

INDIRECT FREE RIDING ON THE WHEELS OF COMMERCE: DUAL-USE TECHNOLOGIES AND COPYRIGHT LIABILITY

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Recent years have witnessed explosion in copyright literature on potential indirect liability of providers of dual-use technologies—technologies that are capable of infringing and noninfringing uses. The existing literature, however, fails to identify several important characteristics of copyright disputes over dual-use technologies. This Article finds that attempts to impose indirect liability on providers of dual-use technologies tend to appear in multisided markets, which are business environments in which market intermediaries connect members of different, distinct groups. The Article shows that indirect network externalities that multisided markets generate are the value that stirs up disputes over dual-use technologies. The Article explains the nature of indirect network externalities and their significance to copyright law. It characterizes the properties of markets in which disputes over dual-use technologies tend to arise, offers criteria to differentiate among dual-use technologies, and examines the desirability of present copyright liability rules. The analytical framework advanced in this Article offers courts, policymakers, and scholars practical guidelines for distinguishing between socially desirable and undesirable dual-use technologies. The framework also exposes some limitations of present copyright law in addressing the problem of dual-use technologies.

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Undoubtedly a bare supposition that by a sale of an article which, though adapted to an infringing use, is also adapted to other and lawful uses, is not enough to make the seller a contributory infringer. *Such a rule would block the wheels of commerce.* There must be an intent and purpose that the article sold will be so used.¹

INTRODUCTION

The most controversial topic in copyright law in recent years has been the potential liability of providers of dual-use technologies for copyright infringements by users.² Dual-use technologies are devices and services that are capable of both infringing and noninfringing uses. Examples of dual-use technologies include file-sharing services, photocopiers, tape recorders, typewriters, and video-recording devices.

Copyright holders often attempt to remove from the market dual-use technologies with legal and political means when they believe that losses of revenues associated with the infringing uses of a particular technology are greater than the benefits of the noninfringing uses.³ In response to such campaigns, providers of dual-use technologies warn that legal actions against their technologies constitute attempts to leverage copyright protection into control over technology that may block the wheels of commerce.

The source of the “wheels of commerce” argument is a 1912 patent case, *Henry v. A.B. Dick Co.*⁴ Seventy-some years after *A.B. Dick*, in *Universal City Studios v. Sony*, copyright defendants successfully convinced the Supreme Court to import the argument into copyright law.⁵ *Sony*’s substantial-noninfringing-use test is the product of this import. Under this test, the sale of a dual-use technology does not create liability if the product is “capable of substantial noninfringing uses.”⁶ In adopting this test, the majority in *Sony*

¹ *Henry v. A.B. Dick Co.*, 224 U.S. 1, 48 (1912) (emphasis added).

² See, e.g., *MGM Studios v. Grokster*, 545 U.S. 913 (2005); *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 441–42 (1984); see also Jane C. Ginsburg, *Copyright and Control over New Technologies of Dissemination*, 101 COLUM. L. REV. 1613 (2001); Mark A. Lemley & R. Anthony Reese, *Reducing Digital Copyright Infringement Without Restricting Innovation*, 56 STAN. L. REV. 1345 (2004).

³ See Ginsburg, *supra* note 2, at 1616.

⁴ 224 U.S. 1, 48 (1912).

⁵ See *Universal City Studios, Inc. v. Sony Corp. of Am.*, 480 F. Supp. 429, 461 (C.D. Cal. 1979), *rev'd*, *Sony*, 464 U.S. at 441, 491. For a thorough analysis of this import, see PETER S. MENELL & DAVID NIMMER, *UNWINDING SONY* (2006).

⁶ *Sony*, 464 U.S. at 442.

believed that it protected the motion of the wheels of commerce from copyright holders who attempted to restrict the sales of a dissemination technology. Thus, the majority absolved a videocassette recorder (VCR) manufacturer of liability for alleged infringing activities of VCR users.⁷ Justice Stevens, writing for the majority in *Sony*, noted that the plaintiffs' action was an "unprecedented attempt to impose copyright liability upon the distributors of copying equipment."⁸ Nevertheless, subsequent providers of dual-use technologies, such as Napster, Aimster, and Grokster, had no success with the wheels-of-commerce argument.⁹

Despite the analytical and rhetorical exercises of copyright courts, the simple fact is that no clear legal rule differentiates between lawful and unlawful dual-use technologies. The existing literature does not accomplish better results and mostly focuses on arguments for and against the imposition of liability on providers of dual-use technologies, without distinguishing among technologies.¹⁰

