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Piggybackers and freeloaders: platform economics
and indirect liability for copyright infringement

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**PIGGYBACKERS AND FREELOADERS:
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Many, if not most, copyright cases of alleged indirect liability for copyright infringement arise in platform markets: One of the litigating parties is a market intermediary that connects members of different distinct groups. Indirect liability for copyright infringement is still controversial and frequently litigated. This paper develops an analytical framework that is applicable to many of the debated cases. The presented framework offers strong justifications for the imposition of indirect liability for copyright infringement in platform markets and offers tools to establish certain elements of indirect liability for copyright infringement.

TABLE OF CONTENTS

INTRODUCTION	2
I. TRADITIONAL JUSTIFICATIONS FOR INDIRECT LIABILITY	5
II. BASIC PRINCIPLES OF PLATFORM ECONOMICS.....	6
A. Direct and Indirect Network Externalities	6
B. Types of Platforms and Pricing Characteristics	9
C. Conditions for Platform Survival.....	12
II. THE COSTS OF FACILITATING INFRINGEMENT IN PLATFORMS	15

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A. Piggybackers 15
 1. *Types of Piggybackers*..... 15
 2. *The Costs of Piggybacking*..... 15
 B. Freeloaders..... 18
 III. LEGAL AND POLICY IMPLICATIONS 18
 A. Imposition of Liability for Indirect Copyright Infringement 19
 B. “Substantial Noninfringing Use” 21
 IV. CONCLUSIONS 22

INTRODUCTION

Many, if not most, copyright cases of indirect liability for copyright infringement arise in *platform markets*: One of the litigating parties is a market intermediary that connects members of different distinct groups.¹ Platforms are subspecies of networks but unlike generic networks that connect members of the same group, platforms connect members of different groups.² To illustrate, in *Sony v. Universal City Studios*,³ copyright owners of television programs connected audiences with advertisers and generated revenues from this connection. The copyright owners sued VCR manufacturers, among other grounds, for undermining this connection by enabling VCR users to skip commercials with the fast-forward button. In *A&M Records v. Napster*⁴ and in *Metro-Goldwyn-Mayer Studios v. Grokster*,⁵ file-sharing services established networks of users who swapped copyrighted files and connected (or planned to connect) these networks of

¹ In economics literature, platform markets are often referred to as “multisided markets” because each distinct group is treated as one of the market “sides.” For an excellent, accessible introduction to platform economics, see David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, NBER Working Paper Series No. 11603 (Sep. 2005). For prominent works on the properties of platform markets, see Bernard Caillaud & Bruno Jullien, *Chicken & Egg: Competition Among Intermediation Service Providers*, 34 RAND J. ECON. 309 (2003); Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS’N. 990 (2003). See also DANIEL F. SPULBER, MARKET MICROSTRUCTURE: INTERMEDIARIES AND THE THEORY OF THE FIRM (1999).

² For a comprehensive survey of network economics, see Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (forthcoming).

³ *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

⁴ *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004 (9th Cir. 2001).

⁵ *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 125 S.Ct. 2764 (2005).

users to advertisers from whom they collected (or planned to collect) revenues.⁶ Copyright owners sued these file-sharing services for facilitating copyright infringement by their users. Even the classic example of “dance halls” that is frequently mentioned in copyright cases of indirect liability involves platforms: Dance hall owners who connect audiences with music bands that play copyrighted music without authorization may be found liable as indirect infringers.⁷ Similarly, in the days of the silent motion pictures, some exhibitors who connected movie distributors, moviegoers, and musicians who played music during show times, were found liable for unauthorized performances of copyrighted compositions by the musicians.⁸

As the foregoing examples illustrate, indirect liability, or third-party liability, is imposed on a party who is not the most-immediate wrongdoer.⁹ It is imposed for facilitating the wrongdoing and, in certain circumstances, for not exercising the power to deter wrongdoing or the power to force internalization of the costs of wrongdoing. Imposing legal liability on the non-most-immediate wrongdoer requires very good justifications, since, practically, most unlawful acts could be attributed to third parties. Indeed, prosecutors and victims often seek to impose liability on manufacturers and sellers of equipment and tools used for unlawful acts, among other reasons, because such manufacturers and sellers indirectly benefit from the illegal activities.

The economic and legal justifications for indirect liability are context dependent.

⁶ Napster was sued during its penetration stage in which it collected no revenues. Its potential revenue sources included various forms of advertising and marketing to its users. *A&M Records, Inc. v. Napster, Inc.*, 114 F.Supp.2d 896, 902 (N.D. Cal. 2000). Grokster and StreamCast took advantage of Napster’s fallout, had a very short penetration stage, and started collecting revenues from advertisers soon after it launched its platform. *Grokster*, • U.S. at •.

⁷ See, e.g., *Dreamland Ball Room, Inc. v. Shapiro, Bernstein & Co.*, 36 F.2d 354 (7th Cir. 1929); *KECA Music, Inc. v. Dingus McGee’s Co.*, 432 F.Supp. 72 (D.C.Mo. 1977). Cf. *Deutsch v. Arnold*, 98 F.2d 686 (2d Cir. 1938) (holding that a landlord who leased premises to a direct infringer for a fixed rental and did not participate directly in any infringing activity was not liable for contributory infringement).

⁸ See, e.g., *M. Witmark & Sons v. Pastime Amusement Co.*, 298 F. 470 (D.C.S.C. 1924).

