of these things. . . . There is an incredible lack of transparency in patent transactions. Either it happens between two parties and no one knows the price, or it goes through a shadowy network . . . .”<sup>81</sup> This section enumerates the competitive efficiencies of the IPXI model recognized by the Department of Justice<sup>82</sup> and other experts.

#### 1. *De Minimis Transactional Costs*

Under the open innovation model, traditional bilateral licensing negotiations are characterized by high transactional costs. “Some market participants have observed that the one-off process of bilateral licensing negotiation is time-consuming, costly, non-transparent and inefficient; in some cases, taking years to conclude a single licensing transaction.”<sup>83</sup> These high transactional costs create a disincentive for patent holders and manufacturers to license. A patent holder may not have the

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<sup>78</sup> ECON. AND STATISTICS ADMIN. & U.S. PATENT AND TRADEMARK OFFICE, *supra* note 13, at vi.

<sup>79</sup> *Id.* at vi–ii.

<sup>80</sup> See Contreras, *supra* note 46, at 420 (“Some market participants have observed that . . . licensing negotiation is time-consuming, costly, non-transparent and inefficient . . . .”).

<sup>81</sup> Groenfeldt, *supra* note 44.

<sup>82</sup> For the full IPXI request for statement of enforcement intentions and the Department of Justice’s response, see generally Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, William J. Baer, Ass’t Att’y Gen., Antitrust Div., Dep’t of Justice (Mar. 26, 2013), <https://www.justice.gov/atr/response-intellectual-property-exchange-international-incs-request-business-review-letter> [<https://perma.cc/4YUA-J38P>] (analyzing the competitive benefits and concerns associated with IPXI’s novel business model).

<sup>83</sup> Contreras, *supra* note 46, at 420.

resources to find a buyer and negotiate a license. Likewise, a manufacturer may choose to operate illegally instead of engaging in such lengthy negotiations. But, unlike other licensing models, the exchange reduces transaction costs, such as due diligence, by providing each buyer with an offering memo detailing information about “the validity of the IP, covered technology, and valuation” upfront.<sup>84</sup> Furthermore, there are no lengthy negotiations because ULR contracts are “standardized, non-varying documents.”<sup>85</sup> Theoretically, a buyer can acquire licensing rights to technology at a reasonable price within weeks of the ULR offering.<sup>86</sup> IPXI claimed that its model would bring “technology to those who otherwise might not be able to afford it” by permitting “both patent owners and licensees to access a market for patent rights with *de minimis* transaction costs and with their eyes ‘wide open.’”<sup>87</sup>

Before IPXI’s first offering, the firm requested a statement of enforcement intentions by the Department of Justice pursuant to its business review procedure.<sup>88</sup> The Department of Justice reviewed IPXI’s business model and generally agreed with the firm’s claims about the model’s competitive efficiencies for licensing. The Department’s response to IPXI’s request explains:

IPXI’s proposal has the potential to facilitate more efficient licensing by increasing transparency regarding the patents in a [ULR] [sic] and obviating the need for costly bilateral negotiations. Identifying and evaluating patents that may be relevant to a firm’s products can be a very expensive endeavor, especially in industries where licenses may be required for numerous patents and from numerous patentees. IPXI’s upfront due diligence on the underlying patents and the publication of its findings may reduce the need for licensees to replicate its efforts. These efficiencies may also benefit rights’ holders who currently expend resources to establish a licensing program. In addition, the standardized, arms-length transactions on both the primary and secondary markets may reduce licensing transaction costs throughout the life cycle of the licensee’s downstream product and obviate the need for some firms to engage in costly negotiations for bilat-

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<sup>84</sup> Gray, *supra* note 53, at 5.

<sup>85</sup> *Id.*; see Letter from Garrard R. Beene to Renata B. Hesse, *supra* note 1, at 12 (“[IPXI] offer[s] ULRs on identical terms to all licensees regardless of size.”).

<sup>86</sup> See Gray, *supra* note 53, at 5 (“[B]uyers can obtain the rights they desire at reasonable prices within weeks of being made aware of the ULR issue, without needing to negotiate at their own expense for months or years.”).

<sup>87</sup> Letter from Garrard R. Beene to Renata B. Hesse, *supra* note 1, at 12.

<sup>88</sup> See *id.* at 4.

eral portfolio licenses. Thus, IPXI has the potential to benefit both patent holders and users of technology with lower transactions costs and more efficient matching of licensors and licensees. The result may produce savings for downstream consumers.<sup>89</sup>

Consequently, many experts believed IPXI was a viable alternative<sup>90</sup> to traditional licensing and would usher in a “new era in IP licensing.”<sup>91</sup>

## 2. Price Transparency

In the traditional licensing system, there is an information gap between the patent holder and potential licensees.<sup>92</sup> Potential licensees have to expend large amounts of time and money to learn basic information about a patent.<sup>93</sup> But even after due diligence, it is often difficult to ascertain the real value of a patent in the market.<sup>94</sup> Since terms of licensing agreements are normally kept confidential, there is no market information about a “going market rate” for patented technology.<sup>95</sup> One patent expert commented that, “Right now there is no objective way to figure out if a patent is worth it, but if you sue me, how much will I wind up paying? . . . That becomes the proxy value.’ The valuation has more to do with legal fees, and lost time than the value of the IP.”<sup>96</sup> In the end, the patent

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<sup>89</sup> Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, *supra* note 82 (analyzing the competitive benefits and concerns associated with IPXI’s novel business model).

