VANQUISHING COPYRIGHT PIRATES AND PATENT TROLLS

THE DIVERGENT EVOLUTION OF COPYRIGHT AND PATENT LAWS

Robert E. Thomas*

P.O. Box 117165

Warrington College of Business

University of Florida

Gainesville, Florida 32611

Robert.Thomas@cba.ufl.edu

352-392-0136 (office)

352-871-7025 (cell)

*Associate Professor of Legal Studies and Huber Hurst Fellow, J.D. Stanford Law School; Ph.D., Stanford Business School.

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Abstract

In the last decade copyright law has followed an almost linear path of increasing legal protections for copyright holders' battle against digital piracy. By contrast, proposed changes in patent law are decidedly anti-patent holder due to efforts to battle patent trolls – companies that acquire and use patent portfolios to extract payoffs from technology companies. Patent law reform faces a far more contentious path and will likely lose several of its most significant provisions. This paper analyzes efforts to change the laws of copyright and patent using James Q. Wilson's theory of regulation. With little concerted opposition, copyright law has been shaped by less contentious client politics. Patent law reform faces an interest-groups battle with powerful bio-medical and pharmaceutical companies opposed to many reform provisions. The analysis suggests that future changes to copyright law will be more difficult having to navigate the contentious interest-groups-battle path.

I. Introduction

The primary objective of intellectual property law is to promote creativity and innovation.[1] However, the principal method of effectuating this objective, granting exclusive rights in valuable creations for limited periods, while giving incentives to create, also limits competition.[2]

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[1] The U.S. 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." U.S. CONST. art. I, § 8, cl. 8. See also Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129 (2004) ("It is the prospect of the intellectual property right that spurs creative incentives."). Scholars are careful to point out that these limited rights are not the equivalent of monopoly power in the antitrust sense. *See, e.g.,* Daniel R. Cahoy, *Changing the Rules in the Middle of the Game: How the Prospective Application of Judicial Decisions Related to Intellectual Property Can Promote Economic Efficiency*, 1 A. BUS. L.J. 1 n.18 (2003) ("One of the most common errors is in describing intellectual property rights as 'monopolies.'"); Simon Genevaz*Against Immunity for Unilateral Refusals to Deal in Intellectual Property: Why Antitrust Law Should not Distinguish Between IP And Other Property Rights*, 19 BERKELEY TECH. L.J. 741, 747 (2004) ("To the contrary, intellectual property grants do not automatically confer monopoly power onto their owners").

[2] If the valuable creation has no perfect substitutes, the owner has the ability to demand and receive prices that exceed his marginal costs. A profit maximizing firm's incentive to raise prices are limited only by the closeness of potential substitutes. *See* Lemley, *supra* note 1, at 135 ("The owner of an exclusive right to either would have some power to raise the price above marginal

These behaviors, although unintended, are not entirely unexpected. The difference between marginal costs and the market price for intellectual property represents an economic rent that can be – but is not always – quite valuable for rights holders.[3] Companies like IBM generate millions of dollars from exploiting their intellectual property portfolios.[4] The income-generating value of intellectual property gives intellectual property owners incentives to influence the direction of legislative change in order to maximize intellectual property returns. Highly visible examples of such efforts include intellectual property time extensions such as the Sonny Bono Copyright Time Extension Act, which protects creative works for as long as 120 years, and the 1995 changes to the Patent Act, which increased the patent term to 20 years.[5] However, recent and

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cost--power that results from the fact that neither product has a perfect substitute--but that power would be significantly constrained by the existence of other products that could serve some of the same purposes.").

[3] Economic rents are amounts received due to prices charged in excess of marginal costs. *See, e.g.,* Frank H. Easterbrook, *Contract and Copyright,* 42 HOUS. L. REV. 953, 956-957 (2005) ("Rewards to authors and inventors are economic rents, to be sure, but rarely monopoly rents.").

[4] *See, e.g.,* Gary L. Reback, *Patently Absurd,* (June 26, 2002) *available at* http://www.forbes.com/asap/2002/0624/ 044.html (recounting how IBM was able to extract upwards of $20 million from Sun Microsystems for seven patents of questionable validity).

[5] 17 U.S.C. § 302 (2000) (providing copyright terms for anonymous works, pseudonymous works, and works for hire, the shorter of 95 years from publication or 120 years from creation). 35 U.S.C. § 154 (a)(2). Congress extended the duration of patents from 17 to 20 years to bring the United States into compliance with the Agreement On Trade-Related Aspects of Intellectual

proposed copyright and patent law legislation suggest a divergence in the direction of change. Copyright law has taken an approach that is increasingly protective of owners thereby allowing rights owners to preserve or capture a large proportion of the economic rents generated by their intellectual property.[6] By contrast, patent reform legislation proposed in 2005 would take patent law along a path that appears to deviate from the path of increased protection of patent holders' interests.[7] Provisions in this legislation erect significant barriers to the enforcement of patent rights including making it more difficult to obtain injunctive relief and creating opportunities for third parties to oppose issued patents.[8]

This paper provides an explanation for this apparent divergence in the development of copyright and patent law. Although changes in these laws do not follow a parallel track, the

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Property Rights. *See infra* note 33.

[6] *See, e.g.,* Semiconductor Chip Protection Act of 1984, 17 U.S.C. 901-914; Audio Home Recording Act of 1992, 17 U.S.C. 1001-1010; Vessel Hull Design Protection Act of 1998, 17 U.S.C. 1301-1332; Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified in scattered sections of 5, 17, 28, and 35 U.S.C.) [Hereinafter DMCA]. *See also* Viva R. Moffat, *Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection,* 19 BERKELEY TECH. L.J. 1473 (2004) ("As a general proposition, however, copyright protection has only expanded over time and that trend is likely to continue or even accelerate.").

[7] Patent Reform Act of 2005, HR 2795, 109th Cong. (2005)**.**

[8] Patent Reform Act, § 7 and Ch. 32.

tracks are consistent with rent-seeking behavior of strongly vested interest groups.[9] Political theory posits that laws evolve to favor strongly vested interests.[10] Therefore, it is not surprising that changes in copyright law have not only strengthened intellectual property rights but have also allowed rights holders to limit the exercise of fair use in order to suppress Internet pirates.[11] Large media companies such as Disney, A&M Records and MGM Studios obtain substantial income and market power from exploiting copyrights.[12] Their large size and substantial resources

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[9] Saul Levmore, *The Evolution of Property Rights: Two Stories About The Evolution of Property Rights*, 31 J. LEGAL STUD. 421 (2002), argues that changes in property rights can be explained by either a transactions-costs or interest-groups analysis. However, while some of the legal changes discussed herein are consistent with changes in relative costs, I argue that some of the changes are more amenable to an interest-group explanation due to less than clear costs reductions and strong differences in strength of interests of relevant groups. *See infra* notes 55-70 and accompanying discussion.

[10] *See* James Q. Wilson, POLITICS OF REGULATION 367-372 (1980).

[11] *See, e.g.,* Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology,* 69 U. CHI. L. REV. 263, 282 (2002) (asserting that advocates of limiting fair use with respect to digital materials have succeeding in having such restrictions enacted into law).

[12] *See* Michael J. Meurer, *Copyright Law and Price Discrimination,* 23 CARDOZO L. REV. 55, 83 (2001) (asserting that, "Disney derives most of its market power from copyright law"). A&M and MGM, a music and film company, respectively, were the named plaintiffs in the cases that held that Napster and Grokster violated copyright law. A&M Records, Inc. v. Napster, Inc., 239

allow them to exert tremendous influence on legislative bodies.[13] Hence, the passage of copyright legislation that favors their interests is consistent with political theory.

The dynamics of influence on the patent side are more complex. Patent reform is designed to address the interests of large information technology (info-tech) companies seeking to reduce their exposure to patent trolls – nonproductive patent consolidators who acquire patents allegedly for the sole purpose of extorting a substantial settlement or judgment from productive companies.[14] For info-tech companies, patent lawsuit defense appears to be a bigger concern than defending patents. By making it more difficult to successfully prosecute infringement claims, info-tech companies hope to reduce the number of infringement cases they face. However, unlike major interest groups in the copyright realm, major interest groups in the patent realm do not share the same cohesiveness of interests. Large biotechnology, medical and pharmaceutical (BMP) companies do not face the same threat that their info-tech counterparts face. This lack of

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F.3d 1004 (9th Cir. 2001), *rev'd,* 284 F.3d 1091 (9th Cir. 2002) (ruling that the Napster online service was liable for contributory copyright infringement); MGM Studios, Inc. v. Grokster, Ltd., 125 S. Ct. 2764, No. 04-480 (2005) (holding that Grokster, by promoting its service for unauthorized file sharing, was liable for the resulting copyright infringement).

[13] *See* Wilson, *supra* note 10.

[14] Info-tech companies have complained about the proliferation of patent lawsuits that target them. Microsoft, citing defense expenditures of $100 million and 35 to 40 lawsuits annually is a particularly strong supporter of patent reform. *See* Declan McCullagh, *Microsoft, Oracle Call for Patent Reform,* (April 25, 2005) *available at*http://news .zdnet.com/2100-9588_22-5683240.html?tag=nl.

cohesiveness will certainly delay or prevent some of the patent reforms from passing.

The analysis starts in Section II with an examination of strategic implications of copyright and patent law. This analysis includes a discussion of the differences between copyright and patent intellectual property. Copyright markets are end-user, business to consumer markets, whereas patents, with the most notable exception of medical and pharmaceutical products, are primarily business-to-business products. Copyright holders in the digital age deal with end users who face a near zero cost of acquiring copyright protected materials. This end-user focus mandates a complex legal structure to prevent intellectual property piracy and force consumers to honor property rights. BMP companies share this end-user focus with their patented products; however, because their intellectual property is encapsulated in tangible products, their risk of loss due to piracy is much lower. For info-tech companies, focus is entirely on production. This upstream focus creates many different concerns for them. The biggest concern of info-tech companies is being sued for accidentally – and some times intentionally – infringing patents held by patent trolls. Section III provides a political economic analysis of how these incentives affect changes in copyright and patent law and Section IV contains the conclusion.

II. Strategic Implications of Intellectual Property

A. Economic Rents Due to Copyright and Patent Laws

The most prominent types of intellectual property are copyright and patent.[15] The laws of

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[15] Intellectual property comes in several flavors, but only the domains of copyrights and patents are directly referenced in Article I of the Constitution. U.S. CONST. art. I, § 8, cl. 8. This specific reference suggests that the constitutional drafters recognized the importance of providing incentives for creation and invention.

copyright and patent provide incentives to create and innovate by authorizing and enforcing exclusive rights. Implicit in this approach is that creators and inventors need incentives to induce them to continue to create.[16] It follows that in absence of protection, there is limited economic gain and, consequently, inadequate incentive to produce socially enhancing innovations.[17] In the absence of protective barriers provided by exclusivity, competitors quickly bid down positive returns to zero for any valuable creation. Any positive economic return will attract free riders who duplicate the inventor's work and market products without incurring development costs.[18] In perfect markets, competitors continue to produce until positive economic profits are bid down to zero.[19] This argument is particularly powerful for inventions whose development requires huge investments. Without the potential to at least recover development costs, an inventor may not attract sufficient financing or be willing to invest the resources needed to complete the project. Therefore, inventors do not pursue many socially beneficial projects without the exclusivity guaranteed by intellectual property law.