⁹ See generally Reinier H. Kraakman, *Gatekeepers: The Anatomy of a Third-Party Enforcement Strategy*, 2 J. L. ECON. & ORG. 53 (1986); Reinier Kraakman, *Third-Party Liability*, in THE PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW vol. 3, 583 (1998).

Thus far, the study of indirect liability for copyright infringement has failed to recognize the multisided nature of the markets in a large portion of the cases, among other reasons, due to the traditional focus of copyright law on technologies rather than on market structure and characteristics.¹⁰ This Article offers a framework for the analysis of indirect liability for copyright infringement in platform markets.

The Article advances two new justifications for indirect liability for copyright infringement in platform markets. First, in platform markets, indirect liability is justified when an alleged indirect infringer piggybacks a platform by capturing value created by the platform at the expense of the platform and the connecting parties. The social costs generated by such *piggybackers* go beyond than the costs associated with copyright infringements. Piggybackers undermine the commercial viability of the platform markets in which they operate and these social costs are added to those associated with copyright infringements. Second, indirect liability is justified when the alleged indirect infringer is a *freeloader*, who operates a platform whose operation costs are externalized on other parties. One generic example of piggybackers include sellers of products that modify the use of a platform in a way that harms the interests of the platform owners or one of the groups connected through the platform.¹¹ Another generic example of piggybackers includes sellers of “advertising removers” to be used in platforms that connect audiences and advertisers.¹² A generic example of freeloaders includes platform owners that capture audiences through the provision of a cheap opportunity to infringe copyrights of others.¹³

¹⁰ *See, e.g., Sony*, 464 U.S. at 430-31:

From its beginning, the law of copyright has developed in response to significant changes in technology. Indeed, it was the invention of a new form of copying equipment – the printing press – that gave rise to the original need for copyright protection. Repeatedly, as new developments have occurred in this country, it has been the Congress that has fashioned the new rules that new technology made necessary.

¹¹ *See* Section II.A *infra*.

¹² *Ibid.*

¹³ *See* Section II.B *infra*.

The applicability of the presented framework and justifications only to certain market structures does not significantly limit their practical importance. As stated at the outset, this analysis is applicable to many, if not most, cases of indirect liability for copyright infringement and to the vast majority of high-profile cases of indirect copyright infringement.

The plan of this paper is as follows. Section I introduces some basic principles of platform economics, generic types of platforms, and typical forms of such platforms that are related to copyrighted technologies and materials. Section II presents the role of alleged indirect infringers in the context of the platform world. Section III draws certain legal and policy implications regarding the justifications for indirect liability for copyright infringement and shows how the analysis could be used to assist in establishing indirect liability. Section IV concludes.

I. TRADITIONAL JUSTIFICATIONS FOR INDIRECT LIABILITY

Present justifications for indirect liability for copyright infringement focus on the practicability and convenience of copyright enforcement. For example, William Landes and Douglas Lichtman argue that “the argument in favor of [indirect] liability is that third parties are often in a good position to discourage copyright infringement either by monitoring direct infringement or [by] redesigning their technologies to make infringement more difficult.”¹⁴ A similar view was adopted by Judge Richard Posner in the *Aimster Copyright Litigation*:¹⁵

Recognizing the impracticability or futility of copyright owner’s suing a multitude of individual infringers ... the law allows a copyright holder to sue a contributor to the infringement instead, in effect as an aider or abettor. ...
If a breach of ... a copyright license ... can be prevented most effectively by

¹⁴ Douglas Lichtman & William Landes, *Indirect Liability for Copyright Infringement: An Economic Perspective*, 16 HARV. J. L. & TECH. 395, 396 (2003). See also William Landes & Douglas Lichtman, *Indirect Liability for Copyright Infringement: Napster and Beyond*, 17 J. ECON. PERSP. 113 (2003).

¹⁵ 334 F.3d 643 (7th Cir. 2003).

actions taken by a third party, it makes sense to have a legal mechanism for placing liability for the consequences of the breach on him as well as on the party that broke the contract.

In *Grokster*, the Supreme Court adopted this reasoning:¹⁶

When a widely shared service or product is used to commit infringement, it may be impossible to enforce rights in the protected work effectively against all direct infringers, the only practical alternative being to go against the distributor of the copying device for secondary liability on a theory of contributory or vicarious infringement.

Although these types of practicability and convenience arguments have some appeal, they are not as strong as justifications that focus on harmful actions and, therefore, their convincing power is somewhat limited. The analytical framework developed in this paper offers such independent justifications, thereby presenting a stronger case for imposing liability for indirect copyright infringement.

II. BASIC PRINCIPLES OF PLATFORM ECONOMICS

A. Direct and Indirect Network Externalities

The basic formulation of network externalities as positive or negative returns to scale in consumption¹⁷ has stimulated extensive writing in almost every legal field.¹⁸ The

¹⁶ *Grokster*, • U.S. at •.

¹⁷ The two most influential definitions of network externalities were provided by two pioneering articles published in 1985: Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70, 70 (1985) (“There may be a direct “network externality” in the sense that one’s consumer’s value for a good increases when another consumer has a compatible good.”); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985) (“There are many products for which the utility that a user derives from consumption of the good increases with the number of other agents consuming the good.”).