<sup>90</sup> See, e.g., John W. Boger & Kristian E. Ziegler, *The IPXI: An Alternative to the License Agreement? Maybe!*, BONEZONE, Oct. 2012, at 60-62 (discussing the potential efficiencies of the IPXI and the ULR Contract system); McClure, *supra* note 74 (discussing the potential efficiencies of the IPXI and the ULR Contract system); James E. Malackowski, CEO, Ocean Tomo, LLC, Keynote Speech at the Northwestern Journal of Technology and Intellectual Property Second Annual Symposium (2007) (“[H]istorically intellectual property was controlled by patent counsel, in-house patent counsel, outside patent counsel, office of general counsel. And in our view today intellectual property is going to be controlled by policies, which are dictated by Wall Street and shareholders. Some of the fundamental aspects of this include Patent Index, IP Exchange Chicago, and IP Enterprise Zone.”).

<sup>91</sup> Gray, *supra* note 53, at 1.

<sup>92</sup> See Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, *supra* note 82, at 6–7.

<sup>93</sup> See *id.*

<sup>94</sup> See *id.* Price transparency is problematic for FRAND agreements as well. Even after a patent holder has agreed to license on fair, reasonable, and non-discriminatory terms (FRAND), there is often not enough price information to determine whether the patent holder’s price met these standards. *Id.*

<sup>95</sup> *Id.* at 7.

<sup>96</sup> Groenfeldt, *supra* note 44.

valuation is often rooted in litigation costs rather than the intrinsic value of the technology due to a lack of transparency.

In contrast, one of the most promising characteristics about the IPXI business model was its price transparency. “[P]rimary market prices for the first three tranches for a ULR w[ere] . . . listed in advance, and market demand for the ULRs at different prices w[ould] emerge over the course of an offering.”<sup>97</sup> The Department of Justice noted, “[b]y increasing price transparency, licensees may be able to manage their IP budgets with more precision and make efficient research and development decisions that lower overall costs.”<sup>98</sup> Greater price transparency in licensing provided a compelling argument for adopting a commodities market for intellectual property.

### 3. Pooled ULRs

In complex fields, manufacturers sometimes have to acquire licensing rights for a large number of patents for a single product. For example, “[i]t is well-documented that large numbers of patents cover key interoperability standards in fields such as wireless telecommunications, computer networking and semiconductor design.”<sup>99</sup> “[A]nywhere from a handful to hundreds of different firms” can control critical patents in such interoperability standards.<sup>100</sup> When these patents are not pooled, manufacturers of standard-compliant products must enter bilateral negotiations with each individual patent holder.<sup>101</sup> As a result, interoperability standards can impose high, if not prohibitive, transactional costs on manufacturers.

The IPXI model helped alleviate high transactional costs for interoperability standards not only by standardizing terms for all licensees, but also by creating “‘pooled ULR contracts’ that . . . aggregate patents from multiple patent holders in a variety of industries.”<sup>102</sup> For example, in 2014, IPXI held a public offering for pooled ULR contracts granting rights to more than 200 patents essential for the 802.11n wireless standard, the most widely adopted wireless standard at the time.<sup>103</sup> “Each

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<sup>97</sup> Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, *supra* note 82, at 7.

<sup>98</sup> *Id.*

<sup>99</sup> Contreras, *supra* note 46, at 420.

<sup>100</sup> *Id.*

<sup>101</sup> *See id.*

<sup>102</sup> Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, *supra* note 82, at 7.

<sup>103</sup> Ryan Davis, *IP Exchange Offers License To 200 Essential Wireless Patents*, LAW360 (Oct. 1, 2014, 7:43 PM), <https://www.law360.com/articles/583192/ip->

contract provide[d] a nonexclusive license to the patents that allow[ed] for the manufacture of 1,000 wireless chipsets,” which could be used in “smartphones, tablets, computers and routers.”<sup>104</sup> IPXI President and CEO Gerard Pannekoek argued that the firm’s “pooled ULR contract[s]” would “decreas[e] transaction costs for technology implementers while promoting the wider adoption of a technology.”<sup>105</sup>