In addition to incentives to create, intellectual property law also induces rent-seeking behavior as right holders take steps to maintain or maximize the economic profits that result from their exclusivity. Without an exclusive right to market products, producers lose profits from

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[16] *See* William M. Landes & Richard A. Posner, THE ECONOMICS STRUCTURE OF INTELLECTUAL PROPERTY LAW 13 (2003); Cahoy, *supra* note 1 at 9.

[17] There is also the potential for excessive incentives to innovate that produce too much innovation. Cahoy, *supra* note 1 at 10. This discussion is beyond the scope of this analysis.

[18] *See* LANDES & POSNER, *supra* note 16 at 40.

[19] Id.

i) rivals who produce the same goods, ii) new entrants attracted by the positive economic profits, iii) producers of substitutes, and iv) customers and end users who do not pay for the product.[20] Rivals and entrants place downward pressure on profits by providing nearly identical goods. Without entry barriers, rivals enter markets until profits drop to zero. Substitute products provide similar downward pressure. Although a producer can distinguish his product through quality, appearance or unique features, the closer the substitutes, the more difficult it is to distinguish products and maintain profits. Intellectual property law blunts the deleterious impact of these competitive forces. Legally sanctioned protective barriers eliminate competition from rivals and potential entrants. Thus, the primary sources of competition come from producers of substitute goods and businesses that flout intellectual property protections. Therefore, any intellectual property holder with a highly differentiated product with few substitutes will have few problems from competitors.

B. Lost Economic Rents Due to End-User Behavior

Profit losses due to end-user behavior include: i) unauthorized taking or use, ii) resale or free transfer, iii) sharing goods, and iv) rentals. Unauthorized taking or use can be limited through non-extraordinary security measures for tangible goods. Surveillance equipment, electronic tagging, and guards are some of the measures used to limit this type of loss. Lost sales also occur when consumers sell or give away goods. A book reader may give away or sell a book he has completed. Similarly, a consumer may give away or sell old furniture or a car when they

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[20] Michael Porter, COMPETITIVE STRATEGY 3-33 (1980). Porter also discusses how demands from suppliers and customers can reduce profits

upgrade. Since used goods are substitutes for new goods, these used-goods transactions constitute lost sells for producers.

Finally, sells are reduced when consumers share or rent goods rather than purchase individual units. Neighbors sometimes purchase lightly used yard equipment together rather than individually. Friends may purchase a music CD jointly with the expectation that one keeps the original and the others make copies. Alternatively, when a cooperative opportunity is unavailable consumers may rent or borrow goods rather than purchase them. Consumers will likely take this approach when their use is infrequent or temporary, the value of the good is uncertain, or the cost of purchase is prohibitive or not the best use of funds. Young couples typically rent houses and apartments until they save enough for a down payment or settle on a satisfactory location. Car rentals are very popular for travelers. Transaction costs are typically too high to purchase a vehicle for a short period, yet the benefits of having personal transportation at a distant location are substantial.[21] Rentals also provide a means of testing a good to determine whether the good provides enough value to warrant a purchase. A similar analysis occurs for businesses that lease equipment rather than purchase it. Depending on available tax incentives, investment opportunities and cash-flow needs, businesses and consumers may choose to lease rather than

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[21] European countries address this problem by subsidizing purchases of new vehicles by foreign visitors who stay in Europe for as short as 17 days. They address the additional problem of disposing of the car at the end of term by including a vehicle repurchase agreement in the contract. *See, e.g.,* http://www.autoeurope.com/buyback_home.cfm (offering car rentals from Peugeot for term stays in Europe) (last visited February 15, 2006).

purchase equipment and other goods.[22]

While some of these transactions reduce sales, such losses are not substantial for tangible goods.[23] Losses due to theft and unauthorized use can be contained and limited through non-extraordinary security procedures. Losses due to resale of tangible goods are self-correcting because tangible goods depreciate and wear out. Therefore, a tangible item can be resold only a limited number of times. In addition, by constantly improving and updating its products, a producer can make used items less than perfect substitutes for new purchases. For example, a fifth generation iPod with its color screen and 60 gigabytes of storage is a far more capable music player than the original iPod and its monochrome screen and 5 gigabytes of storage.[24] Sharing tangible goods also is unlikely to produce major losses for producers. In many cases, these transactions do not constitute lost sales. People who share goods often have limited or

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[22] *See Leasing versus Buying, available at* http://partners.financenter.com/hancockbank/learn/guides/smbizfinancing/sbleasevsbuy.fcs?portal=commercial (last visited February 15, 2006).

[23] Some businesses actually prosper from rental transactions. The rental and leasehold market is often a key component of a producer's business strategy. For example, many large car manufacturers rely heavily on leases and the car rental business for sales. *See* Poornima Gupta, *Automakers Jan Sales Up, Fleet Sales Surge,* (February 1, 2006) *available at* http://news.yahoo.com/s/nm/20060201/bs_nm/autos_sales_dc (last visited on February 16, 2006).

[24] *See Identifying Different iPod Models, available at* http://docs.info.apple.com/article.html?artnum=61688 (last visited on February 16, 2006).

infrequent need for the shared goods. In the absence of sharing, many of these people would not purchase the shared goods. Instead, they would either rent the items when needed or do without them entirely. If heavily used by a collective organization, shared tangible goods are likely to wear out quicker than unshared goods. Moreover, if goods are shared by many, moral hazard problems are likely to lead to rapid deterioration of the collective goods and require accelerated replacement.[25] Hence, these types of transactions are unlikely to produce major reductions in profits.

C. Why Intellectual Property is Different

By contrast, guarding against consumer-based losses for intangible intellectual property is a non-trivial matter. Intellectual property is non-perishable and non-rival in consumption. Therefore, many factors that make transferring tangible property costly to consumers are not applicable for many types of intellectual property.[26] Tangible property, with some exceptions, wears out. Hence, unless the good has value as an antique, collector's item or status object, it is more valuable new. Furthermore, because tangible property can only be enjoyed by a finite

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[25] This is a tragedy of the commons in problems in which the lack of private ownership is likely to lead to overuse or rapid dissipation of a resource. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

[26] Some types of intellectual property have limited consumer value except when associated with a tangible good. Thus, the concerns for these rights holders differ dramatically from those of rights holders in intellectual property that is intrinsically intangible. *See infra* notes 46-47 and accompanying text.

number of people simultaneously, losses due to unauthorized use are limited. By contrast, one sale of intangible property can make the property freely available to anyone who wants it if there are no legal or technical constraints preventing free transfer.[27] Therefore, profit-maximizing owners of intangible property must take greater precautions against unauthorized transfers in order to maintain profit flows.

D. Divergence Between Copyright and Patent Holders' Interests

1. Background

Prior to the digital era business strategy concerns were equivalent for both copyright and patent holders. In both cases intellectual property was inextricably embodied in tangible property. Therefore, for both copyright and patents there was little need to be overly concerned about losing profits. Authors delivered creative works through books, record albums, magazines, broadcasts, paintings and other tangible vehicles. Although it was possible to copy or enjoy these works without permission, costs of doing so were prohibitively expensive. Prior to the introduction of copying technology, creative works would have to be copied by hand or expensive typesetting. The cost of such copying in time and resources limited copying.[28] The expense made consumer copying episodic at best, and business copyright infringement could be addressed under existing law. Even through the 1980s losses due to consumer behavior were not significant. Improved technology allowed copies to be made and shared at much lower costs.

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[27] Several have pointed out that copying would be limited even in the absence of copyright law. *See* LANDES & POSNER, *supra* note 16 at 41; Michele Boldrin & David K. Levine, *The Case against Intellectual Property,* 92 AMER. ECON. REV. 209 (2002).

[28] LANDES & POSNER, *supra* note 16 at 42.

Photocopiers, cassette recorders and video recorders allowed very inexpensive copying of copyright protected materials. However, in most cases these copies were imperfect replicas of the originals and, therefore, were imperfect substitutes.[29] Moreover, consumers, while, perhaps, sharing analog copies of music with friends, were not mass distributors of unauthorized copies. The high copying costs and lack of inexpensive copying technology effectively deterred mass distribution. Hence, losses due to end-user infringement were not substantial.

Instead, both copyright and patent holders focused on large-scale infringers. There was unlikely to be much payoff to pursuing a consumer who made a few copies for friends. End-user duplication of patented creations was also a non-issue. Like creative works prior to the digital age, patented intellectual property was not easily separated from the tangible goods that embodied it. For example, when a consumer obtains a patented drug she can transfer whatever she does not use. The intellectual property in the drug is the formula or manufacturing process. The average end user, however, does not have the ability to reproduce drugs economically. Unless the consumer is planning to sell the goods, the cost of manufacturing patented goods greatly exceed the price of simply purchasing what one needs. Even for less complex manufactures and processes it almost never makes economic sense for an end user to duplicate a patented good. The conflict arises when individuals or companies create businesses based on unauthorized reproduction of creative or innovative products. Such competing businesses reduce revenue. A videocassette of a film that retails for $60 could be professionally reproduced by "pirates" and sold for a fraction of that retail price.[30] Similarly, duplicates of patented drugs and

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[29] Id. at 41.

[30] *See* Alex Nicholson, *Russian Pirates Cost U.S. Companies $1.8B,* (February 14, 2006)

other patent-protected products could also be sold for much less than the prices for legal and licensed versions.

The congruency between the interests of copyright and patent holders changed in the digital era. Prior to the digital era the biggest threat to both copyright and patent holders was an infringer with a profit-making motive. Without having to recoup development costs, infringers could reproduce and resale creative and inventive works below the price that allowed intellectual property rights holders to recover costs.[31] With the advent of the digital age intellectual property rights holders pursued a concerted strategy to limit the ability of flagrant violators of intellectual property rights from flourishing at their expense.[32] The most important manifestation of these efforts was the "TRIPS" agreement, which resulted from the World Trade Organization (WTO) negotiations on intellectual property.[33] These agreements provide strong incentives for countries,

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available at http://www.businessweek.com/ap/financialnews/D8FOUD1O3.htm?campaign_id=apn_home_down&chan=db.

[31] *See* POSNER & LANDES, *supra* note 16 at 40.

[32] International negotiations were spurred by developing nations, which had incurred substantial losses due to international intellectual property "piracy." Estimates of U.S. ranged between $43 and $61 billion in 1988. Note, *Tackling Global Software Piracy under TRIPS: Insights from International Relations Theory,* 116 HARV. L REV. 1139, 1140 (2003).

[33] Agreement On Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1c, Legal Instruments--Results Of The Uruguay Round, 33 I.L.M. 81, 93 (1994) Act, Pub. L. No. 103-465, 101-103, 108 Stat. 4809, 4814-19 (1994) (codified in scattered sections of 15, 17, 19, and 35 U.S.C.)

typically developing countries, to enforce intellectual property rights of non-citizens. Continued membership in the WTO is contingent on TRIPS compliance and failure to comply could subject the country to trade sanctions.[34]

2. Digitalization and the Interests of Copyright Holders

The TRIPS agreement marked the point from which the interests of copyright holders and patent holders diverged. TRIPS provided tools to deal with losses based on unauthorized production of tangible goods.[35] However, as recent domestic court actions against file-sharing companies Napster and Grokster attest, these tools had little impact on digitized intellectual property and end-user behavior.[36] With digitalization, creative works were no longer inextricably tied to tangible goods. While literature, music, film and other works continue to be delivered through tangible media, they are easily separated from their tangible vessels. When digitized,

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[hereinafter TRIPS].