¹⁸ See, e.g., Amitai Aviram, *A Paradox of Spontaneous Formation: The Evolution of Private Legal Systems*, 22 YALE L & POL’Y REV. 1 (2001) (studying the general applicability of network economics to the formation and evolution of legal systems); Clayton P. Gillette, *Lock-In Effects in Law and Norms*, 78 B.U. L. Rev. 813 (1998) (studying the general applicability of network economics to law making and evolution

standard legal analysis though is focused, explicitly or implicitly, on *direct network externalities*. Direct network externalities are, generally, the value of a product that is related to the number of consumers who use the same or compatible product.¹⁹ In other words, the value added to the intrinsic value of using a product. For example, for a word-processing user, the value of the software normally increases with the number of users who use the same software due to the advantages of swapping files. In other circumstances, the entire value of a product is related to the number of users of that product. For instance, the value of file-sharing software, fax machines, e-mail services, and telephone services is related almost solely to the number of users who use these products, as they are used for communication among users. Examples of negative network externalities are communication and electricity networks that may become overloaded when the number of users (or scope of use) increases, highways that get crowded when the number of drivers goes up, and fashion goods that tend to lose their uniqueness value when commonly used.

In many markets, however, the impact of *indirect network externalities* on the value of a product may be greater than the impact of the direct network externalities. Indirect network externalities describe the impact of the number of *type A* users of a product on the value of the product for *type B* users.²⁰ For example, the value of a credit

of norms); Michael Klausner, *Corporations, Corporate Law, and Networks of Contracts*, 81 VA. L. REV. 757 (1995) (discussing various implications of network externalities in corporate law); Mark A. Lamley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998) (reviewing legal implications in antitrust, intellectual property, telecommunication, standard regulation, corporations, and contracts); Brant T. Lee, *The Network Economic Effects of Whiteness*, 53 AM. U. L. REV. 1259 (2004) (applying network economics to critical race theory).

¹⁹ For simplicity, the foregoing discussion uses the phrases “the same product” or “a compatible product” as interchangeable. The distinction between identical and compatible products has some important policy implications. See generally Farrell & Saloner, *supra* note 17; Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986); Joseph Farrell & Garth Saloner, *Converters, Compatibility, and the Control of Interfaces*, 40 J. INDUS. ECON. 9 (1992); Katz & Shapiro, *supra* note 17.

²⁰ Confusion between direct and indirect network externalities is common in the literature. One source of this confusion is the ill-defined distinctions between direct and indirect network externalities in the early network economics literature. See, e.g., Farrell & Saloner, *ibid*; S.J. Liebowitz & Stephen E. Margolis, *Understanding Network Externalities*, 17 RES. L. & ECON. 1 (1994); S.J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, 8 J. ECON. PERSP. 133 (1994).

card for a credit card holder is related to the number of merchants that accept this credit card, rather than to the number of other credit card holders. Similarly, the value of a flea market (or a mall) to shoppers depends on the number of merchants, rather than on the number of shoppers.²¹ Generally, the number of *type A* users (or the scope of their activities) indirectly affect *type B* users and this is why this value is commonly known as indirect network externalities.²² Markets that exhibit significant indirect network externalities are multisided markets.²³ Frequently, interactions among members of distinct groups in multisided markets are conducted through third parties. Such third parties are *platforms* and the markets in which they operate are platform markets.

The presentation of marketplaces as “multisided markets” with indirect network externalities is rather intuitive and, essentially, is just a framing of widely-familiar economic institutions. All merchants and shoppers understand that the “market” is a platform that facilitates interactions among sellers and buyers and that, for each player, the value of this platform increases with the number of players of other types. This understanding does not change with the commercial title of the market, whether it is a mall, a flea market, or an exchange. The value of this framing, however, is in extending this intuitive framework to abstract marketplaces and in exploring the unique market characteristics beyond the straightforward observation that sellers are better off when the number of buyers goes up and vice versa. The following sections develop further the understanding of platforms.

²¹ For a more elaborated discussion, see David S. Evans & Richard Schmalensee, *A Guide to the Antitrust Economics of Networks*, 10 ANTITRUST 36 (1996).

²² See generally Katz & Shapiro, *supra* note 17; Chien-fu Chou & Oz Shy, *Network Effects without Network Externalities*, 8 INT’L J. INDUS. ORG. 259 (1990); Matthew T. Clements, *Direct and Indirect Network Effects: Are They Equivalent?*, 22 INT’L J. INDUST. ORG. 633 (2004).

²³ For an excellent introduction of platform economics in antitrust law, see David Evans, *The Antitrust Economics of Multi-Sided Platform Markets*, 20 YALE J. REG. 325 (2003). For utilization of the concept of indirect network externalities in legal literature, see for example Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917 (2005); Lamley & McGowan, *supra* note 18, at 488-500 (discussing indirect network externalities without using the term); James B. Speta, *Handicapping the Race for the Last Mile?: A Critique of Open Access Rules for Broadband Platforms*, 17 YALE J. REG. 39 (2000); Bradley H. Weidenhammer, *Compatibility And Interconnection Pricing In The Airline Industry: A Proposal for Reform*, 114 YALE. L. J. 405 (2004).