In the Department of Justice’s review, the Department raised some competitive concerns about pools with fungible patents potentially raising royalty rates. However, the Department generally agreed that IPXI’s pooled ULRs could generate efficiencies “by reducing the time and expense of acquiring and disseminating all the pooled patents to potential licensees, reducing the amount of stacked royalties, clearing blocking positions, and integrating technologies that are necessary to practice an industry standard or a field of use.”<sup>106</sup> Ultimately, the Department decided to wait and watch IPXI’s pooling conduct before making a statement of non-enforcement.<sup>107</sup>

Theoretically, the market-approach to intellectual property licensing has numerous, tantalizing advantages over the modern litigation-driven licensing system. The intellectual property exchange promised to bolster *ex ante* licensing by lowering transactional costs, increasing price transparency, and facilitating standard-essential patent pooling. The exchange seemed like a transactional Eden bound to attract patent holders and licensees alike. IPXI built it, but alas the licensees did not come. The next section examines why the great IPXI experiment failed in light of these efficiencies.

## II

### THE GREAT IPXI EXPERIMENT

On March 23, 2015, the IPXI experiment came to a bitter end only two years after its first offering.<sup>108</sup> The firm’s public announcement explained, “IPXI’s business model offered fairness and transparency and relied upon patented technology users to be good corporate citizens. In the end, potential licensees made it clear that the only way IPXI would really get their

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exchange-offers-license-to-200-essential-wireless-patents [https://perma.cc/QCP5-9SEA].

<sup>104</sup> *Id.*

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

<sup>106</sup> Response to Intellectual Property Exchange International, Inc.’s Request for Business Review Letter, *supra* note 82, at 7 (internal citations omitted).

<sup>107</sup> *See id.* at 12.

<sup>108</sup> *See Contreras, supra* note 46, at 432.

attention was through litigation, and that's exactly what our business model tried to overcome."<sup>109</sup> Gerard Pannekoek, the President and CEO of IPXI, acknowledged that the model had flaws, but he felt that there was enough flexibility to address these concerns.<sup>110</sup> Overall, he insisted, "it was a smooth process."<sup>111</sup> Instead, Pannekoek believes the IPXI experiment failed because companies do not have an incentive to engage in good-faith licensing in the U.S. patent system.<sup>112</sup> In an interview, Pannekoek lamented, "[W]e could not get a significant number of entities to be good corporate citizens and respond to legitimate licensing offers where we had done 90% of the work in advance for them."<sup>113</sup> Pannekoek commented that the IPXI business model resolved four key licensing issues: determining quality, presenting evidence of use, deal transparency, and pricing, "[b]ut even then it turned out there was no incentive to talk without the threat of litigation."<sup>114</sup> However, willing market participants regularly enter into licensing agreements even without the threat of litigation.<sup>115</sup> It seems unlikely that the absence of a litigation threat was the entire reason for IPXI's failure.<sup>116</sup> This section proceeds by examining if Pannekoek was correct that IPXI indeed failed because companies refused to engage in good-faith licensing. Was the issue with the IPXI business model, or with the litigation-driven patent system?

#### A. Before Incorporation

For each initial public offering of a patent, IPXI would issue an estimated price for the ULR contracts based on its patent experts' due diligence, and then members could submit bids for the ULRs.<sup>117</sup> After IPXI received enough bids, the firm would sell the ULRs to members at the final offering price. This final offering price represents the *ex ante* value of the patent because the manufacturer has not yet incorporated the technology into any of its products. Since the manufacturers have not

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<sup>109</sup> INTELLECTUAL PROPERTY EXCHANGE INTERNATIONAL, <http://IPXI.com>; *Broken By a System That Encourages Bad Behaviours, IPXI Closes Down*, IAM MAG., July/Aug. 2015, <http://www.iam-media.com/Magazine/Issue/72/Insights/Broken-by-a-system-that-encourages-bad-behaviours-IPXI-closes-down> [<https://perma.cc/A3CG-J8FP>].

<sup>110</sup> Wild, *supra* note 7; *see also* Newman, *supra* note 7.

<sup>111</sup> Wild, *supra* note 7.

<sup>112</sup> *Id.*

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> Contreras, *supra* note 46, at 434.

<sup>116</sup> *Id.*

<sup>117</sup> Gray, *supra* note 53, at 4–5.



invested in the technology at this stage, the technology being offered still has to compete with fungible alternatives. Early adopters will benefit from this competition in the form of lower prices.

At the initial public offering, the manufacturer must make a strategic decision: “[B]uy some now and some later, or buy everything now.”<sup>118</sup> Under the IPXI model, manufacturers must pay for licensing rights upfront rather than paying a royalty rate on an ongoing basis. Consequently, the manufacturer must decide exactly how many ULRs it should buy at the initial public offering.<sup>119</sup> If a manufacturer can determine its total demand, it might want to take advantage of the price premium at the initial offering and buy enough rights to cover its production for the year.<sup>120</sup> However, most manufacturers will likely decide to buy a conservative number of ULRs. Since manufacturers have to essentially pre-pay for their licensing rights, many firms might want to wait and see how profitable their end product is before investing in more ULRs.<sup>121</sup> Although there is a secondary market to resell any unused rights, manufacturers might be hesitant about possibly incurring a loss if the price for the technology drops.<sup>122</sup> Regardless, each manufacturer will have to eventually reenter the market when they “consume” all of their ULRs.