This Article identifies neglected characteristics of copyright disputes over dual-use technologies and studies their significance. The Article shows that attempts to impose indirect liability on providers of dual-use technologies tend to arise in multisided markets, which are business environments in which market intermediaries connect members of different, distinct groups. For example, in disputes over video-recording technologies, television networks are market intermediaries that connect content owners, audiences, and advertisers. VCRs and digital video recorders (DVRs) alter the nature of this connectivity and affect financial interests of intermediaries and connecting parties. Similarly, in typical disputes over file-sharing services, the service providers are intermediaries that connect audiences and advertisers while providing the audiences with means to infringe copyrights of third parties.

The Article finds that, in multisided markets, disputes over dual-use technologies are related to indirect network externalities. Analyzing typical characteristics of content markets, the Article offers practical guidelines to courts, policymakers, and scholars to help distinguish between socially desirable and undesirable dual-use technologies. This inquiry exposes the

⁷ *Id.* at 432–33.

⁸ *Id.* at 421.

⁹ See *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004 (9th Cir. 2001); *In re Aimster Copyright Litig.*, 334 F.3d 643 (7th Cir. 2003); *MGM Studios v. Grokster*, 545 U.S. 913 (2005).

¹⁰ An important exception in the literature is MENELL & NIMMER, *supra* note 5.

flawed simplicity of the wheels-of-commerce argument that equates all dual-use technologies.

The plan of this Article is as follows. Part I introduces the legal framework of disputes over dual-use technologies. Part II explains the nature of indirect network externalities and why these externalities are central to disputes over liability of providers of dual-use technologies. Part III maps the types of multisided content markets in which litigation over the liability of providers of dual-use technologies tends to arise and explains the reasons for the prevalence of disputes in such markets. Part IV analyzes the characteristics of dual-use technologies and evaluates the justifications for imposing liability on the providers of each type of dual-use technology. Part V concludes. Finally, the Appendix indexes the concepts that the Article develops and their legal implications.

I. THE LEGAL FRAMEWORK

A. *Doctrinal Elements of Indirect Liability*

Under present law, providers of dual-use technologies may be liable for infringing activities by the technologies' users under theories of indirect liability. Indirect liability, or secondary liability, is imposed on a party who is not the immediate wrongdoer,¹¹ and exists in all areas of law.¹²

In the copyright domain, indirect liability is imposed on a party who is related to the infringer, while the infringer himself may be subject to direct liability. Principles of indirect liability were imported to copyright law from tort law in the nineteenth century, and over time courts have adjusted these principles to apply to copyright infringement disputes.¹³ The 1909 Copyright Act and its predecessors did not expressly recognize the possibility of indirect liability, but the legislative history of the 1976 Copyright Act clearly indicates

¹¹ See generally Reinier H. Kraakman, *Gatekeepers: The Anatomy of a Third-Party Enforcement Strategy*, 2 J.L. ECON. & ORG. 53 (1986) [hereinafter Kraakman, *Gatekeepers*]; Reinier Kraakman, *Third-Party Liability*, in 3 THE PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 583 (1998); Alan O. Sykes, *The Economics of Vicarious Liability*, 93 YALE L.J. 1231 (1984); Alan O. Sykes, *Vicarious Liability*, in 3 THE PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 673 (1998).

¹² See *Sony*, 464 U.S. at 435; *Kalem Co. v. Harper Bros.*, 222 U.S. 55, 63 (1911).

¹³ For a comprehensive historical study, see MENELL & NIMMER, *supra* note 5.

that Congress intended for the principles of secondary liability to apply under the 1976 Act.¹⁴

Under present law, courts may impose indirect liability for copyright infringements under two theories: vicarious liability and contributory liability. Under the theory of vicarious liability, one is liable for copyright infringements committed by another if he has the right and ability to supervise the infringing activity and also has a direct financial interest in such activity.¹⁵ Under the theory of contributory liability, liability attaches for inducing, causing, or materially contributing to another's infringing conduct, as long as the actor knows of the infringing activity.¹⁶