B. *Types of Platforms and Pricing Characteristics*

Platforms may be classified in several ways. David Evans, for example, focuses on certain functions of platforms and distinguishes among market makers, audience makers, and demand coordinators.²⁴ *Market makers* allow members of distinct groups to transact, *audience makers* match advertisers and audiences, and *demand coordinators* make goods and services that generate indirect network effect. This classification is useful for understanding the major advantages of platforms: Platforms offer cheap physical or virtual trade environments, thereby lowering transaction costs associated with the search for trade partners and general transaction costs associated with trade. In some instances, such as the video-game industry, platforms create demand for and supply of new products. Evan's classification, however, says little about the nature of the connections facilitated by platforms. A more useful classification that serves this purpose is among vertical, horizontal, and audience platforms.

Vertical platforms facilitate interactions among "sellers" and "buyers." Intuitive examples of vertical platforms include standard textbook marketplaces, such as flea markets and shopping malls. Realtors and brokers perform the same function in their capacity of middlemen.²⁵ Credit cards offer an example of a technology, rather than a physical location or a business, which facilitates interactions among sellers and buyers. Other examples include videogame consoles that connect game developers ("sellers") and players ("buyers"), the medical resident matching system that connects residents ("sellers" of labor) and hospitals ("buyers"),²⁶ and business-to-business ("B2B")

²⁴ Evans, *ibid*, at 334-336.

²⁵ For theoretical analyses of such platforms, see Ariel Rubinstein & Asher Wolinsky, *Middlemen*, 102 Q. J. ECON. 581 (1987); Marie-Odile Yanelle, *The Strategic Analysis of Intermediation*, 33 EUR. ECON. REV. 294 (1989).

²⁶ This system has recently been challenged on antitrust grounds. See *Jung v. Association of American Medical Colleges*, 339 F.Supp.2d 26 (D.D.C. 2004); *Jung v. Association of American Medical Colleges*, 226 F.R.D. 7 (D.D.C. 2005).

networks that connect suppliers and buyers.²⁷

Vertical platforms often connect sellers of copyrighted goods with consumers and often the vertical platforms themselves are protected by copyrights. For example, video game consoles connect game developers (“sellers”) and players (“buyers”). In most circumstances the consoles and the games will be copyrighted and frequently also patented.²⁸ Similarly, computer operating systems connect hardware manufacturers (“sellers”), application developers (“sellers”), and users (“buyers”). Operating systems and applications are copyrighted.

Horizontal platforms facilitate mutual activities or combinations of members of different distinct groups. A prime example of horizontal platforms is matching mechanisms, such as dating services and personals forums, that may function as platforms if they connect members of different distinct groups. It is noteworthy that matching services often connect members of one group and then they do not function as platforms. For example, matching services of roommates connect members of one group.²⁹

Audience platforms capture targeted audiences for interested players by offering such audiences free or subsidized services and goods. Examples of such platforms include newspapers, free television channels, free Internet search engines, instant messaging services, and many file-sharing technologies. The business model of audience platforms is very popular among content providers because the production costs of

²⁷ For theoretical analyses of such platforms, see Rachel E. Kranton & Deborah F. Minehart, *A Theory of Buyer-Seller Networks*, 91 AM. ECON. REV. 485 (2001); David Lucking-Reily & Daniel F. Spulber, *Business-to-Business Electronic Commerce*, 15 J. ECON. PERSP. 55 (2001).

²⁸ See, e.g., *Williams Electronics, Inc. v. Artic Intern., Inc.*, 685 F.2d 870 (3d Cir. 1982). See also Kramsky, *The Video Game: Our Legal System Grapples with a Social Phenomenon*, 64 J. PAT. OFF. SOC'Y 335 (1982) (presenting the role of copyrights for video games in the early days of the industry). For indirect network externalities in the market for video games, see Matthew T. Clements & Hiroshi Ohashi, *Indirect Network Effects and the Product Cycle: Video Games in the U.S., 1994-2002*, Net Institute Working Paper #04-01 (2004).

²⁹ See, e.g., K.S. Chung, *On the Existence of Stable Roommate Matchings*, 33 GAMES & ECON. BEHAV. 206 (2000).

content are high and frequently it is possible to capture the audience attention and to sell this attention to advertisers. This is particularly true when consumers have low interest in repeat consumption of content and when the content's rate of obsolescence is high. For some products, such as news and sports events, consumers have strong preferences for real time consumption and they attribute low value to delayed consumption. Under such circumstances, it is difficult to pass to consumers the production costs. When a business model of audience platforms is adopted, content providers can use revenues collected from advertisers to subsidize the content for audiences. Advertisers are willing to pay for this subsidy because of the attention currency paid by the audiences.³⁰

In simple words, the audience platform model allows copyrighted content providers to sell content at a price below cost and even to offer content free. This can happen when such content providers sell the consumers' attention to advertisers and use the generated revenues to finance the production and distribution of content. Focusing on indirect network externalities: The value of a content medium (the platform) for an advertiser is related to the number of content consumers because advertisers wish to maximize exposure. Similarly, the value of a content medium for a consumer is indirectly related to the number of advertisers, because at least theoretically a content provider may raise the quality of its content when she collect revenues from more advertisers.³¹ Audience platforms illustrate that, at least theoretically, fees charged by a platform owner are designed to capture some of the surplus generated by the platform. The competitiveness of the environment in which a platform operates and the players switching costs generally determine whether the revenues collected by platform owners are below or above the surplus generated by their platforms.