At the initial offering stage, the IPXI model is working efficiently as planned. The model here has encouraged *ex ante* licensing by lowering transactional costs and increasing price transparency. However, the IPXI model begins to deteriorate, as manufacturers have to reenter the market.

## B. Post-Incorporation

After the manufacturer has consumed its ULRs, it must reenter the market to buy more licensing rights in order to continue producing its end product. When the manufacturer reenters the market this time, the ULR price represents the *ex post* value of the patent because the manufacturer has already

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<sup>118</sup> *Id.* at 4.

<sup>119</sup> *See id.*

<sup>120</sup> *See id.*

<sup>121</sup> *See id.*

<sup>122</sup> Contreras, *supra* note 46, at 437 (“If licensees over-purchased, they might not be able to recoup the cost of their over-investment, and if they under-purchased, they might not be able to access additional ULRs at expected prices.”).

incorporated the technology.<sup>123</sup> In a way, the manufacturer has orchestrated its own ruin at this point. The patented technology no longer has to compete against alternatives, and so the current holders of ULRs now have substantial market power. The manufacturer has already sunk costs into the technology and cannot switch without incurring large costs from redesigning. Consequently, the manufacturer will pay more for the ULRs on the market so it can keep producing its end product. IPXI actually benefits from this price increase because the firm takes a 20% commission on all sales.<sup>124</sup> After incorporation, the manufacturer is ultimately subject to patent holdup by IPXI and the patent holder as well as third party speculators, who become essentially “non-practicing ULR trolls.”<sup>125</sup>

Since incorporation will predictably increase the price of the ULR, third parties may choose to invest in ULRs at the initial public offering. Presumably, if there are enough bids for a ULR offering, many purchasers are manufacturers intending to incorporate the technology into their products. A third party could buy ULRs at the discounted initial offering price, then resell the ULRs at a significant mark up when a manufacturer reenters the market. Alternatively, a third party speculator could buy up all the remaining ULRs on the market and then resell to manufacturers at a monopoly price. Since ULRs are nonperishable, unlike agricultural commodities, the third party speculator can wait for manufacturers to incorporate the technology without the pressure to sell by a certain “expiration date.”

At this point, the manufacturer has four choices. First, the manufacturer could acquiesce to the higher ULR prices. This option is perhaps the easiest, but it would cut into profit margins. Further, the cost might be prohibitive for some manufacturers. Second, the manufacturer could stop production and wait for IPXI to hold another offering. This option is undesirable because the manufacturer will lose profits while it waits. Then, the manufacturer will still have to reenter the market eventually. The manufacturer might buy more ULRs at subsequent offerings, but the number of ULRs available will always

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<sup>123</sup> *Id.* at 432 (“[I]nstead of seeking to determine this *ex ante* value, the IPXI model would have established prices *ex post*, after the standard had become locked-in and manufacturers had little ability to migrate to a different technology.”).

<sup>124</sup> Letter from Garrard R. Beeney to Renata B. Hesse, *supra* note 1, at 16; *see* Contreras, *supra* note 46, at 424.

<sup>125</sup> Contreras, *supra* note 46, at 438 (internal quotation marks omitted).

limit the manufacturer's production.<sup>126</sup> Third, the manufacturer can switch to another technology or design around the patent. However, if the manufacturer uses the IPXI exchange to select another technology to use, it will be subject to same process again. As a result, the manufacturer will probably just return to the traditional licensing system under this option. Finally, the manufacturer could decide to use the technology illegally without a license. If IPXI successfully brings a suit, then the manufacturer could be liable for the cost of past infringement and have to negotiate a royalty rate. The court could also enjoin the manufacturer from using the technology in its products.<sup>127</sup> In the end, the manufacturer has no good choices after product incorporation.

### III

#### ERRORS IN THE EXPERIMENT: WHY IPXI FAILED

IPXI sought to utilize open market pricing for patent licenses in order to increase efficiency and transparency. The IPXI model standardized and commoditized non-exclusive patent licenses, and then traded these licensing rights on an open market. This model assumed that open market pricing would determine a fair price for these licensing rights. However, the downfall of the IPXI model was its failure to account for how product incorporation affects the price of licenses. IPXI overlooked the crucial distinction between *ex ante* and *ex post* licensing.