[34] *See* Todd M. Rowe, *Global Technology Protections: Moving Past the Treaty,* 4 MARQ. INTELL. PROP. L. REV. 107, 114 (2000).

[35] Id. The TRIPS focus is primarily international. Even with this focus, there remains substantial electronic piracy from sources based internationally. *See* Mac William Bishop, *Notorious Pirate Tawain Now Fights IPR Piracy,* (October 7, 2004), *available at* http://www.atimes.com/ atimes/China/FJ07Ad07.html (commenting that U.S. firms lost more than $757 million do to Taiwan electronic pirates in 2002); *China Expresses Doubts About Ability to Curb IPR Violations,* (February 24, 2005), *available at* http://www.channelnewsasia.com/stories/ afp_asiapacific/view/134156/1/.html.

[36] *See supra* note 6 and accompanying text.

these creative works are available and storable in electronic form. This separability reduces the marginal cost of reproducing, sharing and transfer to zero for consumers.[37] It is this absence of costs that is the biggest source of lost income for copyright holders.

The essentially zero cost of storage and transfer of creative works equates to an absence of deterrence to widespread dissemination of digitized materials. The cost of storage space continues to decline. In 2006 it is not uncommon for computers to include 250-gigabyte hard drives as standard equipment, and 500-gigabyte hard drives, which are already available, will soon become commonplace.[38] Combined with cheap storage, the Internet and file sharing make instantaneous and nearly costless transfer of creative works to multitudes of users possible. Therefore, whereas in the pre-Internet era, a consumer could share a creative work with a very limited number of friends, today a single consumer can transfer a digital file to anyone who wants it. Thus, in theory, a single sale can reduce demand for a creative work to zero if the purchaser or associate of the purchaser places the creative work on the Internet. While many people do not download files without authorization, there are enough people who do engage in this behavior to adversely affect the lawful demand for creative works.[39]

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[37] *See* Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm* 54 DUKE L.J. 1, 37 (2004).

[38] Seagate Technology, a large producer of hard drives, lists hard drives in capacities up to 500 gigabytes on its website. Disc Products *available at* http://www.seagate.com/cda/products/discsales/guide/ (last visited on February 16, 2006).

[39]Music industry losses range up to 30 percent. *See* BMG Music v. Gonzalez, 430 F.3d 888, 890 (7th Cir. 2005).

It is not readily apparent what economic benefit people obtain from unauthorized sharing if they do not sell the creative works they upload. Although the costs of circulating digital material are trivial, they are non-zero. Economics postulates that individuals do not engage in activities that do not provide a positive (expected) return.[40] Therefore, file sharers must get some non-pecuniary return for their efforts. For some, the exchange is an explicit or implicit quid pro quo. For example, Warez networks typically require an exchange of software or registration codes as a condition concurrent to membership.[41] Members obtain creative works free of charge in exchange for posting creative works. File-sharing networks like Grokster and Kazaa create sharing directories that become part of the network.[42] Therefore, files that people download are placed in share folders and became available to other network members. Consumers who acquire digital property through file sharing must take affirmative steps to prevent becoming a source for further dissemination of protected materials.[43] Finally, there is likely an affiliation payoff from

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[40] *See* Robert Cooter & Thomas Ulen, LAW AND ECONOMICS 16 (1988).

[41] "Warez refers primarily to copyrighted material traded in violation of its copyright license." Wikipedia definition *available at* http://en.wikipedia.org/wiki/Warez (last visited February 15, 2006).

[42] MGM v. Grokster, 125 S.Ct. at 2771.

[43] For some networks, a member's computer can become a node or "supernode" often without the member's knowledge. When the member's computer is so selected, the member becomes a source of shared files sometimes usually without his knowledge. *See* Rochelle C. Dreyfuss & Jane C. Ginsburg, *The Role of National Courts: Draft Convention on Jurisdiction and Recognition of Judgments in Intellectual Property Matters, 77* CHI.-KENT L. REV. 1065 1150

belonging to such networks.[44] Members may gain an affiliation-based or associational prestige from being a major music supplier. Regardless of the reason, there is a substantial amount of unauthorized intellectual property circulating electronically.[45]

3. Digitalization and the Interests of Patent Holders

Whereas digitalization created enormous problems for copyright holders, the digital age does not present significant new problems for patent holders. Even with digitalization, patent intellectual property has virtually no end-user value independent of the tangible property that embodies the intellectual property. For example, Apple Computer, Inc. has multiple patents that cover its iPod media player.[46] Patents cover the iPod design as well as aspects of its functionality.

(2002).

[44] *See* Robert E. Thomas & Bruce Louis Rich, *Under the Radar: The Resistance of Promotion Biases to Market Economic Forces,* 55 SYRACUSE L. REV. 301, 310 (2005) (explaining how individuals gain welfare-enhancing benefits from group affiliation); Richard H. McAdams, *Cooperation and Conflict: The Economics of Group Status Production and Race Discrimination*, 108 HARV. L. REV. 1003, 1019 (1995) (arguing that individuals engage in non-pecuniary-enhancing activities solely for the psychic benefits that accrue with enhance group status).

[45] About 36 million Americans, nearly a third of all U.S. Internet users, admit to downloading unauthorized copyrighted materials. Mary Madden & Lee Ranie, *Music and Video Downloading Moves Beyond P2P* (March 2005), *available at* http://www.pewinternet.org/pdfs/PIP_Filesharing_March05.pdf.

[46] For example, U.S. Patent No. D469,109 (filed Oct. 22, 2001) covers the iPod design, and U.S. Patent No. 6,934,812 (filed April 5, 2002) covers functional aspects of the iPod.

However, these patents are of no use to consumers independent of the iPod that embodies the patented technology. Consumers have no use for the iPod design or how it functions. They may value the way an iPod looks and how well it functions, but this value is inextricably tied to the tangible iPod. The iPod patents may be valuable to a competitor or company interested in designing competing products. Patents are inputs to production and useful only to producers. If a competitor uses iPod patents without permission, Apple can enjoin production and further sales of the infringing products, recover damages, including lost profits, and attorney fees and treble damages where appropriate.[47] Thus, there is little need for laws designed to protect patents from consumer-based infringing behavior.

A much bigger problem than end-user infringement for large patents holders is the potential for patent conflicts. Conflicts are high due to the relatively low initial bar that patent examiners apply to patent applications.[48] The usefulness requirement is sometimes a subject for dispute, but the non-obviousness is very frequently the subject of dispute. For example, in a case involving the automotive industry, Teleflex v. KSR, an inventor received a patent on two "off-

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[47] 35 U.S.C. § 283-285 (2005).

[48] Patents must be novel, non-obvious and useful. 35 U.S.C. § 101-103 (2005). Some critics allege that overworked patent examiners approve patents that fail to meet these statutory requirements. *See* Jeff Nesmith, *'Patent Trolls' are Saviors to Some Inventos,* (March 20, 2006), *available at* http://www.miami.com/mld/miamiherald/business/special_packages/business_monday/14126372.htm.

the-shelf" technologies that had never been combined previously.[49] While both technologies, apparently were well known in the industry and not patent protected, the combination, nonetheless, was sufficiently novel to convince the patent examiner to grant the patent. However on appeal, the district court concluded that the combination was not non-obvious in granting the defendant's motion for summary judgment.[50] The vapidness of the non-obvious standard is such that many critics are encouraging the Supreme Court to review the ruling in Teleflex v. KSR with hope that the high court will give this weak standard teeth.[51]

Although it may seem appalling for such "inventions" to receive patent coverage, it generally would not be economically efficient for the U.S. Patent and Trademark office (PTO) to invest the resources necessary to play the role of strong gatekeeper. To identify and reject all weak patents would require the PTO to invest far greater resources into each patent application examination than it currently invests. The PTO received over 380,000 patent applications in 2004 of which over 180,000 received patents.[52] Since a sizable majority of patents have insignificant economic value and are of little interest to anyone other than the patent holders, it is not efficient for the PTO to invest substantially more resources to determine initial patent

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[49] Teleflex Inc. v. KSR Int'l Co., 298 F. Supp. 2d 581 (2003)

[50] Id. at 596.

[51] *See The Patent Epidemic,* BUSINESSWEEK ONLINE (January 9, 2006), *available at* http://www.businessweek.com/magazine/content/06_02/b3966086.htm.

[52] U.S. Patent Statistics Summary Table, Calendar Years 1963 to 2004, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited February 22, 2006).

validity.[53] For example, suppose the PTO could weed out undeserving patents with an average additional $10,000 expenditure per examination.[54] This would raise the costs for the 180,000 2004 patents to $1.8 billion. However, 97-99 percent of these expenditures would be for vanity and marginal patents that would never be contested. Moreover, some proportion of productive patents would also be uncontroversial. Therefore, the vast majority of the additional expenditures would be economically wasteful.

Hence, it makes sense that the costs of testing the validity of questionable patents with significant economic value are shifted to disputants and the judicial system. While this approach is economically rational for the PTO, it is very expensive for patent litigants. Patent litigation itself is likely to be expensive.[55] However, litigation expense is only one factor that concerns litigants. Depending on the size of the company and the litigation claims, the litigation outcome

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[53] *See, e.g.,* Sean Hao, *68 Patents Issued in Hawaii Last Year*, (January 9, 2006), *available at* http://the.honoluluadvertiser.com/article/2006/Jan/09/bz/FP601090308.html (maintaining that only 3 percent of patents ever recoup the cost of obtaining them); Don Lancaster, *The Case Against Patents* (November –December 1990), *available at* http://www.tinaja.com/glib/casagpat.pdf (asserting that only one in 100 patents show a positive cash flow).

[54] This figure is almost certainly conservative. One commentator identifies the median cost of litigating a patent infringement claim at $1.2 million with complex trials pushing the figure over $6 million. Therefore, for the PTO to ratchet up its review would likely exceed $10,000 on average. Lee Burgunder, LEGAL ASPECTS OF MANAGING TECHNOLOGY 80 (2004).

[55] Id.

may be critically important to the litigants' business prospects. As in all litigation, the outcome of patent litigation is highly uncertain. In appropriate cases the plaintiff can obtain up to treble damages.[56] However, a judicial defeat can result in lost of the patent or patent value as well as litigation expenses. Thus, managing the costs and outcome of patent enforcement, whether as plaintiff or defendant, is a much bigger concern for patent holders.

III. Political-Economic Analysis of Copyright and Patent Law Changes

A. The Political Economy of Interests-Based Politics

Economic modeling can be an effective method of understanding the divergent interests that are shaping copyright and patent law. The analysis assumes that both copyright and patent holders are self-interested, profit-maximizing firms. As such, they pursue any legal strategy that increases the difference between intellectual property related revenue or reduces associated costs.[57] Available strategies include influencing legislative and regulatory bodies to pass legislation and take regulatory actions that advance the interests of intellectual property holders or firms.

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[56] "[T]he court may increase the damages up to three times the amount found or assessed." 35 U.S.C. § 284 (2005). The Code does not provide guidelines for awarding treble damages leaving discretion entirely to the court. Typically, treble damages are award when the defendant flagrantly disregards the patentee's rights. *See* Read Corporation. v. Portec, Inc., 970 F.2d. 816 (Fed.Cir. 1992).

[57] This standard assumption is also employed in Landes' and Posner's analysis of intellectual property law. LANDES & POSNER, *supra* note 16 at 71-73.