³⁰ The levels of the monetary and attention currencies in audience platforms are generally negatively related. The higher the attention that is offered to advertisers ("captivity level") the lower the monetary currency is and vice versa.

³¹ The indirect network externalities may change direction when the number of advertisers and level of advertising changes. First, many advertisers are interested in exposure to certain audiences and not just exposure to the public. Second, the ability of a content provider to raise quality by increasing the number of advertisers is constrained by the impact of the volume of placed advertising on the value of the

Audience platform also illustrate that, frequently in platform markets, one side is subsidized by other sides. In audience platforms, advertisers subsidize content consumers. In certain vertical platforms, sellers subsidize buyers. For example, malls offer shoppers various subsidized or free services, such as parking, air conditioning, rest areas, and restrooms. The costs of these services are passed to the sellers who benefit from the indirect externalities related to the number of shoppers. In other vertical platforms, buyers may subsidize sellers. For example, software platforms, such as operating systems, often subsidize application developers with fees charged to end users. Horizontal platforms often regulate supply and demand by subsidizing certain groups when there is an asymmetric supply of and demand for group members. For example, certain dating institutions regulate the matching dynamics by offering discounts and free drinks to females and charging males the full price.³² In vertical and horizontal platforms, however, subsidizing one side by revenues collected from other sides is not a financing device as it is in audience platforms. Subsidizing one side in vertical and horizontal platform is conducted to regulate demand and supply and to overcome the problem of “getting all sides on board.”³³

C. *Conditions for Platform Survival*

Most platforms are created by entrepreneurs who are motivated by returns on their investments.³⁴ Consistent with many laws that protect and encourage investments in

content. And, third, advertisers’ willingness to pay is constrained by the advertising effectiveness, which in turn is affected by the general volume of advertising and by advertising of business rivals.

³² For a detailed discussion of these examples and others, see Evans, *supra* note 23.

³³ For studies of the problem, see Bernard Caillaud & Bruno Jullien, *Chicken & Egg: Competition Among Intermediation Service Providers*, 34 RAND J. ECON. 309 (2003); Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS’N 990 (2003).

³⁴ This is not to say that there are no platforms that are created and operated for reasons other than monetary returns. For example, Craig Newmark devotes himself to a Craigslist.com a free platform used for matching and transaction. In the summer of 2004, eBay.com, a commercial competitor of Craigslist.com, acquired 25% of Craigslist.com. This passive investment may have an impact on Craigslist.com in the future. See <http://www.craigslist.org/about/mission.and.history.html>; *Craigslist: Honouring Nerd Values*, ECONOMIST, Oct. 16, 2004, at 59; Idelle Davidson, *The Craigslist Phenomenon*, L.A. TIMES, Jun. 13, 2004, at I12; Nick Wingfield, *eBay Dips into Web Classified by Purchasing 25% of*

socially desirable projects, legitimate revenue sources of socially desirable platforms should be protected by copyright law.³⁵

Platform owners typically collect returns on their investments in platforms either by charging parties some portion of the generated direct and indirect network externalities, by integration with a group that benefits from high indirect network externalities, or from sales of good and services that facilitate interactions among members of different sides. The previous section provided several examples of business models that rely on capturing some of the network externalities generated by platforms. Examples of platform owners that integrate platforms with one of the market sides include Microsoft that integrates an operating system with applications and Fandango.com, a platform for movie-tickets that is owned by some of the largest movie-theater chains in the United States. Some platforms generate additional revenues from ancillary services provided to certain sides in the market. For example, credit card companies capture some of the indirect network externalities generating by trade with credit cards by charging vendors a fee pre transaction. Credit card companies, however, also provide financing services to credit card holders and collect a significant portion of their revenues from this source. Similarly, eBay.com offers a platform for buyers and sellers and consistently extends its business to draw revenues from complementary services such as payment systems (credit cards and paypal.com) and communication services (Skype.com).

In certain circumstances, revenue sources related to integrated businesses that benefit from indirect network externalities or to complementary services may raise antitrust concerns. Network industries with positive network externalities tend to be

Craigslist, WALL ST. J., Aug. 16, 2004, at B4.

³⁵ The Digital Millennium Copyright Act (“DCMA”) provides such protection in certain circumstances. DCMA prohibits distribution of any product or device which: (1) is primarily designed or produced for the purpose of circumventing a technological measure that controls access to a copyrighted system; (2) has only limited commercially significant purpose or use other than to circumvent such a technological measure; or (3) is marketed for use in circumventing such a technological measure. 17 U.S.C. § 1201(a)(2)-(3) and (b)(1)-(2) (Public Law 105-304, October 28, 1998).

concentrated due to the added value associated with the number of members. Platform markets are not exceptional, as platform owners in concentrated industries can leverage their market position. For example, platform owners that integrate businesses that benefit from indirect network externalities have incentives to exclude from the platform competing businesses.³⁶ Similarly, under certain conditions, a platform owner may leverage its market position to market power in markets of complimentary services. Such concerns are not addressed in this paper.

For simplicity, this paper is focused on platforms whose prime revenue sources are fees charged from members. This analysis may be applicable to platforms with additional revenue sources, with required modifications. The existence of platforms that rely on capturing a portion of the generated indirect network externalities could be undermined if third parties intervene in the platform marketplace by significantly reducing the benefits of one of the necessary groups. For example, a third party that offers audience members in an audience platform an opportunity to evade the attention burden undermines the business model of the platform, since advertisers would have no incentives to subsidize content.