Normally, when a manufacturer enters into a traditional licensing agreement, the manufacturer agrees to pay the licensor a set royalty rate on each product it manufactures or sells using the patented technology. This licensing arrangement is sometimes referred to as "pay-as-you-go."<sup>128</sup> However, under the IPXI model, there is no fixed price for using the patented technology. Theoretically, the open market determines a fair

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<sup>126</sup> Given a patent's right to exclude, the ULR becomes a necessary part of the product, like a screw or other physical part. If the manufacturer lacks screws, it cannot produce more of its product. If the manufacturer lacks ULRs, it similarly cannot produce more of its product—at least legally.

<sup>127</sup> Injunctions are awarded based on equitable principles. FED. TRADE COMM'N, *supra* note 8, at 143 ("In *eBay v. MercExchange*, the Supreme Court rejected a 'general rule' favoring the grant of injunctions and listed four equitable factors that a patentee must satisfy to obtain an injunction: 1) that it has suffered an irreparable injury; 2) that remedies at law, such as monetary damages, are inadequate to compensate for that injury; 3) that, considering the balance of hardships between the [parties], a remedy in equity is warranted; and 4) that the public interest would not be disserved by a permanent injunction.").

<sup>128</sup> Contreras, *supra* note 46, at 436.

price based on demand. If the patented technology works well, the price of its ULRs on the market rises as demand increases. Thus, the price supposedly reflects the market-proven value of the technology. Such open market pricing works well for the initial public offering because the market is still competitive. The patented technology does not yet have market power because other technologies performing similar functions are fungible goods. Consequently, the patented technology must still compete with the alternative technology for incorporation, which drives down prices. However, the IPXI model overlooks how product incorporation affects competition in the market. After incorporation, other technologies are no longer fungible because the manufacturer already has sunk costs into the patented technology. The market definition shifts from “technology that performs function X” to “ULRs to the IPXI patented technology.”<sup>129</sup> Now, IPXI and speculators can extract higher ex post prices for the ULRs because there is no longer any competition. Contrary to the open market rationale, this price increase reflects the desperation of the manufacturer and not the intrinsic value of the technology.<sup>130</sup>

Although the IPXI model appears at first glance to encourage good faith ex ante licensing, the model actually exposes the manufacturer to indefinite ex post licensing.<sup>131</sup> Low, competitive prices at the IPO lure the manufacturer into adopting the technology. Then, once the manufacturer has consumed all of its ULRs, the manufacturer must reenter the market to buy more in order to continue production. Each time the manufacturer reenters the market after incorporation, it is subject to this ex post licensing. The manufacturer must continue to pay this higher price for the ULRs because of its sunk costs. As the market steadily consumes the limited supply of ULRs, the price continues to rise until IPXI has another offering. Such ex post licensing necessarily arises from the commoditization of licensing rights.

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<sup>129</sup> See *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 470 (1992) (concluding that the relevant market for antitrust purposes is determined by the choices available to the consumer); see also AREEDA & KAPLOW, *supra* note 19, at 571 (“[T]he existence of significant substitution in the event of further price increases or even at the current price does not tell us whether the defendant already exercises significant market power.”).

<sup>130</sup> See AREEDA & KAPLOW, *supra* note 19, at 571; see also Contreras, *supra* note 46, at 432 (discussing how manufacturers had little ability to change technologies).

<sup>131</sup> See Contreras, *supra* note 46, at 432.

### A. Commodities Market

IPXI needed “artificial scarcity” in order to create a commodities market for licenses.<sup>132</sup> Unlike the agricultural products sold on the original Chicago Mercantile Exchange, licensing rights are an intangible good with a non-depletable supply. The supply of licensing rights does not depend on how many farmers are growing corn that year or capricious weather conditions.<sup>133</sup> The supply is essentially “infinite.”<sup>134</sup> IPXI and the patent holder have exclusive control over how many ULRs are on the market. At any time, they can release as little or as many ULRs as they desire. There is only demand in the market because IPXI and the patent holder artificially created scarcity by making the ULRs consumable and then only offering a limited number on the market. This artificial scarcity in turn creates a problematic hybrid between tangible and intangible property.

Agricultural products traditionally traded on commodity exchanges are consumable similar to ULRs, but there is no artificial scarcity.<sup>135</sup> One or two parties do not arbitrarily set the supply of agricultural products like corn. The supply depends on numerous factors, such as how many farmers grow corn, how much they grow, and crop yields that year. These external influences on supply help regulate the price. If the price of corn rises, more farmers will start growing and selling corn on the commodities exchange, which will decrease the price. However, if there is too much corn on the market and prices drop, some farmers will stop growing corn and switch to a more profitable crop. Such competition on the market allows society to allocate its resource efficiently.

In contrast, since patent holders have the exclusive right to license, the supply of ULRs on the market depended on how many IPXI and the patent holder decided to release. IPXI had to determine the ideal amount to release and then carefully monitor consumption by its members. Professor Contreras astutely points out,

It is not difficult to envision a scenario in which the initial supply of ULRs was too low to meet market demand for worldwide production of standards-compliant devices. Of course, IPXI could then issue additional ULRs, as it contemplated doing in subsequent tranches. But if it did not, then

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<sup>132</sup> See *id.* at 437.