In order for firms to exert influence on political actors, they must be able to supply something that political actors value. George Stigler posited that government officials, like firms, are motivated by self-interest.[58] In their case, they desire to remain in office or maximize their post-political/regulatory career income. Politicians stay in office by taking actions that maximize their votes in future elections. Firms exploit the interests of political actors in several ways including contributing to campaigns, offering bribes and implicitly offering positions to politicians after their retirement from public office.[59] The implicit, and sometimes explicit, *quid-pro-quo* of this arrangement is that politicians take actions that advance the interests of regulated firms who provide the politicians with the most resources. It follows that the interest groups with the greatest resources receive legislation and regulations that advance their interests.[60]

James Q. Wilson found this explanation to be overly simplistic and, consequently, proposed an enhanced model.[61] In Wilson's model well-resourced firms fare well, but not always. Wilson theorized that there are both benefits and costs to political actions. The impact of benefits and costs can be either distributed broadly over several interest groups or narrowly.[62] When benefits or costs are distributed broadly, affected groups have little incentive to push for political action because they face little perceivable gain or loss. However, they do have incentives to act when costs and benefits are narrowly focused. For example, one billion dollars spread over five

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[58] George J. Stigler, *The Theory of Economic Regulation,* 2 BELL J. ECON. & MAN. SCI. 3 (1973).

[59] Id.

[60] Id.

[61] WILSON, *supra* note 10.

[62] Id. at 366-367.

groups leaves each group incurring a $200 million benefit or cost. The same billion dollars distributed over 100 million people leaves each person with a $10 benefit or cost.

The most interesting cases are when benefits and costs are narrowly concentrated on a small number of groups. Wilson labels the case of highly concentrated benefits and distributed costs as "client politics."[63] The incentives to organize and exert influence to extract the benefit are high for the highly affected groups. Correspondingly, the costs of producing the benefits for the influence group are distributed so broadly that the cost that any individual faces is extremely small. Thus, it is not rational for an opposition group to form because the organizational costs exceed the potential gain from opposition. In such cases, political actors benefit by serving the interests of the influence group who receives the concentrated benefits. Serving these interests satisfies the influence group without producing significant political opposition. Pork barrel projects typically fall into this category. The 1998 extension of the U.S. copyright term for twenty years is an additional example.[64] A few large creative rights holders stand to benefit dramatically from the extension, whereas the costs, which fall on all consumers, are widely distributed.[65]

A second case of high political activity occurs when both benefits and costs of political

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[63] Id. at 369.

[64] 17 USC § 302 (2005).

[65] *See, e.g.,* Damian Yerrick, *The Sky is Falling: The Pillage of the Public Doman, available at* http://www.pineight.com/nemo/bono.php (last visited on February 22, 2006) (arguing that the copyright term extension benefits only two percent of all copyright holders while imposing costs on the entire public).

action are narrowly concentrated. Wilson calls this situation "interest-group politics."[66] When there are multiple interest groups with conflicting interests, it is difficult to predict the outcome. Political actors may be reticent to address the concerns of one group out of fear of antagonizing the group that must bear the costs. The Consumer Broadband and Digital Television Promotion Act provides an excellent example of interest-group politics.[67] Powerful content holders such as Disney and major music and film companies favored this bill, which would require manufacturers of electronic devices that deliver or hold digital media to incorporate copy protection technology in their products.[68] Predictably, many large electronics manufacturers opposed passage of the bill.[69] Content holders favored the bill because it provided an inexpensive – for them – way of protecting their intellectual property.[70] Electronics companies would bear the costs of these narrowly concentrated benefits by incurring the costs of adding the protection to their products and losing customers who do not wish to accept the added restrictions. Halfway through the 109th Congress this bill has still not passed. Its failure is likely due to the near-equal strength of the two conflicting sides.

Thus, in Wilson's model of political behavior, political actors are more likely to support the interests of a company or industry that benefits significantly from political action costs that

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[66] WILSON, *supra* note 10 at 368.

[67] Consumer Broadband and Digital Television Promotion Act, S. 2048, 107th Cong. (2002).

[68] *See,* John Borland, *Antipiracy Bill Finally Sees Senate,* (March 21, 2002), *available at* http://news.com.com/2100-1023-866337.html.

[69] Id.

[70] Id.

are distributed broadly. When both benefits and costs are narrowly focused the analysis is more complex and may depend on the relative skills of the interest groups and their ability to mobilize public support.[71] In the analysis that follows, creative rights holders are often interest groups who seek political action that provides them with narrowly focused benefits. Their ability to achieve their desired results will depend on the strength of groups opposing their interests.

B. Copyright Strategic Analysis

The primary focus of this section's analysis is how copyright holders influence legislative and political actions for their own benefit. Therefore, it is necessary to have a basic understanding of copyright holders' interests. The analysis assumes that firms maximize profits. For copyright holders profit depends on the price obtained for each unit sold, production costs, the loss from units that are not sold due to unauthorized consumption of the holder's intellectual property and the transactions costs incurred from enforcing those rights. Clearly a major determinant of profit is the underlying demand for the creative work. Blockbuster films, the Harry Potter book series and other very popular works generate substantial demand and multi-million dollar returns.[72] Items with higher demand can command higher prices. By contrast,

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[71] Wilson identifies other permutations of the of the benefit-cost nexus in his political model. One permutation occurs when benefits are distributed and costs are narrowly focused. In such a case a skilled entrepreneurial actor may be able to get political action passed over the opposition of the affected interest group. Wilson, *supra* note 10 at 370.

[72] The top twenty grossing films have all garnered in excess of $300 million at U.S. box offices. *All-time USA Boxoffice, available at* http://www.imdb.com/boxoffice/alltimegross (last visited on February 22, 2006). One source estimated the value of the Harry Potter brand to be in excess

other creative works have much lower demand and, therefore, much lower profit-making potential. A textbook or academic paper, while perhaps of great intrinsic value, will have a much more limited market demand. Nonetheless, the revenue for all types of creative works is affected by losses from unauthorized use. Rights holders to textbooks and academic journals both suffer losses to unauthorized use.[73] However, the pecuniary losses are much less than those suffered by owners of "mega" creative works.

Profit is affected by losses from unauthorized use. The Recording Industry Association of America (RIAA) claims that its members have lost nearly a third of their sales between 1999 and 2002.[74] Although these figures are undoubtedly exaggerated –not all unauthorized users would have purchased pirated creative works if they had not been available over the Internet– certainly some of these unauthorized users would have purchased the works.[75] When creative works are available on the Internet, copyright owners lose sales unless they adopt a strategy to prevent it. One continuing strategy has been an effort to convince the public that unauthorized copying is

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of $1 billion. Tomas Kellner, *Harry Potter and the billion-Dollar Brand,* (March 14, 2005), *available at* http://www.msnbc.msn.com/id/7182112/.

[73] The losses are often overstated because they count each instance of piracy as a loss sale. However, although some instances are undoubtedly lost sales, many "pirates" are people who are unwilling to purchase the good at the going price. *See* LANDES & POSNER, *supra* note 16 at 47.

[74] *See* Jon Newton, *Big Music Is Devastated: RIAA,* (March 7, 2004), *available at* http://musicdish.com/mag/index.php3?id=9338 (pegging the loss at 31 percent).

[75] *See supra* note 73.

criminal through ongoing education and information programs.[76] Unfortunately, persuasion has been generally ineffective.[77] Assuming consumers are self-interested and rational, this poor result is not surprising. The rational consumer downloads an unauthorized copy of a wanted creative work provided the marginal cost of downloading the work plus the expected cost of detection are less than the price of the work. With a very low probability of detection, the only deterrent to copying is an ethical imperative against engaging in the proscribed behavior. However, ethics do not appear to be a major deterrent. Unauthorized file sharers rationalize their behavior as fair use or sampling music before purchase.[78] Thus, for many music consumers, there simply is too little deterrence to induce them to stop downloading creative works.

Without the ability to deter unauthorized circulation of creative works, rights holders are

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[76] *See, e.g., Piracy is a Crime – New Initiative 2004, available at* http://www.launchingfilms.com/hot_topics/piracy.html (last visited on February 22, 2006) (exhorting readers to report film piracy rather than support); *What the RIAA is Doing About Piracy, available at* http://www.riaa.com/issues/piracy/riaa.asp (last visited on February 22, 2006) (outlining the RIAAs anti-piracy steps, which include monitoring, litigation and education).

[77] *See One in Three Music CDs is Stolen,* 9 (June 24, 2005), *available at* http://money.cnn.com/2005/06/24/news/international/music_piracy/ (reporting that the global black market for stolen music CDs grew to $4.6 billion in 2004).

[78] *See, e.g.,* BMG Music v. Gonzalez, 430 f.3d 888 (7th Cir. 2005)(defense asserting unsuccessfully that unauthorized downloading was a fair use means of sampling music before purchase).

forced to rely on litigious, technological and legislative approaches to limit losses from digital freeloaders. I consider the litigious and technological approaches first. A purely litigious approach is very difficult to enforce considering the magnitude of the problem. It is impossible to prosecute every digital pirate when there are millions of people downloading creative works illegally.[79] In order to successfully deter such behavior, it is necessary to choose an enforcement strategy that reduces the expected return from engaging in illegal activity to a negative value. If the consumer return, *R,* from downloading is positive, then the expected penalty from illegally downloading creative works must be greater than *R.* If *q* is the probability of punishment and *F* is the fine exacted when caught, then a necessary condition to discourage illegal downloading is

$$q\,F \bullet R.$$

The problem is that the probability of punishment is extremely small. Legal action against end users was slow to get started, so *qF* was and remains very close to zero. However, in 2003 the music industry initiated a concerted effort to prosecute illegal file sharers by suing four college students.[80] The students, who settled for amounts ranging up to $17,000 had all transferred from 27,000 music files to more than a million.[81] Thus, the RIAA's approach of

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[79] A Pew Internet Project report pegs the number of illegal file sharers in the U.S. alone at roughly 18 million. Mary Madden & Lee Rainie, *Pew Internet Project Data Memo* (March 2005), *available at*http://www.pewinternet.org/pdfs/PIP_Filesharing_March05.pdf.

[80] Scott Carlson, *Recording Industry Sues 4 Students for Allegedly Trading Songs Within College Networks,* CHRONICAL OF HIGHER EDUCATION (April 4, 2003), *available at* http://chronicle.com/free/2003/04/2003040401t.htm.

[81] *See* Liane Cassavoy, *Music Labels Declare War on File Swappers,* (September 8, 2003);

targeting large violators leaves most casual file sharers with little chance of being subpoenaed.[82] Therefore, when the probability of punishment, *q,* is very low the only way for *qF* to exceed *R* is for *F* to be extremely large. When *q* is arbitrarily close to zero, it follows that the fine must approach infinity. In essence, this implies that every illegal downloader receives the death penalty in the most excruciatingly painful method possible. However, this strategy is immoral as well as unconstitutional. While the lawsuits are likely to deter many risk averse and uninformed file sharers, the inability of the RIAA to impose a significant penalty to illegal file sharers means that most file sharers will continue to benefit from engaging in illegal sharing. Thus, litigious approaches to stemming losses from file sharing have been and likely will continue to be ineffective.

The second approach employs technological measures to deter illegal file sharing. Technological measures include copy protection schemes, encryption, hardware-based devices

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Carlson, *supra* note 69.