Finally, platforms may be socially undesirable despite generated indirect network externalities. This may happen, among other reasons, when platform externalizes much of its operations to third parties.³⁷

³⁶ Essentially, this was one of the arguments in the Microsoft case. The situation of a system designer that wishes to collect profits from complementary parts and to exclude third parties from selling such parts is rather common. *See, e.g.*, *Sage Products, Inc. v. Devon Industries, Inc.*, 45 F.3d 1575 (Fed. Cir. 1995) (holding that an unauthorized producer of disposable inner containers designed for use in a patented system for disposing sharp medical instruments was not liable for contributory liability because end users did not infringe patentee's patent).

³⁷ *See* Section II.B *infra*.

II. THE COSTS OF FACILITATING INFRINGEMENT IN PLATFORMS

A. *Piggybackers*

1. Types of Piggybackers

There are three types of piggybackers: strictly positive, strictly negative, and hybrid piggybackers. *Strictly positive* piggybackers create positive value that can be shared with platform owners and connecting parties. Put simply, strictly positive piggybacker increase the level of indirect network externalities in a platform and capture a portion of the value they generate. For example, third-party enhancing features for video games may increase the demand for the video console and games, as well as increase the value of a game for the players.³⁸ The activities of *strictly negative* and *hybrid* piggybackers entail certain costs for platform owners and for parties connecting through platforms. The difference between these two types of piggybackers is that hybrid piggybackers also create value that could be shared by with the platform owners and connecting parties. For example, video recording technologies create value by allowing time shifting of content consumption and generate costs by allowing audiences to skip commercials.

From the economic perspective, there seems to be no justification to impose liability on strictly positive piggybackers. In contrast, the costs imposed by strictly negative and hybrid piggybackers on other parties may justify the imposition of legal liability. The following section presents in greater detail the type of costs certain parties incur due to the activities of strictly negative and hybrid piggybackers. Section III.B discusses the special case of hybrid piggybackers.

2. The Costs of Piggybacking

A piggybacker allows certain platform members to circumvent the platform. The

piggybacker takes advantage of a platform by offering members of certain groups services or goods that lower fees paid by those members or that allow such members to connect to outsiders through the platform. In either case, the parasitic activities of the piggybacker curtail the platform's ability to collect revenues and thereby undermining its commercial viability.

Piggybackers should be distinguished from other market players that provide means that could be used for unlawful activities, such as gun and photocopier sellers. A piggybacker places itself between the platform and members of a certain group, so that its activity is systematic. Unlike innovators who may undermine platforms by introducing new technologies, piggybackers rely on the platform they destroy.³⁹

In *vertical platforms*, piggybackers often allow buyers to use the platform with products of unauthorized sellers that do not pay any fees to the platform,⁴⁰ allow unauthorized buyers to use products of authorized sellers, or allow buyers to create copies of copyrightable materials that are intended to be sold through the platform only in a perishable format.⁴¹ When unauthorized members use a platform, its owner incurs opportunity costs and certain authorized members lose businesses to the unauthorized members. In addition, if a platform owner has no effective means to preclude a piggybacker, the platform owner is likely to lose authorized members who would find it cheaper to be an unauthorized member. When buyers can use piggybackers' products to make copies of copyrightable materials that are intended to be sold through the platform

³⁸ See, e.g., *Sony Computer Entertainment Am., Inc. v. GameMasters*, 87 F.Supp.2d 976 (1999).

³⁹ See, e.g., Peter Grant, *To Ward Off New Competitors, Comcast Builds a Mini Internet*, WALL ST. J., Oct. 13, 2005, A1 (describing developments in distribution of television shows through portable players that threaten the traditional distributors, the TV networks); Nick Wingfield et al., *TV Downloads May Undercut ABC Stations*, WALL ST. J. Oct. 17, 2005, B1 (same).

⁴⁰ See, e.g., *Sony Computer Entertainment America v. GameMasters*, 87 F. Supp. 2d 976, 985 (N.D. Cal. 1999) (granting a producer of a video game console a preliminary injunction against a producer of "game enhancers," which allowed the use of unauthorized games).

⁴¹ See, e.g., *RealNetworks, Inc. v. Streambox, Inc.*, 2000 WL 127311 (W.D. Wash. 2000) (granting a preliminary injunction against a producer of a technology that allowed users of music streaming services to download the music to their computers).

only in a perishable format, those buyers acquire a durable good at a low price of a perishable good.⁴² Under such circumstances, sellers may be reluctant to pay fees to the platform and are likely to disassociate from the platform in favor of more secure distribution channels. In both cases, the impact on fee collection and member departure may lead to the raveling of the platform.