<sup>133</sup> *Id.*

<sup>134</sup> *Id.*

<sup>135</sup> *Id.*

the price of existing ULRs on the secondary market would rise in response to demand.<sup>136</sup>

IPXI had to carefully monitor consumption to determine when to release more ULRs on the market. However, monitoring consumption proved more difficult than expected. Although IPXI required its members to report their consumption, manufacturers had an incentive to under report and essentially “steal” ULRs.<sup>137</sup> If this reporting system were going to work, then IPXI would have needed to periodically audit each manufacturer. In the end, it was difficult to maintain equilibrium in a commodities market dependent on artificial scarcity.

Artificial scarcity in the IPXI model also subjected manufacturers to patent holdup by speculators on the secondary market.<sup>138</sup> Speculators could buy up ULRs at the IPO then resell at a significant mark up when a manufacturer reentered the market to buy more. The speculator could confidently hold the ULRs until the manufacturer reentered the market for two reasons.<sup>139</sup> First, since ULRs were nonperishable, speculators were not pressured to sell by a certain expiration date.<sup>140</sup> Second, speculators did not have to worry about other suppliers flooding the market and forcing prices down.<sup>141</sup> Speculators could wait for the available supply to dwindle as manufacturers consumed their ULRs and then take advantage of the manufacturer’s desperation to resell at exorbitant ex post prices. Here, IPXI had an incentive to keep prices on the secondary market high because the company received a 20% commission on all sales.<sup>142</sup> Due to IPXI and the patent holder’s exclusive control over the consumable ULR supply, the model did not have the same safety valve for price pressure as other commodity markets.

The next question that naturally arises is whether the IPXI model could be fixed by putting an expiration date on the ULRs. Theoretically, if ULRs expired, speculators could not hoard rights and then wait to prey on desperate manufacturers. They would have to sell, potentially at lower prices, before their rights perished completely. However, this approach is like trying to shovel water out of a sinking boat. Perishable ULRs

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<sup>136</sup> *Id.*

<sup>137</sup> See Letter from Garrard R. Beeney to Renata B. Hesse, *supra* note 1, at 3.

<sup>138</sup> See Contreras, *supra* note 46, at 437–38.

<sup>139</sup> See *id.*

<sup>140</sup> Cf. *id.* at 422 (indicating that such commodities as agricultural products are perishable).

<sup>141</sup> See *id.* at 437.

<sup>142</sup> Letter from Garrard R. Beeney to Renata B. Hesse, *supra* note 1, at 16.

would relieve some of the pressure on the market driving up prices, but it would not fix the underlying problem in the IPXI model. By making ULRs consumable, the IPXI model forces the manufacturer to rely on anticompetitive ex post licensing.<sup>143</sup> Although perishable ULRs could prevent hoarding, it does not keep manufacturers from having to reenter the market to buy licenses at continually high ex post prices.

## B. Securities Market

IPXI did not fail just because the model attempted to trade an intangible good. Other markets, such as the New York Stock Exchange, have succeeded in trading intangible goods for years. Similar to ULRs, stocks are non-depletable, but they are also non-consumable so they can continue to reenter the market. For example, after a company's initial public offering for stocks, insiders in most IPOs are required "to enter into 'lock-up' agreements, which contractually bar these insiders from selling their shares in the secondary market until the expiration of a specified period after the effectiveness of the registration statement (usually, six months)."<sup>144</sup> Since insiders own most of the existing stock in a firm, the lock up agreement prevents them from selling immediately and flooding the market.<sup>145</sup> As a result, the price of shares often rises dramatically during the initial days of trading because there is a limited supply of shares available.<sup>146</sup> However, once the lock-up ends, insiders usually sell a "substantial portion of their shares," which relieves some of the demand in the market, lowering prices.<sup>147</sup> There was no comparable safety valve in the IPXI business model. Although unused ULRs could reenter the market, manufacturers bought with the intent to consume, so the supply was constantly dwindling.

Another possible solution to fix the IPXI model is to create a safety valve similar to the stock market. Stocks are technically non-depletable because a corporation can issue as many as it wants. However, stocks do not have the same issue with artificial scarcity as ULRs for two reasons. First, stocks are tied to tangible goods. One share typically entitles the shareholder to

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<sup>143</sup> See Contreras, *supra* note 46, at 431–32.

<sup>144</sup> JOHN C. COFFEE, JR. ET AL., *SECURITIES REGULATION: CASES AND MATERIALS* 93 (13th ed. 2015).

<sup>145</sup> See *id.*

<sup>146</sup> *Id.* at 91, 94 ("Numerous studies have found that IPOs tend to be underpriced over the short-run . . . IPOs in the 1980's yielded an average initial return of 16.4%.")