The doctrines of indirect liability for copyright infringements suffer from inherent practical weaknesses, since each doctrine offers market entrants some guidelines for technology and business-model designs that could mitigate risks of indirect liability. The vicarious liability doctrine suggests that in transactions with potential direct infringers it is wise to surrender any control over potentially infringing activities in order to avoid liability. For example, Napster's successors developed decentralized system designs to avoid the vicarious liability that was imposed on Napster due to its centralized indexing system. Under the contributory liability doctrine, lack of knowledge of infringing activities constitutes an escape from liability.¹⁷ Hence, a well-advised entrepreneur may choose designs that would not allow him to find out about particular infringements.¹⁸

¹⁴ See H.R. REP. NO. 94-1476, at 61 (1976) (“[T]he phrase ‘to authorize’ [in Section 106] intend[s] to avoid any questions as to the liability of contributory infringers.”); *id.* at 159 (“A well[-]established principle of copyright law is that a person who violates any of the exclusive rights of the copyright owner is an infringer, including . . . vicarious infringers.”).

¹⁵ *Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc. (CAMI)*, 443 F.2d 1159, 1162 (2d Cir. 1971); see also *Grokster*, 545 U.S. at 930 (One “infringes vicariously by profiting from direct infringement while declining to exercise a right to stop or limit it.”); *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304, 308 (2d Cir. 1963).

¹⁶ *CAMI*, 443 F.2d at 1162; see also *Grokster*, 545 U.S. at 927 (2005) (“[O]ne infringes contributorily by intentionally inducing or encouraging direct infringement.”).

¹⁷ *Grokster*, 545 U.S. at 928.

¹⁸ See, e.g., *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417 (1984) (holding that knowledge that a product might be used for copyright infringement is insufficient to establish the knowledge requirement of contributory liability); see also Randal C. Picker, *Rewinding Sony: The Evolving Product, Phoning Home and the Duty of Ongoing Design*, 55 CASE W. RES. L. REV. 749 (2005) (arguing that creators of software that is capable of infringing uses should have a duty to eliminate the infringing uses by updating or modifying their software if capable); cf. *In re Aimster Copyright Litig.*, 334 F.3d 643, 650–51 (7th Cir. 2003) (holding that willful blindness of an alleged infringer could not shield defendant from contributory liability).

Sony's substantial-noninfringing-use test offers entrepreneurs another escape from indirect liability. Under this test, an entrepreneur who designs his product to be "capable of substantial noninfringing uses" is shielded from indirect liability.¹⁹ *Sony*'s test, as Peter Menell and David Nimmer persuasively show, reflects the defense counsel's success at steering the Supreme Court to focus on indirect liability under patent law,²⁰ rather than on the underlying tort principles of indirect liability doctrines, the jurisprudential roots of indirect liability under copyright law, and the legislative history of the 1976 Copyright Act.²¹

B. General Justifications for Indirect Liability

The traditional rationales for indirect liability for copyright infringement focus on enforcement practicability and inducement. Enforcement practicability justifies indirect liability when the alleged indirect infringer is in a superior position to disrupt infringing activities because of his relatively low enforcement costs, his ability to eliminate infringement opportunities, and the relative ineffectiveness of direct enforcement.²² Courts regularly endorse this rationale. For example, in *Grokster*, Justice Souter, writing for the Court,²³ noted:

¹⁹ *Sony*, 464 U.S. at 440–42. Concurring in *Grokster*, Justice Breyer expressed the view that the capacity for noninfringing uses could even refer to plausible future uses. See *Grokster*, 545 U.S. at 958 (Breyer, J., concurring).

²⁰ The Patent Act defines expressly indirect liability for patent infringement:

Whoever sells a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce *suited for substantial noninfringing use*, shall be liable as a contributory infringer.

U.S. Patent Act, 35 U.S.C. § 271(c) (2006) (emphasis added).

²¹ See MENELL & NIMMER, *supra* note 5; see also David Nimmer & Peter Menell, *Copyright's "Staple Article of Commerce" Doctrine: Patently Misguided*, 53 J. COPYRIGHT SOC'Y 365, 374 (2006) ("*Grokster* resolved the most crucial issue affecting copyright law in the digital age by following a pre-digital era case that itself rested on the dubious premise that patent law furnishes the template for construing the copyright statute, given the 'historic kinship' between the two bodies of law.>").

²² Direct enforcement may be relatively inefficient due to detection and administrative costs, the large number of wrongdoers, the mental and information capacities of wrongdoers, and limited sensitivity or oversensitivity to sanctions. See Kraakman, *Gatekeepers*, *supra* note 11, at 56–57. For an analysis of the enforcement-practicability justification, see Douglas Lichtman & William Landes, *Indirect Liability for Copyright Infringement: An Economic Perspective*, 16 HARV. J.L. & TECH. 395 (2003).