[82] *See, e.g., The Music Industry Will Sue File Sharers. Are You at Risk?* (June 29, 2003), *available at* http://www.filesharingwatch.com/music-industry-sue-file sharers.php (predicting that file sharers are at risk only if they share a "substantial amount" of songs); *How Not To Get Sued By The RIAA For File-Sharing (And Other Ideas to Avoid Being Treated Like a Criminal), available at* http://www.eff.org/IP/P2P/howto-notgetsued.php (last visited on February 22, 2006) (conjecturing that the RIAA appears to target users who allow their computers to be "supernodes" for services such KaZaA and Morpheus). For more on nodes and supernodes, s*ee supra* note 43.

and password protection.[83] Software-based measures tend to provide the most flexibility, but many consider them to be less reliable than hardware-based schemes.[84] Hardware-based approaches tend to be more effective but have significant drawbacks. They may be built into electronic equipment or consist of a key, dongle, card or CD that must be attached to a computer or media player before the consumer can enjoy or use the creative work.[85] While hardware methods tend to be more effective at preventing piracy, they tend to be more expensive to implement and consumers resist using them due to their inconvenience and intrusive nature.[86] They may occupy a valuable input/output port, be easily lost, or may have a lifespan that is not aligned with the protected work's lifespan.[87] For example, a hardware key that wears out too soon or is not compatible with a replacement computer renders the validly licensed software product useless.[88] Thus, the inclusion of hardware digital rights management (DRM) is not only

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[83] *See* Universal City Studios v. Reimerdes 111 F.Supp.2d 294, 308 (2000).

[84] *See* Spencer Cheng et.al., *Trusting DRM Software*, (January 2001), *available at http://www.w3.org/2000/12/drm-ws/pp/cloakware.html.*

[85] Id.

[86] Id.

[87] Id.

[88] One commentator complains about a hardware key requiring insertion into an obsolete port. Although his replacement computer was capable of running the existing software, he had no way to satisfy the software's demand for the hardware key. Peter Seebach, *The Cranky User: And in This Corner: Copy Protection Versus Usability,* (June 6, 2003), *available at http://www-128.ibm.com/developerworks/web/library/wa-cranky29.html*

more costly for the creative rights holder, but it is also more costly to the consumer. These costs lower the consumer's enjoyment of the product. Given the choice between two products of similar intrinsic value to the consumer, one with a hardware DRM system, the other without, the consumer is likely to choose the product without the DRM system. Thus, hardware DRM places a downward pressure on the creative rights holder's revenue.

Software and disk-based DRM approaches, while less intrusive, are also less effective. Software copy protection schemes date back several decades.[89] These systems were very often defeated.[90] DVDs (digital versatile discs) provide an example. Commercial films placed on DVDs are protected from copying using a combination hardware-software scheme called Content-Scrambling System (CSS).[91] This encryption scheme, built into every DVD player and DVD-equipped computer, only allows authorized and unprotected DVDs to play and prevents copying of playable video from commercial DVDs.[92] A method to defeat this scheme called "DeCSS" began circulating soon after the introduction of the DVD format.[93] Similar stories can be recounted of other failed technological initiatives designed to counter unauthorized use of creative works.[94]

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[89] *See* DT, *Copy Protection: A History and Outlook, available at* http://www.studio-nibble.com/countlegger/01/HistoryOfCopyProtection.html (last visited on February 23, 2006).

[90] Id.

[91] *See* Universal City Studios v. Reimerdes, *supra* note 83.

[92] Id.

[93] Id.

[94] *See, e.g.,* Todd R. Weiss, *Felt-Tipped Markers May Threaten CD Copy Protections,*

Recognizing the futility of engaging in a technological arms race, creative rights holders sought to bolster the effectiveness of technological protection through legislation. The 1996 World Intellectual Property Organization (WIPO) Copyright Treaty was the first step.[95] In 1998, the United States became the first nation to implement the general framework mandated by this international treaty with the Digital Millennium Copyright Act (DMCA).[96] The DMCA created a comprehensive scheme to protect digital works from unauthorized copying. The pillar of the DMCA protection scheme is prohibiting the circumvention of "a technological measure that effectively controls access to" a creative work.[97] The DMCA continues by proclaiming " no person shall manufacture, import, offer to the public, provide, or other wise traffic in any technology…" that is designed, used primarily, or marketed for circumvention.[98] While these

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COMPUTERWORLD (May 21, 2002), *available at* http://www.computerworld.com/governmenttopics/government/legalissues/story/0,10801,71354,00.html (recounting how drawing a line with a felt marker across a CD shielded with Sony's copy protection technology would defeat the protection).

[95] WIPO Copyright Treaty, Dec. 20, 1996, S. Treaty Doc. No. 105-12, 36 I.L.M. 65 (1997).

[96] DMCA, *supra* note 6.

[97] 17 U.S.C. § 1201(a)(1)(A).

[98] 17 U.S.C. § 1201(a) (2) states:

No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;

provisions do not technically abrogate traditional consumer rights such as fair use, neither do these provisions allow for the exercise of these rights when they clash with the DMCA's anti-circumvention provisions.[99] Consequently, if a creative rights holder encrypts his work, or password protects his creative work, there is almost no defense for someone who accesses that creative work without permission.[100]

The DMCA anti-circumvention provisions also have a more direct impact on the prices creative rights holders charge. While the clear target of these DMCA provisions was intellectual property piracy, the provisions also provide creative rights holders with a means to institute price discrimination. Price discrimination allows producers to increase their returns by extracting higher prices from consumers who are willing to pay more.[101] With a single price, sellers lose profit by not charging more to consumers who are willing to pay more and by not selling goods to consumers who are unwilling to pay the single price. With perfect price discrimination, sellers can set a price for each individual consumer that equals the maximum each consumer is

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(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or (C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title.

[99] Universal City Studios v. Reimerdes, *supra* note 72 at 67.

[100] Id. Encryption research and reverse engineering are two of the exceptions to the ban on unauthorized accesses. 17 U.S.C. § 1201 (f) & (g).

[101] *See* LANDES & POSNER, *supra* note 16 at 39.

willing to pay for the good.[102] The trick is isolating the markets based on consumers' willingness to pay. There must be a mechanism that prevents a high price consumer from paying a lower price intended for a low price consumer. Booksellers price discriminate by releasing new books in expensive hardback first. Then, some time later they release paperback editions of successful titles at a fraction of the original hardback price.[103]

Price discrimination can also be geographically based. Market-clearing prices around the world are likely to differ, sometimes substantially, from market-clearing prices in the United States.[104] Therefore, by segregating the markets and charging higher prices to consumers who are willing to pay more, sellers increase their profits. The problem with geographical price discrimination is that it creates incredible arbitrage opportunities.[105] For high price products merchants increase their profits by reselling goods intended for foreign markets in western countries. This thriving gray market practice, protected by the First Sale doctrine, has resisted

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[102] Id. at 40.

[103] Id. at 39.

[104] *See, e.g.,* Tamar Lewin, *Students Find $100 Textbooks Cost $50, Purchased Overseas,* N.Y. TIMES (October 21, 2003), *available at* http://select.nytimes.com/search/restricted/article?res=F30712FD355A0C728EDDA90994DB404482 (recounting how book publishers believe they must offer books at lower prices in non-U.S. markets).

[105] For example, textbooks that sell for over $100 in the U.S. sell for 50% or less of the U.S. price in overseas markets. Id.

almost all eradication efforts.[106] The right to sell goods legally purchased to whomever one pleases, in the absence of contractual restrictions, is inviolate. This principle, affirmed by the Supreme Court, insures the existence of a thriving gray market in goods.[107]

The DMCA's anti-circumvention provisions provide tools to combat gray market activity in creative works. This approach has been implemented for distributing movies on DVDs. CSS encoding allows regional encoding of DVDs. The world is divided into six regions with the United States and Canada in region one, Europe and Japan in region two and so on.[108] DVD machines sold in different regions are hard-coded to play only DVDs produced for that region.[109] This system specifically addresses the gray market problem. Region six DVDs encoded for Chinese markets are not easily sold in the U.S. due to their incompatibility with hardware sold in

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[106] 17 U.S.C. §109(a).

[107] Quality King Distributors, v. L'Anza Research International, 523 U.S. 135: 118 S. Ct. 1125 (1998).

[108] There are actually nine regional codes. Region zero DVDs are unprotected and can play on any machine, seven is currently reserved and region eight is reserved for cruise ships, airplanes and other specialty uses. *See DVD Region FAQ, available at* http://www.tohokingdom.com/web_pages/dvd/region_faq.htm (last visited on February 22, 2006).

[109] Some DVD player/recorders allow users to change the region setting, typically, a limited number of times. *See DVD Frequently Asked Questions (and Answers),* (February 10, 2005), *available at* http://dvddemystified.com/dvdfaq.html.

the U.S.[110] Although it is possible to purchase DVD players that play DVDs from multiple regions, these machines are not widely available in the U.S. and may have problems playing some DVDs.[111] Therefore, the demand for DVDs produced for foreign regions is minimal. Thus, regional coding substantially reduces the gray market arbitrage opportunity by reducing the value of foreign goods resold in the U.S.

In addition to limiting gray market sales, regional coding has an additional benefit. Regional coding allows staggered release of creative works. Therefore, it is possible to release a film on DVD in one region while the film is still in theaters in another region. This flexibility allows creative rights holders to extract a much greater return than if they had to treat the entire world as one market or were forced to deal with gray marketers.[112] The critical element that enables this precision in targeting markets is the DMCA. Without the anti-circumvention provisions, enterprising individuals could release workarounds to CSS encoding that would make the regional encoding far less effective. With the anti-circumvention provisions, these individuals are deterred from producing such products.[113] Therefore, one of the biggest benefits of the DMCA is the provision of tools that enable creative rights holders to enhance the

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[110] Id.

[111] Id.

[112] Staggered releases allow studios to customize marketing schemes for different countries and reuse expensive film prints in different locations. *See* Adam Groves, *DVD Coding: Bullshit in Any Region, available at* http://www.fright.com/edge/dvdcoding.html, (last visited on February 25, 2006).

[113] Universal City Studios v. Reimerdes, *supra* note 72.

effectiveness of their exclusive markets.

The DMCA is clearly a product of client politics.[114] Eliminating or controlling intellectual property piracy provides content holders with huge concentrated benefit. The DMCA has provided content holders with formidable weapons in their battle. This law has also provided content holders with strategic tools to battle gray-markets sales and to enforce price discrimination.[115] Non-content holders bare the costs of these limitations in the form of reduced access to copyright and non-copyright protected works and reductions in the exercise of fair use.[116] For most users these losses, while significant, are not major. They are clearly not substantial enough for users to organize to oppose the DMCA and like legislation. Notably, it is clear that content holders will continue to push Congress for additional protections against losses. The music industry, in particular, has received little benefit from the DMCA. Music CDs are not access controlled like DVDs or copy protected, so they are not entitled to protection under the DMCA. CDs are easily copied, so every song that has been distributed on CD either is available on the Internet or soon will be available. Moreover, every new CD released is subject to piracy.

The solution adopted by the film-industry of releasing films on a new, more secure platform – more secure than DVDs – is not available to the music industry.[117] The probability that

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[114] Wilson, *supra* note 63 at 369.

[115] *See supra* notes 96-113 and accompanying discussion.

[116] Id.