<sup>147</sup> *Id.* at 93–95.

a certain cut of the corporation's dividends. Shareholders have an incentive to limit the number of stocks issued because their share of the company becomes diluted as more stocks are issued. Essentially, their piece of the corporate pie becomes smaller as they are forced to share with more people. Second, stocks are non-consumable so they can be resold on the market. Once stock prices begin to rise, stockholders will start selling their shares for a profit, which relieves some of the demand in the market.<sup>148</sup> The IPXI model could try to create a similar safety valve simply by making ULRs non-consumable so they could reenter the market. Each manufacturer holding a ULR would essentially own a share of the patent. This approach is preferable to making ULRs perishable because it fixes the larger problem with ex post licensing. Each ULR would entitle the manufacturer to produce X number of end products using the patented technology each year. The manufacturer would just need to buy enough ULRs to cover its yearly production. It would only have to engage in ex post licensing if the company decided to expand production and needed more ULRs. However, this solution also poses potential problems. If ULRs are no longer consumable, they might be subject to securities regulation by the Securities and Exchange Commission (SEC).

The broad statutory definition of a "security" captures a wide "range of unconventional investments."<sup>149</sup> The all-encompassing definition of a "security" has "developed primarily from [the judicial] interpretation of the statutory phrase 'investment contract.'"<sup>150</sup> According to the Supreme Court in *SEC v. W.J. Howey Co.*, "[A]n investment contract for purposes of the Securities Act means a contract, transaction, or scheme whereby a person [(1)] invests his money [(2)] in a common enterprise

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<sup>148</sup> See *id.*

<sup>149</sup> THOMAS LEE HAZEN, PRINCIPLES OF SECURITIES REGULATION 28 (West 3d ed. 2009); see also 15 U.S.C. § 77b(a)(1) (2012) ("The term 'security' means any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a 'security,' or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing.").

<sup>150</sup> HAZEN, *supra* note 149, at 28.



and [(3)] is led to expect profits [(4)] solely from the efforts of the promoter or a third party.”<sup>151</sup> The Court in *Howey* did not indicate any single factor as determinative of whether something was a security. Rather, “[i]t is sufficient that the essential ingredients of an investment contract are being offered.”<sup>152</sup>

The definition of a “security” might include ULRs if these contracts are not consumable by manufacturers. First, manufacturers under this solution would make an investment of money by buying the ULRs. Second, manufacturers might satisfy the common enterprise requirement, which focuses on whether the success of the investor’s interest rises and falls with others involved in the enterprise. Theoretically, a court might determine there is commonality because each manufacturer’s interest depends on the patent. For example, if a patent were declared invalid under this solution, then the interests of the patent holder and the manufacturers would fall together. The key factor here is the third requirement of the *Howey* test: an expectation of profit. “[W]hen a purchaser is motivated by a desire to use or consume the item purchased, . . . the securities laws do not apply”<sup>153</sup> because “the investor is [not] ‘attracted solely by the prospects of a return.’”<sup>154</sup> IPXI may have decided to make the licensing rights consumable so ULRs would fall under the jurisdiction of the Commodity Futures Trading Commission (“CFTC”) and not the SEC.<sup>155</sup> However, once the consumable characteristic is removed, jurisdiction becomes much more ambiguous.<sup>156</sup> The primary motive is no longer clearly consumption.<sup>157</sup> Both investors and manufacturers would likely be interested in buying shares of the patent, so there could be mixed motives. As a result, reasonable minds could differ over whether ULRs should be treated as a “security.” The fourth factor, “from the efforts of others,” focuses on whether profits are derived “primarily” or “substantially” from the efforts of others.<sup>158</sup> Here, the manufacturer is profiting off of the patent holder’s development of the technology, but the profits also depend on the manufacturer’s end product and its business efforts. Given the manufacturer’s efforts to commercialize, ULRs would likely fail under this prong, but the case law is

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<sup>151</sup> 328 U.S. 293, 298–99 (1946); see HAZEN, *supra* note 149, at 28.

<sup>152</sup> HAZEN, *supra* note 149, at 29.

<sup>153</sup> *United Hous. Found., Inc. v. Forman*, 421 U.S. 837, 852–53 (1975).

<sup>154</sup> *Id.* at 852.

<sup>155</sup> See HAZEN, *supra* note 149, at 7.

<sup>156</sup> See *id.*

<sup>157</sup> See COFFEE, *supra* note 144, at 289–90.

<sup>158</sup> HAZEN, *supra* note 149, at 30–31.

varied enough to warrant a serious discussion. For example, some real property transactions are considered a “security” and others are not. In *Hocking v. Dubois*,<sup>159</sup> the court held that “a security [] exist[s] where residential condominium interests are marketed with collateral agreements giving rise to a profit expectation.”<sup>160</sup> However, “vacation residence, time-share interests”<sup>161</sup> are not a “security.” In the end, the definition of “security” remains broad and largely uncertain. It is not implausible that a non-consumable ULR could be regulated as a “security.”