²³ Although Justice Souter wrote for a unanimous Court, Justices Ginsburg (joined by Chief Justice Rehnquist and Justice Kennedy) and Breyer (joined by Justices Stevens and O'Connor) submitted concurring

When a widely shared service or product is used to commit infringement, it may be impossible to enforce rights . . . against all direct infringers [and then] the only practical alternative [is to sue] the distributor of the copying device for secondary liability on a theory of contributory or vicarious infringement.²⁴

The enforcement-practicability justification simply means that when a party could function effectively as a gatekeeper, it may be liable for infringing activities of others.²⁵

The inducement rule is extracted from “the common law doctrine that one who knowingly participates or furthers a tortious act is jointly and severally liable with the prime tortfeasor.”²⁶ The rule provides 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.”²⁷ Liability for such inducement, according to *Grokster*, “does nothing to compromise legitimate commerce or discourage innovation having a lawful promise.”²⁸ Put simply, the inducement rule equates encouragement to infringe copyrights with culpability.

In their important work on *Sony*'s test, Peter Menell and David Nimmer restructure the enforcement-practicability justification.²⁹ They argue that, given the origins of copyright law's indirect liability, the appropriate legal framework should consider as factors (1) the net utility of the technology; (2) the presence of intent and knowledge; and (3) the feasibility of preventing

opinions, reflecting uncertainty among the Justices as to the proper approach. See *Grokster*, 545 U.S. at 942 (Ginsburg, J., concurring); *id.* at 949 (Breyer, J., concurring).

²⁴ *Id.* at 929–30 (majority opinion); see also *In re Aimster Copyright Litig.*, 334 F.3d 643, 645–56 (7th Cir. 2003).

²⁵ In *H.L. Green*, the Second Circuit applied this reasoning, concluding that a regime of indirect liability places “responsibility where it can and should be effectively exercised,” because it incentivizes parties who have “the power to police carefully the conduct” of others to do so. *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304, 308 (2d Cir. 1963); see also *Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc. (CAMI)*, 443 F.2d 1159, 1163 (2d Cir. 1971). For the general justifications for imposing liability on gatekeepers, see Kraakman, *Gatekeepers*, *supra* note 11.

²⁶ *CAMI*, 443 F.2d at 1162.

²⁷ *Grokster*, 545 U.S. at 919; see *Kalem Co. v. Harper Bros.*, 222 U.S. 55, 62 (1911) (holding that the defendant was contributory liable for infringements by others because he invoked infringements by advertising). Similarly, in *Sony*, the court emphasized that the taping of copyrighted television shows was not influenced or encouraged by Sony's advertising. See *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 438 (1984).

²⁸ *Grokster*, 545 U.S. at 916.

²⁹ MENELL & NIMMER, *supra* note 5, at 110–22.

harm through the design.³⁰ That framework sketches general guidelines for differentiating among dual-use technologies. This Article identifies more specific characteristics of dual-use technologies that justify the imposition of indirect liability.

II. INDIRECT NETWORK EXTERNALITIES AND DUAL-USE TECHNOLOGIES

During the last twenty years, network economics has become a standard analytical tool in economics and legal literature. The literature, however, poorly applies the distinction between direct and indirect network externalities and very often ignores it all together.³¹ The concept of “multisided markets” is even less understood, mostly because it was introduced only a few years ago and has been applied mostly in the antitrust contexts.³² Thus far, scholars have not examined what the analysis of multisided markets could offer to copyright law.³³

This Article makes the first step in improving the understanding of multisided content markets and ways to apply copyright law in such markets. This Part starts by illustrating the high prevalence of multisided markets in disputes over dual-use technologies. The Part then explains the nature of indirect network externalities—the value that multisided markets generate. The next Parts diagnose multisided content markets and typical alleged indirect infringers in such markets.

³⁰ *Id.*

³¹ For early discussions, see S.J. Liebowitz & Stephen E. Margolis, *Are Network Externalities a New Source of Market Failure?*, 17 RES. L. & ECON. 1 (1995); S.J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, 8 J. ECON. PERSP. 133 (1994). Although these articles were published over a decade ago and have been frequently cited, their insights are infrequently implemented.