[117] *See Only Big Companies' PCs Will Play High-Defendant DVDs,* (February 12, 2006), *available at* http://www.boingboing.net/2006/02/12/only_big_companies_p.html.

consumers adopt next generation DVDs is quite high because the new products deliver a perceptibly better product. Hi-Def and Blu-Ray DVDs deliver a product that has noticeably superior resolution compared to regular DVDs and holds much greater content.[118] However, there appears to be little demand for delivery of better sounding music. The iPod and iTunes generation of music lovers appear to be perfectly content with highly compressed music.[119] Thus, it is unlikely that the music industry can control or limit end-user piracy by persuading consumers to adopt a new secure format. Instead, the music industry is likely to seek federal legislation to provide a solution to its dilemma. Specifically, content owners will likely try to impose additional costs on consumers that make it more difficult for consumers to anonymously share files. One likely approach is to push for legislation that requires electronic equipment to include technology in hardware and software that identifies individuals who place creative

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[118] Current DVDs output pictures at 480 lines progressively (480p). Blu-ray and high-definition DVDs are capable of outputting signals up to 1080p, a substantial improvement over traditional DVDs. *See* Bill Howard, *Your Hi-Def PC,* (August 3, 2005), *available at* http://www.pcmag.com/article2/0,1895,1843341,00.asp. The capacities of HD and Blu-Ray DVDs, respectively, are 30 and 50 gigabytes compared to roughly nine gigabytes for regular DVDs. *See* Rodolfo La Maestra, *2005 HDTV Report, Part 11: High Definition DVD,* (October 20, 2005), *available at* http://www.hdtvmagazine.com/articles/2005/10/2005_hdtv_repor_10.php?page=4.

[119] *See, e.g.,* Thomas J. Norton, *Viewpoint: How Much, How Fast, How Legal?* (April, 2005), *available at* http://ultimateavmag.com/thomasjnorton/405tjn/ (observing that, "[m]ost [digital music] users seem happy with low-resolution MP3 files").

content on the web.[120] The anonymity that file sharers enjoy is one of the biggest roadblocks to detection and enforcement. It is very difficult to track and prosecute individuals who file share due to the design of the Internet.[121] The likely legislative approach may also include enhanced liability for Internet service providers (ISPs) whose servers contain files that have been copied without permission. Such a system would likely stamp a file with a unique identifier every time it is transferred from one computer system to another. The definition of ISP would likely be revised to include anyone whose computer contains files that are available for Internet sharing.

What this approach would do is dramatically reduce the costs of enforcing digital intellectual property rights. The cost of proving infringement would drop dramatically because an identification system creates a "paper trail" that is easily tracked. Being able to track almost everyone involved in sharing files would allow creative rights holders to take action against even occasional file sharers. In addition to lower enforcement costs, the ability to identify all Internet users engaged in file sharing would allow creative rights holders to dramatically increase the

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[120] Computer central processing units, CPUs, currently have the ability to uniquely identify the machine that they are installed in. However, computer manufactures deliver these machines with this feature turned off. *See* Daniel Rubin, *Intel Backs Off, Disables Pentium ID Feature,* (January 25, 1999), *available at*http://www.pcworld.com/news/article/0,aid,949 7,00.asp.

[121] File sharing networks intensify the problem by designing their networks so that tracking is extremely difficult. *See A Survey of Anonymous Peer-to-Peer File-Sharing, available at* http://www.lix.polytechnique.fr/~tomc/P2P/index.html#Systems. (last visited on March 27,2006). However, even though these networks are designed to be anonymous, trackers have been successful in tracking and prosecuting illegal users on some of these networks. Id.

probability of punishment for all file sharers. This increased probability of punishment should increase compliance and, in turn, profits.[122]

Successful passage of such an initiative depends on costs imposed on affected interest groups. Such proposed legislation is likely to be more an interest group battle than the client politics actions that characterized implementation of TRIPs and the DMCA. Consumer costs would be highly distributed, so it would be difficult to organize consumers to oppose the initiative. However, unlike the DMCA, it may be somewhat easier to organize consumer resistance to file tagging legislation due to privacy concerns. Intel, the leading manufacturer of computer central processing units (CPUs), previously built into its Pentium III chips an automatic computer identification feature that businesses requested to authenticate online transactions.[123] Each CPU would transmit a unique identifier each time the computer user engaged in an Internet transaction. However, privacy groups quickly mobilized and, by threatening a broad-based boycott, forced Intel to ship the chip with the feature turned off as the default.[124] Undoubtedly, privacy advocates would again mobilize in the face of any privacy-reducing legislation. In addition, electronic equipment manufacturers would almost certainly oppose any legislation that requires them to add technology to equipment that reduces the value of their products to consumers with out a concomitant consumer benefit.[125] Hence, unlike the DMCA, legislation that imposes tracking requirements on electronic equipment manufacturers

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[122] *See supra* notes 79-82 and accompanying text.

[123] *See* Rubin, *supra* note 120.

[124] Id.

[125] *See supra* note 67-70 and accompanying text.

will be much more difficult to pass.

Thus, content holders have already reaped most of the easily acquired gains from legislative action. However, existing legislation is not a complete solution since Internet pirates are still able to rely to a large extent on anonymity. Anonymity not only makes it difficult to identify unauthorized file sharers, but also increases the cost of prosecuting alleged copyright law violators. However, attacking anonymity is a much more difficult task than outlawing circumvention activities. The politically hot-button issue of privacy may make it very difficult to address this issue in the short term. However, with continued revenue losses, there is little doubt that content-holders will look for some way to attack anonymity on the Internet.

C. Patent Strategic Analysis

This section examines the divergent evolution of patent law. The previous section identified forces that have driven the evolution of copyright law. A major implication of that analysis was that the cohesiveness of interests among large creative rights holders was a critical factor in influencing the passage of pro-content holder legislation. This interest group has been particularly successful due to the lack of significant organized opposition.[126] In essence, client politics has been driving changes in copyright law.[127] Proposed changes in patent law do not follow a parallel path. The interests of large patent holding companies are not nearly as uniform as the analogous companies on the copyright side. Moreover, companies that are the strongest backers of patent law changes are not seeking enhanced patent piracy control. Instead of limiting intellectual property piracy, the strongest reform advocates, info-tech companies, seek to avoid

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[126] *See supra* notes 114-116 and accompanying text.

[127] Id.

the onslaught of "patent trolls." Patent troll is a derogatory term applied to a patent holding company that files patent infringement claims against info-tech companies with the hopes of a big payoff.[128] I will generally use the less inflammatory nomenclature of "consolidator" to refer to these patent holding companies.

Consolidators are a patent-specific problem because, whereas each copyright protected work is a unique creation, patented inventions can cover designs that are independently invented. While a design can be independently invented, only the first inventor has the legally protected right to use or exploit it.[129] Copyright law protects specific creative works. Therefore, unlike patent law infringement, copyright infringement requires not only a replication of the copyright-protected work, but also exposure to the actual work.[130] Patents, by contrast, provide complete protection for the invention. Therefore, infringement occurs whenever someone uses or duplicates the invention regardless of whether they independently created the invention or had exposure to or knowledge of the original.[131] Even if an info-tech company believes that its product does not infringe the subject patent, the potential for an injunction against continued production and the concomitant losses can be sufficient incentive to induce the info-tech

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[128] *See,* Joe Beyers, *Rise of the Patent Trolls,* (October 12, 2005), *available at* http://news.com.com/Rise+of+the+patent+trolls/2010-1071_3-5892996.html.

[129] 35 U.S.C. § 102(g) (2005).

[130] *See, e.g.,* Bright Tunes Music Corp. v. Harrisongs Music, Ltd., 420 F. Supp. 177 (S.D.N.Y.1976) (concluding that former Beatle, George Harrison, had subconsciously plagiarized the melody of "He's So Fine" in writing his hit single, "My Sweet Lord").

[131] 35 U.S.C. § 271 (2005).

company to settle the infringement claim.

1. Economic Incentives and Patent Infringement Claims

Not all patent infringement claims against info-tech companies are exploitative. There may be a real controversy as to the validity or applicability of the patent.[132] Alternatively, the patent may be uncontrovertibly valid, but the info-tech company ignores it as part of a profit-maximizing strategy. If the benefits conferred on the info-tech company by the subject technology are sufficiently large, the info-tech company may accrue greater returns by refusing to negotiate with the patent holder. The decision depends on the size and demands of the patent holder as well as the value of the technology. A small patent holder may not have the resources to pay for litigation or survive protracted litigation. For example, suppose forecasted litigation costs for the patent holder is $3 million for a patent worth $10 million to company B, a highly capitalized info-tech company. If the patent holder's resources and ability to survive a prolonged litigation battle are limited, the probability that the patent holder abandons the claim is quite

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[132] For example, in a patent infringement dispute between Burst.com and Microsoft Corp., Microsoft agreed to settle for $60 million plus a non-exclusive license. Foster Klug*, Microsoft Settles Suit for $60 million,* (March 12, 2005), *available at* http://seattlepi.nwsource.com/business/ 215659_msftburst12.html. Commentators believe the Burst.com allegations were meritorious. *See, e.g.,* Robert X. Cringely, *Bursted Not Busted,* (March 17, 2005), *available at* http://www.pbs.org/cringely/pulpit/pulpit20050317.html (asserting that Burst.com was victorious even though it settled for much less than pundits expected).

high.[133] An alternative for a small company or inventor who does not have the resources to oppose an info-tech company is to sell its patent to a patent consolidator that is better capitalized. If in the above example there is a 0.5 probability that the patent holder will not have the resources to successfully prosecute its infringement claim, a consolidator's payment of $2 million to the patent holder may be sufficient for it to sell its claim.[134] Thus, valid claims that might not otherwise succeed can succeed due to the existence of these patent litigation brokers.

Patent consolidators are likely to be companies with fairly sophisticated business strategies. To build their war chests and enhance their credibility, consolidators often target small to medium technology companies before taking on info-tech companies.[135] A medium-sized company with limited resources may be unwilling to risk a preliminary injunction. Therefore, a consolidator's offer to settle for an amount that is less than expected losses from litigation is likely to be favorably received.[136] For example, even if there is virtually a zero probability of a

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[133] Consider a slightly more complex example. Suppose the patent holder's probability of winning the case is .6. The patent holder's expected return is $3 million. However, a risk adverse or impatient investor refuse to finance this patent holder due to uncertainty and the delay

[134] In this simple example, I assume that the patent holder incurs the $3 million litigation expense but only has a .5 probability of lasting long enough to receive the $10 million award. This results in an expected litigation return of $2 million.

[135] *See* G. Richard Shell, MAKE THE RULES OR YOUR RIVALS WILL 195-196 (2004).

[136] For example, Shell recounts the story of Refac International, a patent consolidator during the 1980s. Their strategy was to target a small bank or other company, settle with it then use the settlement against other targets as evidence of validity. Id. at 196.

plaintiff victory, but a 0.5 probability of the plaintiff receiving a preliminary injunction, then if the cost of contesting the claim is $2 million and losses from being shutdown from an injunction for several months are $10 million, the target is better off accepting a settlement for up to $7 million.[137] By stringing together multiple settlements from smaller companies, the consolidator can accumulate sufficient resources to successfully counter the substantial resources that an info-tech company can bring to litigation. Thus, whereas an individual inventor may have tremendous difficulty successfully prosecuting an infringement claim against an info-tech company, regardless of the claim's merits, the consolidator's step-wise approach allows it to stand on near equal footing in such infringement battles.