Piggybackers are also frequently observed in audience platforms. Some consumers always try to circumvent audience platforms by removing advertising from content and evading the attention currency. In competitive markets, however, lowering attention levels by removing the advertising burden ultimately leads to price increases and quality declines.⁴³ Commercial-skipping technologies have been brought before courts in several high profile cases. In *Sony*, for example, several platforms, television networks, offered watchers content bundled with commercials. Third parties, VCR manufacturers, intervened in this market by introducing a product that, among other things, had the capacity of unbundling the product: VCR users had the option to press the fast-forward button and skip commercials. Several copyright holders sued the VCR manufacturers for indirect liability for copyright infringement and ultimately lost at the Supreme Court. The *Sony* court ruled that “the sale of copying equipment ... does not constitute contributory infringement if the product is widely used for legitimate unobjectionable purposes [as] it need merely be capable of substantial noninfringing uses.”⁴⁴ Some twenty years later, RePlayTV introduced digital video recorders (DVRs) that were equipped with commercial-skipping features and could be used to send copies of televised programs via the Internet. Copyright owners sued RePlayTV and its parent company, SONICblue, and subsequently SONICblue filed for bankruptcy. With the

⁴² For various aspects of pricing of perishable and durable goods, see Barak Y. Orbach, *The Durapolist Puzzle: Monopoly Power in Durable-Goods Markets*, 21 YALE J. REG. 67 (2004).

⁴³ There are market alternatives for content consumed through audience platforms. Those consumers for whom the individual costs of the attention currency are too high may turn to alternative content providers whose content/advertising ratio is higher, such as pay-per-view channels, HBO, and Showtime.

⁴⁴ *Sony*, 464 U.S. at 441.

bankruptcy court approval, RePlayTV was sold to a third party that stripped the DVRs from the commercial-skipping and internet distribution features.⁴⁵

B. Freeloaders

Any seller of goods that could be used for legal and illegal activities collects some revenues also from those buyers who buy the good for unlawful purposes. By collecting such revenues, sellers indirectly benefit from the social and private costs of illegal activities. This proposition is equally true for sellers of firearms and sellers of photocopying machines.⁴⁶ In the platform world, some platform owners capture audiences by offering cheap opportunities to infringe copyrights by illegal swapping of copyrighted materials. These platform owners do not collect revenues from those who use their products for illegal activities; rather, their source of income is advertisers who are attracted to the captive audiences that are engaged in copyright infringements. This form of audience platforms is socially undesirable, as they externalize costs of content required for their operation to third parties.⁴⁷

III. LEGAL AND POLICY IMPLICATIONS

Indirect liability for copyright infringement may be established under theories of contributory liability and vicarious liability. Contributory liability may apply when a party knowingly induces or facilitates an infringement by another.⁴⁸ Vicarious liability may apply when a party had the right and ability to control the misappropriation of the copyrighted work by another and had a direct financial interest in the exploitation of the

⁴⁵ *Paramount Pictures Corporations v. RePlayTV*, 298 F.Supp.2d 921, 923 (C.D.Cal. 2004).

⁴⁶ *Section III.C infra* addresses the legal impediments to the imposition of liability on sellers whose goods may be used for both lawful and unlawful activities.

⁴⁷ Prime examples of such platforms are Napster, Grokster, and StreamCast.

⁴⁸ *Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc.*, 443 F.2d 1159, 1162 (2d Cir. 1971) (defining a contributing infringer as “one who ... induces, causes or materially contributes to the infringing conduct of another”); *Princeton Univ. Press v. Mich. Document Servs., Inc.*, 99 F.3d 1381 (6th Cir. 1996); *Matthew Bender & Co. v. West Publ'g Co.*, 158 F.3d 693, 706 (2d Cir. 1998) (explaining that a party may

copyrighted material by another.⁴⁹ More generally, in *Grokster*, the Supreme Court held that “one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties.”⁵⁰

Under present law, a forward-looking party that wishes to capture value generated by a platform owned by another or by externalizing the costs of its own platform to third parties may eliminate the risk of vicarious liability by relinquishing any control over potentially infringing acts.⁵¹ This Section utilizes the foregoing analysis to establish the required elements of contributory and vicarious liability.

A. *Imposition of Liability for Indirect Copyright Infringement*

The traditional economic justifications are centered on the position of the alleged indirect infringer as the best copyright enforcer, as the cheapest defendant, or as a gatekeeper. These justifications are essentially focused on the passive roles of alleged indirect infringers. The appealing power of these passive justifications is in overcoming the problem imposing liability on a party whose products may be used for infringing and noninfringing purposes. The implicit (or often explicit) assumption underlying these justifications is that alleged indirect infringers are in a position to prevent direct infringement and, therefore, should not be shielded by the noninfringing uses of their products.

Insights from platform economics offer stronger justifications by highlighting the

incur contributory liability if he engages in "personal conduct that encourages or assists the infringement").

⁴⁹ *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304, 307 (2d Cir. 1963). *See generally* Alan O. Sykes, *Vicarious Liability*, in *THE PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW* vol. 3, 673 (1998).

⁵⁰ *Grokster*, at •.

⁵¹ *Sony*, 464 U.S. at 439 (stating that there is no precedent for imposing vicarious liability on the theory that defendant sold a device with constructive knowledge that its customers might use the equipment to make unauthorized copies of copyrighted materials).

active role of alleged indirect infringers. As discussed, piggybackers often capture some indirect network externalities generated by platforms and intended to be allocated to platform owners and members of certain groups. They do so by offering direct infringers devices to lower the consumption costs of copyrighted materials purchased or consumed through platforms. Imposing liability on such alleged indirect infringers is justified because their parasitic existence relies on sharing with direct infringers some of the costs saved by the latter by not paying royalties and other platform fees. Indeed, at least in the short run, this form of free riding benefits the direct infringers, but its private costs undermine the commercial viability of platforms. The case of freeloaders seems even stronger. Imposing liability on freeloaders is likely to encourage them to internalize the costs of their activities.