³² See, e.g., David Evans, *The Antitrust Economics of Multi-Sided Platform Markets*, 20 YALE J. ON REG. 325 (2003); Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report* (November 29, 2005) (unpublished manuscript, on file with author), available at http://idei.fr/doc/wp/2005/2sided_markets.pdf; Roberto Roson, *Two-Sided Markets: A Tentative Survey*, 4 REV. NETWORK ECON. 149 (2005); Victor P. Goldberg & Richard A. Epstein, *Introductory Remarks: Some Reflections on Two-Sided Markets and Pricing*, 2005 COLUM. BUS. L. REV. 509 (2005).

³³ For an analysis of competition in multisided content markets, see, for example, Marc Rysman, *Competition Between Networks: A Study of the Market for Yellow Pages*, 71 REV. ECON. STUD. 483 (2004).

A. *The Prevalence of Multisided Markets*

While the analysis of intermediaries is hardly new to scholarship on content and communications,³⁴ courts and commentators have failed to identify the prevalence of multisided markets in disputes over the liability of providers of dual-use technologies. This section briefly explains the nature of multisided markets and illustrates their prevalence in disputes over dual-use technologies.

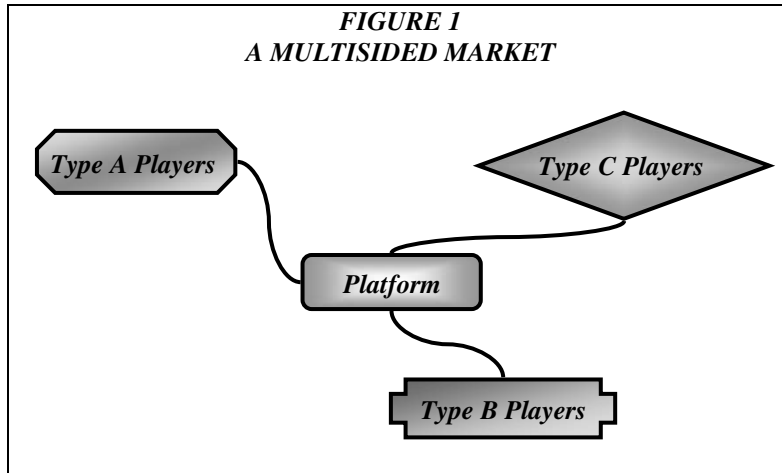
Multisided markets are networks in which market intermediaries of a specific type—“platforms”³⁵—connect members of different groups, such as buyers and sellers or audiences and advertisers.³⁶ Such networks generate *indirect* network externalities, which provide the financial motivations for the formation and operation of multisided markets. By contrast, generic networks connect members of one group, such as e-mail or telephone users.³⁷ Generic networks generate *direct* network externalities. The subsequent sections elucidate the differences between direct and indirect network externalities and their economic significance. *Figure 1* below illustrates the structure of a multisided market in which a platform connects members of three different groups.

³⁴ See, e.g., Symposium, *W(h)ither the Middleman: The Role and Future of Intermediaries in the Information Age*, 1 MICH. ST. L. REV. 1 (2006); Assaf Hamdani, *Who’s Liable for Cyberwrongs?*, 87 CORNELL L. REV. 901 (2002); Doug Lichtman & Eric Posner, *Holding Internet Service Providers Accountable*, 14 SUP. CT. ECON. REV. 221 (2006); Ronald J. Mann & Seth R. Belzley, *The Promise of Internet Intermediary Liability*, 47 WM. & MARY L. REV. 239 (2005).

³⁵ In economics literature, multisided markets are still mostly studied in a simple form of “two-sided markets.” For accessible introductions to multisided-market economics, see Evans, *supra* note 32 (explaining that in analyzing multisided-markets for the purposes of regulation, all sides must be taken into account); David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms* (NBER Working Paper Series No. 11603, 2005) (explaining how two-sided platforms bring together different customer groups); Rochet & Tirole, *supra* note 32 (providing overview of two-sided markets); and Roson, *supra* note 32 (providing overview of special markets characterized by bilateral network externalities). Additionally, see DANIEL F. SPULBER, *MARKET MICROSTRUCTURE: INTERMEDIARIES AND THE THEORY OF THE FIRM* (1999) (analyzing how firms work with and utilize markets); Goldberg & Epstein, *supra* note 32 (assessing pricing considerations in two-sided markets).