Therefore, the emergence of patent consolidators – or patent trolls – as a prominent force in patent infringement claims has increased the costs of contesting patent infringement claims dramatically. Their multi-step strategy includes medium-size as well as large technology companies as targets. Therefore, these infringement claims represent a significant cost of conducting business for a broad range of technology companies. The high issuance rate for patents makes it difficult for companies to identify all patents that may relate to their products.[138] Identifying all relevant patents increases the cost of product development. However, even when companies attempt to identify implicated patents, the probability of error is high. Adding to the potential to miss relevant patents is the ease of obtaining patents. Several commentators believe

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[137] Expected losses in this example are $2 million + .5 x $10 million = $7 million.

[138] U.S. Patent Statistics Summary Table, Calendar Years 1963 to 2004, *available at* http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited February 22, 2006).

the non-obvious threshold is set too low.[139] Therefore, companies may include an "obvious" technology in a product without questioning whether the technology is patent protected. If the company's judgment on obviousness does not agree with the PTO's or the court's judgment, then an infringement claim is likely to ensue.

While the growth of patent infringement claims is a significant problem, not all technology companies share the resolve to curtail the patent troll problem. Biotechnology, medical and pharmaceutical (BMP) companies have more to gain from prosecuting patent infringement claims than from defending them. The high cost of producing biotechnology and pharmaceuticals substantially reduces the probability of a surprise lawsuit.[140] There are fewer potential patent holders and fewer patents to review, so the probability of a surprise patent infringement claim against a BMP company is much lower. BMP companies are more interested in protecting their valuable patents. BMP companies spend hundreds of millions of dollars

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[139] *See, e.g.,* John H. Barton, *Non-Obviousness, 43* IDEA 475, 478 (2003) (observing that the non-obvious standard is so low that the ring on a paper coffee cup is subject to patent protection); *The Patent Epidemic,* BUSINESSWEEK ONLINE (January 9, 2006), *available at* http://www.businessweek.com/magazine/content/06_02/b3966086.htm, (reporting that the hurdle for passing the obviousness test has been steadily lowered over the past two decades).

[140] "It takes several hundred million dollars to discover, develop and gain regulatory approval for a new medicine." Henry Grabowski, *Pharmaceuticals: Politics Policy and Availability: Patents Nd New Product Development in the Pharmaceutical and Biotechnology Industries,* 8 GEO. PUBLIC POL'Y REV. 7, 9 (2003). Given these high costs, the club of potential patent holders is very small indeed.

developing and marketing new products but see positive returns only from a fraction of introduced products.[141] A few large blockbuster products produce peak sales in the billions and account for a large share of overall revenue for BMP companies.[142] Therefore, the success of BMP companies is critically dependent on protecting revenue streams of blockbuster products.[143] Thus, any proposed reform that makes it harder to protect or easier to challenge BMP patents will be unequivocally opposed by this interest group.

2. The Political Economy of Patent Reform

The preceding discussion shows that unlike the battle against copyright piracy, the battle against patent consolidators does not have similar cohesiveness among large patent intellectual property concerns. Most technology companies are likely to support actions that curtail the behavior of patent consolidators as long as they are narrowly targeted. However, legislation that substantially raises the costs of prosecuting a patent infringement claim or makes obtaining injunctive relief significantly more difficult is likely to garner little support from BMP companies. Thus, legislation that is broadly drafted will have to survive an interest-group

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[141] Id. at 17.

[142] Id.

[143] The need to protect domestic profitability of blockbuster drugs is especially important because foreign governments actively work to keep drug prices sold outside the United States lower. *See,* Daniel R. Cahoy, *Patent Fences and Constitutional Fence Posts: Property Barriers to Pharmaceutical Importation,* 15 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 623, 636-637 (2005).

politics battle rather than navigate the less contentious client-politics highway.[144] The remainder of this section will examine how effectively proposed legislation meets this description.

The Patent Reform Act of 2005 (PRA) attempts to address many concerns of technology companies.[145] This ambitious piece of legislation has multiple provisions that address several different issues. Since this paper's analytical focus is on changes that lower the costs of large info-tech companies, either by increasing protection of their intellectual property or by protecting them from infringement claims, this paper does not include an exhaustive analysis of the PRA. Rather, the paper focuses on PRA provisions that have significant implications for patent consolidator activities. For example, a notable PRA provision requires the United States to change to a first-to-file system from its current first-to-invent system in order to bring the United States into conformity with most of the rest of the world.[146] Besides the obvious efficiency gains from consistency with other patent systems, adopting a first-to-file system should reduce litigation costs by reducing uncertainty.[147] While it may seem reasonable to conclude that large companies benefit most from a switch to first-to-file due to their superior resources, this

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[144] *See supra* notes67-70 and accompanying text.

[145] Patent Reform Act of 2005, HR 2795, 109th Cong. (2005)**.**

[146] The United States is the one of the last countries using the first-to-invent system. The Philippines, one of the last holdouts with the United States, recently switched to the first-to-invent priority system. *See* Mark A. Lemley & Colleen V. Chien, *Are the U.S. Patent Priority Rules Really Necesssary?* 54 HASTINGS L.J. 1299, note 16 (2003).

[147] There are elaborate legal procedures established to resolve conflicts when two inventors claim to have priority. Id. at 1303.

assumption is not supported empirically.[148] Whether or not small inventors benefit from a first-to-invent priority system, the switch to first- to-file priority will not significantly impact the behavior of patent consolidators who acquire patents after they have been granted. However, there are three major provisions of the PRA that do have significant implications for this analysis. They are guidelines for granting damages for willful infringement, limitations on granting injunctive relief and a post-grant opposition procedure.

Damage awards are a major target of companies seeking to limit the impact of patent consolidators. The objective of patent consolidators, like all firms, is to maximize returns. Patent law allows courts to award up to treble damages in appropriate cases typically involving willful infringement.[149] Hence, it is not surprising that plaintiffs allege willfulness in over 90 percent of infringement claims.[150] With no downside to including the claim and the potential multiplier, it is almost irrational for a profit-maximizing organization not to allege willfulness. Of course the multiplier increases the consolidators leverage in settlement negotiations. Even a small probability that the court will award elevated damages heightens the potential loss from defending against an infringement claim. Thus, the ability to demand treble damages places substantial pressure on medium-size firms to settle and increases the expected loss for patent defendants.

The PRA attempts to ameliorate the strategic impact of willfulness allegations by i)

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[148] Id. at 1300.

[149] 35 U.S.C. § 284 (2005)

[150]Kimberly A. Moore, *Empirical Statistics on Willful Patent Infringement*, 14 FED. CIR. B.J. 227, 232 (2004/2005).

requiring a specific, detailed allegation of willfulness, and ii) providing defendants with a "good faith belief that the patent was invalid or unenforceable" defense against an allegation of willfulness.[151] These rules will tend to reduce the value of infringement claims for consolidators. The letter requirement provides defendants with a concrete way to defend against willfulness claims and is likely to lead to more objective willfulness determinations. While these changes provide few benefits for BMP companies, the costs imposed on BMP companies by these changes are limited. BMP companies are most interested in stopping infringing behavior and preventing harm to a high revenue stream.[152] Thus, as long as BMP companies can enjoin infringers, they are unlikely to put up strong opposition to these reforms.

The PRA reform that may be the most difficult to enact is one that dramatically curtails the ability of patent plaintiffs to obtain injunctive relief.[153] Under pre-PRA law, injunctive relief fell under the discretion of the court "under such terms as the court deems reasonable."[154] Under the PRA, the court has a heightened standard of review before it can grant an injunction, and must stay the injunction if the decision is appealed.[155] The stay is mandatory provided that the patent owner does not suffer irreparable harm and that the balance of hardships does not favor the patent owner.[156] Thus, unless the patentee is able to prove substantial immediate losses or

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[151] HR 2795, 109th Cong. § 6 (2005).

[152] *See supra* notes 140-143 and accompanying discussion.

[153] HR 2795, 109th Cong. § 7 (2005).

[154] 35 U.S.C. § 283 (2005).

[155] HR 2795, 109th Cong. § 7 (2005).

[156] Id.

losses that exceed those that the defendant incurs from being enjoined, the patentee cannot receive preliminary injunctive relief. This change clearly benefits defendants. It takes away a major incentive to settle the dispute by allowing defendants to continue to exploit and profit from use of the disputed patent. Supporters of the provision claim that the change prevents courts from shutting down production lines and, perhaps, entire companies.[157] While these extreme cases are possible, courts currently have the power to avoid inequities by granting an injunction only if the patentee is likely to prevail on the merits. Shutting down the defendant's production or forcing the defendant to reengineer its product is perhaps the only leverage that a small inventor has over a large corporate defendant. Without the leverage provided by injunctive relief, defendants may choose to stall indefinitely knowing that they are better positioned to survive a war of attrition.

This dramatic restriction on the court's ability to grant injunctive relief, while favored by most technology companies, is almost uniformly opposed by BMP companies.[158] Information technology and other companies that employ low-development-costs and fast depreciating patents are strong supporters of this provision because the number of potential patent infringement claims they face is high.[159] In many cases the only requirements for developing info-tech patents is engineering knowledge, access to a computer and time. These patents tend to

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[157] *See H.R. 2795: The Patent Reform Act of 2005, available at* http://www.publicknowledge.org/issues/hr2795, (last visited March 8, 2006).

[158] Id.

[159] *See* Declan McCullagh, *Microsoft, Oracle Call for Patent Reform,* (April 25, 2005) *available at* http://news.zdnet.com/2100-9588_22-5683240.html?tag=nl.

be inputs to production of a commercial product and often comprise just a small fraction of the commercial product's total technology.[160] Such patents may cover software that controls the way a microchip addresses a computer, or the process by which intermittent windshield wipers work.[161] Removing the club of injunctive relief from patent consolidators removes the biggest incentive for patent defendants to settle early. Hence, with injunctive relief removed from the table, patent infringement defendants can legitimately contest patents that they perceive to have limited merit. Thus, rather than settling a questionable – or perhaps not so questionable – claim to avoid the risk of being enjoined, Section 7 of the PRA allows a defendant to contest it while risking only the cost of litigation.

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[160] *See, e.g.,* Mark A. Lemley, *Patent Reform Legislation – Public Comments on Substitute HR 2795 and the Role of the Antitrust Modernization Commission,* (October 24, 2005), *available at* http://www.amc.gov/commission_hearings/pdf/Statement_Lemley.pdf (noting that an Intel microprocessor may include 5,000 different inventions and that it is highly probable that Intel could innocently include a patent protected invention in such a complex product).

[161] The story of the long-term suppression and subsequent successful infringement lawsuits for the patent on critical technology for controlling intermittent windshield wipers holds a special place in the pantheon of patent folklore. It is perhaps the most famous of the patent troll cases. *See* Kurt M. Saunders & Linda Levine, *Better, Faster, Cheaper – Later: What Happens When Technologies are Suppressed,* 11 MICH. TELECOMM. TECH. L. REV. 23, 68 (2004); *Robert Kearns, Inventor of Intermittent Windshield Wipers and Battled Car Companies, Dies at 77* (February 25, 2005), *available at* http://www.theautochannel.com/news/2005/02/25/005398.html.