There are distinct advantages and disadvantages to such regulation. If the ULR is considered a security, then the patent market could benefit from the well-developed statutory and case law. Furthermore, securities regulation would require more disclosure by patent holders. Manufacturers might feel more confident engaging in good-faith licensing if this familiar body of law is imputed onto patent markets. However, securities regulation also imposes high transactional costs. The patent holder would have to go through the costly process of registering an offering of ULRs. As a result, securities regulation might actually prevent individual patent holders from licensing and thus discourage technology transfer. Thus, securities regulation of ULRs would likely have the same problems with high transaction costs as the current patent system.

### C. Lessons from IPXI

Ultimately, the downfall of the great IPXI experiment was its failure to account for product incorporation in its model. In a way, the IPXI executives are correct in attributing the company’s failure to manufacturers refusing to license unless threatened with litigation.<sup>162</sup> If a manufacturer buys licenses through IPXI, the manufacturer is subject to ex post licensing every time it reenters after. The manufacturer will have to continually settle for a higher ex post price than it normally would accept ex ante. However, if the manufacturer just infringes and waits for litigation, the manufacturer only has to engage in ex post licensing once. Further, under the traditional licensing system, the manufacturer will pay a royalty rate on each product so the number of licenses available no longer

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<sup>159</sup> 885 F.2d 1449 (9th Cir. 1989).

<sup>160</sup> HAZEN, *supra* note 149, at 34.

<sup>161</sup> *Id.*

<sup>162</sup> Wild, *supra* note 7; see also Newman, *supra* note 7.

limits production.<sup>163</sup> In this context, it makes more sense for manufacturers to ask forgiveness rather than permission.

As innovators continue to experiment with new ways to license patents, the IPXI model can offer several valuable lessons going forward. The IPXI business model sought to align the patent system and competition policy by making licensing more accessible. However, IPXI failed to appreciate how product incorporation affected competition in the intellectual property marketplace.<sup>164</sup> Open market pricing worked well before incorporation because the market was still competitive. The problem with making patent licenses consumable was manufacturers had to reenter the market after incorporation when it was no longer competitive. The open market price for these ex post licenses no longer reflected the true value of the technology, but rather the sunk costs of the manufacturer. By making licenses consumable, the IPXI model actually exacerbated ex post licensing.<sup>165</sup> As a result, the manufacturers were subject to patent holdup on the secondary market. Although the secondary market was intended to insert liquidity into the market, the IPXI model actually allowed speculators to hoard licenses and then resell at a significant markup once the market supply dwindled. This case study suggests that IPXI might work if the model did not rely on artificial scarcity. IPXI should have made licenses non-consumable and cut out the secondary market.

Despite IPXI's failure, the auction method used for the initial public offering shows potential for the patent market. Instead of selling ULRs, an intermediary could auction off a traditional license for a patent. Each bid would reflect whatever royalty rate the bidder was willing to pay. Such an auction method would still capture many of the procompetitive efficiencies from the IPXI model. For example, an intermediary auctioneer could reduce transactional costs by still drafting a licensing agreement with standardized terms. Similar to IPXI, the intermediary could also provide bidders with an offering memo detailing information from its own due diligence on the patent. In addition, the auction would increase price transparency by having potential buyers bid against each other for a set royalty rate. The bidding process retains the open market principles of IPXI by allowing the market to determine a fair ex

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<sup>163</sup> See Contreras, *supra* note 46, at 436–37 (discussing the traditional pay-as-you-go licensing system).

<sup>164</sup> See *id.*; FED. TRADE COMM'N, *supra* note 8, at 50.

<sup>165</sup> See Contreras, *supra* note 46, at 436–37 (comparing the effects of a traditional pay-as-you-go licensing system and IPXI pay-up-front licensing system on manufacturers).

ante price. Since the licensing rights are non-consumable, the manufacturer will not later be subject to ex post licensing. Thus, manufacturers can make a fully informed decision about the technology and its costs before incorporation.

#### CONCLUSION

The U.S. patent system needs a fundamental paradigm shift. The modern litigation-based patent system at best is inefficient and broken, and at worst stifles innovation with lawsuits and coercive fees. Experiments like IPXI are important because these innovative models challenge us to think about the patent system in new ways. Although the IPXI model ultimately failed, its business model provides guidance for future efforts. This case study demonstrates that patents are perhaps ill suited for a commodities market, but there could be ways to successfully incorporate market principles into other models. Indeed, open market pricing could help decrease transactional costs and increase transparency. But, future models must take into account how product incorporation affects competition in the market. Open market pricing is best suited for ex ante licenses with an ongoing royalty rate. Although the patent system is unlikely to be fixed overnight, we can start making progress if we continue to innovate and learn from each mistake.