³⁶ A good definition of the business environments that are captured by the term “multisided market” is “the business, cooperative, standard, or government entity . . . that provides a physical or virtual platform for distinct customer groups.” David E. Evans & Michael Noel, *Defining Antitrust Markets when Firms Operate Two-Sided Platforms*, 2005 COLUM. BUS. L. REV. 667, 672 (2005). A more accurate definition for a multisided market can be found at Rochet & Tirole, *supra* note 32, at 40: “A market is [multisided] if the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by [another] side by an equal amount.”

³⁷ For a comprehensive survey of network economics, see Joseph Farrell & Paul Klempner, *Coordination and Lock-in: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (Mark Armstrong & Robert M. Porter eds.) (forthcoming).



To illustrate the prevalence of multisided markets in disputes over dual-use technologies, consider the following cases. In *Sony*, television networks, functioning as platforms, connected owners of television-program copyrights with audiences and advertisers. The action arose when an electronics manufacturer started selling VCRs that enabled users to tape television shows and avoid commercials. Copyright holders sought to impose indirect liability on the manufacturer for selling equipment that allowed users to engage in such allegedly infringing activities.³⁸ Put differently, in *Sony*, the VCR was a dual-use technology that the plaintiffs perceived to threaten an established business model that connected members of three groups. That attempt to impose liability on a seller of a dual-use technology failed.

In *Napster* and *Grokster*, file-sharing services established networks of users who swapped copyrighted files and connected (or planned to connect) these networks of users to advertisers from whom they collected (or planned to collect) revenues.³⁹ Copyright holders sued the providers of the file-sharing services for facilitating copyright infringements and prevailed.⁴⁰

³⁸ *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 419–24 (1984).

³⁹ *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 very short penetration stages, and started collecting revenues from advertisers soon after they launched their platform. See *MGM Studios v. Grokster*, 545 U.S. 913, 926 (2005); see also Sarah McBride, *After Settling*,

Distribution channels, such as physical and online marketplaces, constitute trade technologies and, as such, may be also capable of infringing and noninfringing uses. Indeed, when trade technologies are in the form of multisided markets, they often become vulnerable to indirect liability actions. For example, copyright holders prevailed in a vicarious-liability action against a traditional bricks-and-mortar retailer that connected concessionaires and shoppers, some of whom traded in bootleg recordings.⁴¹ Along the same lines, flea-market operators that facilitated transactions between vendors and shoppers were found liable for sales of counterfeit recordings by vendors.⁴² In the e-commerce era, eBay and Amazon Marketplace connect buyers and sellers and have been sued for copyright infringements by some sellers.⁴³ In the same fashion, dance halls,⁴⁴ restaurants,⁴⁵ clubs,⁴⁶ and concert promoters⁴⁷ that connected audiences with performers who played unauthorized copyrighted compositions were held liable as indirect infringers. Finally, in the days of silent motion pictures, exhibitors that connected movie distributors, moviegoers, and musicians who played music during show times were found liable for unauthorized performances of copyrighted compositions by the musicians.⁴⁸

These examples provide anecdotal evidence of the prevalence of multisided markets in cases of alleged indirect copyright infringements. The list could be extended much further.

Kazaa Promises a Legal Format, WALL ST. J., July 28, 2006, at A9 (describing the losses of file-sharing services in legal battles against copyright holders).

⁴⁰ *Napster*, 114 F. Supp. 2d at 927; *Grokster*, 545 U.S. at 965–66.

⁴¹ *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304 (2d Cir. 1963).

⁴² *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259 (9th Cir. 1996).

⁴³ *See, e.g., Hendrickson v. eBay, Inc. (Hendrickson I)*, 165 F. Supp. 2d 1082 (C.D. Cal. 2001); *Hendrickson v. Amazon.com, Inc. (Hendrickson II)*, 298 F. Supp. 2d 914 (C.D. Cal. 2003); *Corbis Corp. v. Amazon.com, Inc.*, 351 F. Supp. 2d 1090 (W.D. Wash. 2004).

⁴⁴ *See, e.g., Dreamland Ball Room, Inc. v. Shapiro, Bernstein & Co.*, 36 F.2d 354 (7th Cir. 1929).

⁴⁵ *See, e.g., Herbert v. Shanley Co.*, 242 U.S. 591 (1916); *KECA Music, Inc. v. Dingus McGee's Co.*, 432 F. Supp. 72 (W.D. Mo. 1977).