The loss of the injunctive club is the reason that BMP companies oppose this provision. BMP companies tend to be closer to copyright content holders in that their business model is based on selling their intellectual property to end users rather than using intellectual property as production inputs like info-tech companies. A high revenue generating medical drug is likely to be covered by a single patent, whereas a product like the Apple iPod or Microsoft Windows XP are an amalgam of dozens or even hundreds of patents, copyrights, trade secrets and public domain technologies.[162] With respect to patent injunctions, BMP companies' reliance on high revenue generating patents places their interests in a position that is diametrically opposed to the interests of info-tech companies.[163] BMP companies endure far fewer attacks by patent consolidators or trolls. However, when a manufacturer markets a high-revenue pharmaceutical without permission, each day that the company continues its unauthorized behavior results in significant losses for the patent-holding BMP company.[164] Thus, BMP companies are far more concerned with enforcing patent rights. Therefore, it is highly unlikely that BMP companies will willingly relinquish the leverage that injunctive relief provides.

There is also less than complete support for the PRA's creation of a post-grant opposition procedure. Section 9 of the PRA allows individuals to contest new and reissued patents within nine months of issuance or six months after receiving notice of alleged infringement.[165] A PTO

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[162] *See, e.g.,* Lumley, *supra* note 162 (observing that, "pharmaceutical patents are more likely to cover a whole drug, rather than one of 5,000 different components of a semiconductor chip").

[163] Id.

[164] *See supra* notes 140-143 and accompanying text.

[165] HR 2795, 109th Cong. § 323 (2005).

opposition proceeding would likely be a less expensive and quicker way to contest the validity of a patent than litigation. The two opportunities for opposition in the PRA are likely to differ significantly in their efficacy. With over 180,000 patents issued each year, it is nearly impossible for companies to track all relevant patents.[166] Thus, in terms of providing an opportunity to squash non-meritorious patents, the more important of the two opposition proceedings is the six-month post-infringement notice window.

Information technology companies are likely to strongly favor having dual opposition opportunities. The initial opposition period allows them to challenge obviously relevant patents that they believe the PTO issued in error. This opposition opportunity could result in significant savings from litigation avoidance. It allows potential defendants to challenge a patent on its merits without considering strategic concerns such as whether it is cheaper to settle a dispute or whether they can afford to risk having their production enjoined. The second opposition opportunity is likely to be a stronger tool against patent consolidators. The ability to contest a patent that has limited merits outside of litigation deprives consolidators of most of their leverage to force quick settlements. This power to challenge questionable patents plus limitations on injunctive relief are likely to be the most powerful tools that the PRA provides to counter non-meritorious patent infringement claims.

BMP companies will almost certainly oppose opposition proceedings. High revenue biotech and pharmaceutical patents are critical to the profitability of these companies.[167] Having a

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[166] *See H.R. 2795: The Patent Reform Act of 2005, available at* http://www.publicknowledge.org/issues/hr2795, (last visited March 8, 2006).

[167] *See supra* note 140-143 and accompanying text.

critical patent invalidated can be as devastating to a BMP company as an injunction is to an info-tech company. An opposition proceeding is an event that increases the risk of losing a high revenue stream. The risk is particularly great for a patented product that is already in the market place and generating a high revenue stream for the patent holder. In such cases, the loss of the patent would result in losses measured in the tens or even hundreds of millions of dollars. The high risk associated with opposition proceedings will force BMP companies to be far more cautious about bringing infringement claims against suspected infringers. If a pharmaceutical has a net present value of $1 billion and there is a 20 percent probability of invalidation in an opposition proceeding, the pharmaceutical company will be extremely reticent to bring an infringement claim unless the loss from allowing the unauthorized manufacturer to continue exceeds $200 million. Therefore, making opposition proceedings available can give small to medium-size unauthorized manufacturers carte blanche to produce an unlicensed product for which there is a possibility of questioning the validity of the product's underlying patent. If the generic manufacturer's impact on the patent holder's revenue is less than the expected loss – less than $200 million in my example – the patent holder is better off ignoring the interloper. In an extreme case with multiple generic manufacturers producing at a moderate level, essentially the entire value of the patent could be wiped out with the patent holder inactive out of fear of his patent being invalidated through opposition. Thus, as long as BMP companies face worst-case scenarios such as this, there is little chance that BMP companies, with their tremendous political clout, will allow passage of the opposition proceedings provisions of the PRA.

3. Prospects for Patent Reform

Clearly, patent reform, unlike revisions to copyright law, qualifies as an interest-groups-

politics battle with BMP and info-tech companies as the two strongest groups.[168] Predicting the outcome of this battle is beyond the scope of this analysis. However, between these two groups, it would be difficult to bet against BMP companies winning a battle for political influence. BMP companies send more lobbyists to Washington than there are elected officials in Congress.[169] Members of the Pharmaceutical Research and Manufacturing Association contributed over $50 million to Republican Congressional candidates for the 2002 mid-term elections and have been recognized for years as an extremely effective lobbying force.[170] Thus, BMP companies are well positioned to wage an interest group political battle over patent reform.

By contrast, Info-tech companies are a late entrant in the game of influencing Congressional action and are clearly not as sophisticated at garnering Congressional favor, as are BMP companies. Microsoft's ham-handed attempt in the mid-1990s to influence the federal antitrust case against it is still recounted for its clumsiness and object failure.[171] Prior to that attempt, Microsoft had just one Washington lobbyist, who was based in a suburban sales office,

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[168] *See supra* notes 144-164 and accompanying text.

[169] See Andrew Harris, *Recent Congressional Responses to Demands for Affordable Pharmaceuticals,* 16 LOY. CONSUMER L. REV. 219 (2004).

[170] *See* Jamie Crook, *Balancing Intellectual Property Protection with the Human Right to Health,* 23 BERKELEY J. INT'L L. 524, 532 (2005); Susan K. Sell, *Legal Movements in Trade & Intellectual Property*, 17 EMORY INT'L L. REV. 591, 598 (2003).

[171] *See* Albert A. Foer, *The Politics of Antitrust in the United States: Public Choice and Public Choices,* 62 U. PITT. L. REV. 475 (2001).

and had 1993-1994 campaign contributions totaling $109,134.[172] However, info-tech companies are fast learners. Microsoft quickly opened a Washington office, staffed it with fifteen lobbyists and ratcheted its campaign contributions to $5 million.[173] Other info-tech companies, such as Sun Microsystems, have been noted for their efforts to exert political influence.[174] However, it is highly unlikely that these catch-up efforts will be sufficient to successfully counter the tremendous influence that BMP companies exert.

It follows that meaningful patent reform faces a difficult path. The PRA when enacted is unlikely to contain the major provisions needed to address the actions of patent consolidators. Of the three patent reforms discussed here, the damage reform provision has the greatest possibility of being enacted without substantial opposition.[175] The initial nine-month opposition proceeding may also be enacted. However, strong opposition from BMP companies is likely to scuttle the proposal for the post-infringement-claim opposition window.[176] Injunctive relief reform faces equally strong opposition from BMP companies. Its prospects are also slim.

The slim prospects for passage of the full act create a dilemma for supporters of patent

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[172] SHELL, *supra* note 135 at 28-29.

[173] Id.

[174] *See, e.g., Law Policy and the Convergence of Telecommunications and Computing Technologies Conference: Welcome,* 2001 MICH. TELECOM TECH. L. REV. 1, 23-24 (2001) (reporting that Netscape and Sun were strong supporters of Republican candidates for political office).

[175] *See supra* notes 149-152 and accompanying text.

[176] *See supra* notes 165-167 and accompanying text.

reform because incremental reform may exacerbate rather than address the problem of patent holdups. The proposed reforms either reduce the plaintiff's expected return or reduce his leverage to pressure the defendant to settle the dispute. The reduction in leverage also reduces the plaintiff's expected payoff by reducing the expected settlement or increasing litigation costs. With reduced leverage, plaintiffs extract smaller settlements from defendants or cases do not settle as quickly thereby increasing costs. Reduced returns make it even harder for small inventors to oppose patent infringers. Smaller companies and individuals generally rely on contingent fee arrangements in civil actions.[177] However, unless the potential gain from filing an infringement claim is large, the probability of a contingent fee attorney accepting a case declines with the expected payoff.[178] The reluctance of contingent fee attorneys to accept marginal cases is present even when overall expected return for a case is positive. In such circumstances the contingent fee attorney's expected return is often negative because he receives only a fraction of the payoff but incurs all the costs.[179] With a diminished ability to counter infringers, small inventors are more likely to sell their patent rights to consolidators in order to salvage some return from their efforts.

Patent consolidators may actually benefit from the increase in costs of prosecuting claims especially if injunctive relief is still available to them. The lowered expected return from enacted portions of the PRA will provide individual inventors with incentives to sell their rights for less

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[177] *See* Robert E. Thomas, *Psychological Impact of Scrutiny on Contingent Fee Attorney Effort,* 101 W. VA L. REV. 327, 328 (1998).

[178] Id. at 371.

[179] Id. at 333-334.

than they received prior to patent reform. The incentive to sell at a greater discount will increase the war chest available to patent consolidators to prosecute infringement claims. The greater resources available to patent consolidators already provide them with the ability to avoid relying on contingent fee attorneys. By purchasing patent rights at greater discounts, patent consolidators will have even greater resources available to counter wealthy defendants. Thus, failure to enact meaningful reform could result in patent consolidators becoming even stronger.

IV. Conclusion

This analysis has examined the differences in the evolution of copyright and patent laws. Using political economics, the analysis postulated that these changes should be consistent with the interests of large copyright holders and technology companies.[180] Clearly, copyright law has developed in a manner consistent with this hypothesis. Digitalization and the continuing decline in the cost of unauthorized acquisition have caused large content holders to lose revenue. Congress responded by providing legal tools such as a circumvention prohibition on access control mechanisms.[181] These tools strongly favor the interests of content holders sometimes at the expense of traditional end-user rights such as fair use.[182] The sailing has not been nearly as smooth on the patent side. The Patent Reform Act of 2005, with provisions designed to protect the interests of info-tech companies, faces a troubled legislative road. Provisions that create opposition proceedings and change injunctive relief rules, in particular, are unlikely to be enacted.

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[180] *See supra* notes 9-13 and accompanying text.

[181] *See supra* notes 96-100 and accompanying text.

[182] *See supra* notes 98-100 and accompanying text.

The major difference that distinguishes the progression of law in these two situations is the nature of key party interests. Interests among copyright content owners are relatively uniform. Most large book, film, and music companies face a similar threat from unauthorized circulation of their products. Thus, they present a unified front in attempts to influence legislative bodies. Their success in obtaining relief is an illustration of client politics.[183] By contrast, the interests of patent technology companies are conflicting. Info-tech companies urgently seek relief from patent trolls' assaults, while biotechnology, medical and pharmaceutical companies seek to protect patent rights with equal urgency. This classic interest group battle makes passage of meaningful patent reform difficult. Passage of injunctive relief and creation of dual opposition proceedings in particular are in doubt.

It is clear that future efforts to influence changes in copyright law and patent law will fall into the more contentious interest group politics category. In order to stem future losses, content holders must either have access control built into electronic equipment or develop a way to track the sources of files traded over the Internet. These steps will require the cooperation of equipment manufacturers and/or Internet service providers (ISPs). Supplying such aid to copyright content holders is likely to reduce revenue for both equipment manufacturers and ISPs. Equipment manufacturers and ISPs are large, powerful interest groups. Therefore, if copyright content holders attempt to force the issue through legislative action, they will almost certainly spawn a hard fought interest group politics battle. Patent reform is already mired in interest group politics. Thus, for both copyright law and patent law, all the easy gains for large interest

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[183] WILSON, *supra* note 10 at 369.

groups have already been garnered. Future attempts to reform both copyright and patent law legislatively will have to run

the gauntlet of increased restrictions and drawn out disputes.