One could argue that these justifications have no practical implications, as they can be reduced to the familiar general argument for indirect liability for copyright infringement. In practice, however, courts are required to explain how the copyright infringements are facilitated and this is one contribution of the foregoing analysis. For the determination of legal liability for indirect copyright infringement, it is required to prove the elements of contributory or vicarious liability. The establishment of elements such as constructive knowledge, facilitation, inducement, and financial interests can be supported by understanding the incentives of alleged indirect infringers and the nature of the environments in which they operate. The traditional treatment of the indirect infringer as a party whose goods are used for copyright infringement by others is too crude for this purpose. Platform economics offers a simple analytical framework for a large set of cases of alleged indirect liability for copyright infringement.

Indeed, the question of indirect liability for copyright infringement may arise also in non-platform markets. For example, the *Aimster Copyright Litigation*,⁵² although dealt with a file-sharing technology, involved a generic network market. Aimster's business model did not rely on connecting members of different distinct groups, such as users and

advertisers. Rather, Aimster commercialized certain aspects of the direct network externalities generated by its network and collected revenues from these products.⁵³ The analysis in this case, however, can easily draw from the foregoing analysis that utilized platform economics. Aimster could be perceived as a platform that integrated commercial services that targeted Aimster's captive audience.

Notwithstanding, in some cases, such as cases of photocopying services,⁵⁴ platform economics offers no assistance in analyzing the economic functioning of the alleged indirect infringers. No inconsistencies would result from using platform economics in cases involved platforms and the traditional analysis in other cases.⁵⁵

B. "Substantial Noninfringing Use"

The Rubicon that must be crossed to established liability for indirect copyright infringement is the "substantial noninfringing use" standard introduced by the Supreme Court in *Sony*. According to this standard, a person whose product is used by others for copyright infringements is not liable for indirect infringement if his product also has substantial noninfringing uses. Examples of such substantial noninfringing uses include time-shifting in the case of VCRs and arguably trade in noncopyrighted materials in the case of file-sharing technologies. This standard was interpreted at least by one court as a requirement to conduct a cost-benefit analysis of a technology that could be used for infringement⁵⁶ and has been criticized repeatedly in the literature.⁵⁷ Specifically, it has

⁵² 334 F.3d 643 (7th Cir. 2003).

⁵³ Aimster's source of revenues was "Club Aimster." A service for fee that allowed paying Aimster users to download the top-40 popular music files more easily than by using the basic, free service. *Aimster*, 334 F.3d at 646, 651-52.

⁵⁴ *See, e.g., Princeton Univ. Press v. Mich. Document Servs., Inc.*, 99 F.3d 1381 (6th Cir. 1996).

⁵⁵ For a general analysis of indirect liability for copyright infringement, *see Hamdani, supra* note 14.

⁵⁶ *In re Aimster Copyright Litig.*, 334 F.3d 643 (7th Cir. 2003) (J. Posner).

⁵⁷ *See, e.g., Lichtman & Landes, Indirect Liability for Copyright Infringement, supra* note 14; Randall C. Picker, *Copyright as Entry Policy: The Case of Digital Distribution*, 47 ANTITRUST BULL. 423 (2002); Randall C. Picker, *The Digital Video Recorder: Unbundling Advertising and Content*, 71 U. CHI. L.

been argued that the substantial-noninfringing-use standard ignores available technological options to mitigate significantly infringements. For example, in video-recording technologies, disabling the fast-forward feature during commercials or making this feature inaccurate so that it would be inconvenient for commercial skipping.⁵⁸

The foregoing analysis emphasizes the active role of certain market participants in facilitating copyright infringements and reinforces the criticism against the substantial-noninfringing-use standard. While there may be hard cases of technologies for which the tradeoff of the potential infringing and noninfringing uses is controversial, in many cases the analysis shows that the technology seller relies on revenues collected from infringers or from advertisers who seek infringers' attention. The utilization of platform economics presented in this paper offers simple guidelines for determination of the role of the infringing uses of a given technology. The substantial-noninfringing-use standard simply offers piggybackers and cost externalizers safe harbors, should they add their technologies noninfringing uses. A sound analysis should focus on the question of whether the infringing and the noninfringing uses are inevitably bundled and, if so, to conduct the cost-benefit tradeoff of a bundling technology. Otherwise, when the bundling of infringing and noninfringing uses is merely a technological choice there is no justification to discharge the technology manufacturer from liability for indirect copyright infringement.

IV. CONCLUSIONS

This paper is the first to utilize insights from platform economics for the analysis of indirect legal liability. The paper uses the controversial and frequently litigated case of indirect liability for copyright infringement. Its framework and conclusions can be applied in other legal contexts and to be generalized with the appropriate modifications.

REV. 205 (2004); Randall C. Picker, *Rewinding Sony: The Evolving Product, Phoning Home and the Duty of Ongoing Design*, Chicago John M. Olin Working Paper No. 241 (2005).

⁵⁸ *Ibid.*

Piggybackers and Freeloaders

In the copyright context, the paper offers a simple framework that could be used for the analysis of a large set of cases of alleged indirect liability for copyright infringement. Presently, courts examine such cases in no systematic way and such a framework could be used for consistent and sound reasoning. Specifically, the presented framework allows courts to examine constructive knowledge, facilitation, inducement, and financial interests that are needed to establish indirect liability for copyright infringement under present law.