⁴⁶ *See, e.g., Shapiro, Bernstein & Co. v. Veltin*, 47 F. Supp. 648 (W.D. La. 1942); *M. Witmark & Sons v. Calloway*, 22 F.2d 412 (E.D. Tenn. 1927); *M. Witmark & Sons v. Tremont Soc. & Athletic Club*, 188 F. Supp. 787 (D. Mass. 1960).

⁴⁷ *See, e.g., Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc. (CAMI)*, 443 F.2d 1159 (2d Cir. 1971).

⁴⁸ *See, e.g., M. Witmark & Sons v. Pastime Amusement Co.*, 298 F. 470 (E.D.S.C. 1924); *Harms v. Cohen*, 279 F. 276 (E.D. Pa. 1922).

B. *Motivations for Indirect Connectivity*

Parties' willingness to connect through platforms, rather than directly, calls for explanation. Profit-maximizing platforms⁴⁹ must charge at least one of the connecting parties for the services they render. Amazon Marketplace charges sellers commissions of 6% to 15% of transaction prices; eBay charges sellers listing fees for placing ads and commissions on sold items; television networks charge advertisers fees for broadcasting commercials; dance halls charge patrons admission fees; and so forth.

This section explains the three circumstances in which parties would be willing to pay connection fees to platforms: (1) when direct connection is impossible; (2) when direct connection is too costly; and (3) when indirect connection is the only way to reach certain parties.⁵⁰

A direct connection may be impossible because the intermediary owns the connecting technology.⁵¹ For example, application developers and computer users cannot connect directly without an operating system. To connect, users must buy or license the operating systems, and application developers need software development kits.⁵² A direct connection may be too costly when indirect connections lower transaction costs and increase the volume of connections sufficiently to justify the fees paid to the platform. For example, organized markets, such as flea markets, eBay, and Amazon Marketplace, attract pools of buyers and sellers and save them information and search costs. Finally, indirect connections may be the only affordable way to reach parties

⁴⁹ There are platforms that are formed and operate for reasons other than monetary returns. For example, Craig Newmark devotes himself to Craigslist, a free platform used for matching and facilitating transactions among buyers and sellers. In the summer of 2004, eBay.com, a commercial competitor of Craigslist, acquired 25% of Craigslist. See *Craigslist: Honouring Nerd Values*, *ECONOMIST*, Oct. 16, 2004, at 59; Idelle Davidson, *The Craigslist Phenomenon*, *L.A. TIMES*, June 13, 2004, (Magazine), at I12; Nick Wingfield, *eBay Dips into Web Classifieds by Purchasing 25% of Craigslist*, *WALL ST. J.*, Aug. 16, 2004, at B4; Craigslist: Mission and History, <http://www.craigslist.org/about/mission.and.history.html> (Mar. 14, 2000).

⁵⁰ For early theoretical treatments of indirect connection, see Ariel Rubinstein & Asher Wolinsky, *Middlemen*, 102 Q.J. *ECON.* 581 (1987); and Marie-Odile Yanelle, *The Strategic Analysis of Intermediation*, 33 *EUR. ECON. REV.* 294 (1989).

⁵¹ For simplicity, this Article does not analyze the potential problems that arise in integrated multisided markets where the platform is integrated with one of the sides on the market. These integrations may raise antitrust concerns. Examples of such integrations include Microsoft Internet Explorer and Office; the motion picture industry until 1948, when distributors owned almost 90% of first-run theaters in major cities; and Fandango.com, which is owned by some of the largest theater chains.

⁵² The proprietary operating systems charge developers for developments kits or give them away for free. See, e.g., Microsoft Developer Network, <http://msdn.microsoft.com/vstudio/howtobuy> (last visited Jan. 24, 2008).

whose direct connectivity price is very high. For instance, advertisers normally connect indirectly to audiences through platforms because audiences wish to avoid direct contact with advertisers.⁵³

With this understanding in mind, the remainder of this Part elaborates on the value and savings that multisided markets generate.

C. Network Externalities: The Value of Connectivity and Interactions

Transaction and switching costs limit the number of markets in which buyers and sellers operate. From the buyer's standpoint, shopping in an additional market often means higher search costs and greater time investments.⁵⁴ In addition to search costs, in certain markets, buyers may be charged entrance fees (participation costs). These fees, again, limit the number of markets in which buyers can operate. For example, in media markets, where advertisers buy space or airtime, budget constraints limit the number of newspapers or channels in which advertisers can advertise.⁵⁵ From the seller's standpoint, the operation in an additional market means greater fixed and variable costs. Fixed costs are the necessary investments in physical or online stores, and variable costs are the operation costs of a store.

In light of the practical constraints on the number of markets in which a market participant can operate, when market participants choose markets of operation, their decisions depend on the value of participating in a particular market. This participation value is loosely referred to in the literature as *network externalities*.⁵⁶ For the purposes of this Article, network externalities

⁵³ See, e.g., Brian Steinberg, *The Marketing Maze*, WALL ST. J., July 10, 2006, at R1 (describing advertisers' difficulties in getting the public attention).

⁵⁴ These costs are greater for shopping in physical markets than for shopping in online markets because travel among physical markets is costlier than "travel" among online markets. In addition, for many undifferentiated goods, Internet price engines save online shoppers much of the travel costs through simple price comparisons.

⁵⁵ There are some antitrust implications of this point. See *Times-Picayune Pub. Co. v. United States*, 345 U.S. 594 (1953) (holding that a publisher that required advertisers to buy space in both of its newspapers attempted to monopolize the market by restricting advertisers' ability to contract with other newspapers).

⁵⁶ The traditional definition of network externalities is the returns to scale in consumption. The most influential definitions of network externalities were provided by two pioneering articles published in 1985. See 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 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.").

are narrowly defined as the value of potential connectivity or interactions among players that is related to the number of players that connect or interact through a particular product or market.

D. Direct and Indirect Externalities: Definitions and Illustrations

Network externalities are *direct* when their value is derived from connectivity or interactions among players of the same type. Network externalities are *indirect* when their value is derived from connectivity or interactions among players of different types.

To illustrate *direct network externalities*, consider word-processing software. In addition to its intrinsic value, the software has some added value that is related to the ability of users to swap files when they use the same or compatible software.⁵⁷ 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 services, fax machines, e-mail services, and telephone services is derived only from the number of users who use these products, since they are used for communication among users.

Direct network externalities are positive when an increase in levels of connectivity or interactions increases the value of a product or market participation. For example, the direct network externalities that file-sharing services generate tend to be positive because an increase in the number of users is likely to increase the availability of files and the speed of downloading files. Direct network externalities are negative when an increase in levels of connectivity or interactions lowers the value of a product or market participation. Examples of negative direct network externalities include the overloading of communication or electricity networks that happens when the number of users (or level of use) increases,⁵⁸ highways that get crowded when

⁵⁷ For simplicity, this Article uses the phrases “the same product” or “a compatible product” interchangeably. However, the distinction between identical and compatible products has some important policy implications. See generally Farrell & Saloner, *supra* note 56; 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 56 (explaining that the standardization employed by identical products may slow innovation and decrease variety, while the standardization employed by compatible products may be equally costly and less efficient).

⁵⁸ See, e.g., Seth Schiesel & Saul Hansell, *Communications: A Flood of Anxious Phone Calls Clog Lines and TV Channels Go off the Air*, N.Y. TIMES, Sept. 12, 2001, at A8 (describing the disruptions in telephone services by network overloads as extraordinary numbers of people tried to make calls in the aftermath of the terrorist attacks of September 11, 2001).

the number of drivers goes up, and fashion goods that tend to lose their “exclusivity value” when used by masses.⁵⁹

Indirect network externalities describe the value of connectivity or interactions among *different* types of players.⁶⁰ For example, the value of a marketplace for a shopper depends on the number of merchants, rather than on the number of other shoppers in that marketplace. Similarly, the value of a marketplace for a merchant depends on the number of shoppers, rather than the number of other merchants in that marketplace.⁶¹

Like direct network externalities, indirect network externalities may be positive or negative. The example of indirect network externalities in a marketplace illustrates the case of positive externalities. Media markets illustrate the case of negative indirect network externalities. For a given content, the value of a newspaper (or a television channel) to a reader (or a viewer) is negatively related to the number of advertisers. When the number of advertisers goes up, the content consumption is more disrupted and less continuous.⁶²

E. Co-Existence of Direct and Indirect Network Externalities

Direct and indirect network externalities may coexist and even interact in a particular market. For example, most file-sharing services connect advertisers and users. Users’ choices of a particular file-sharing service depend on the number of other users with whom they can swap files (i.e., direct network

⁵⁹ See, e.g., Harvey Leibenstein, *Bandwagon, Snob, and Veblen Effects in the Theory of Consumers’ Demand*, 64 Q.J. ECON. 183 (1950) (describing the impact the popularity of fashion goods on the demand for these goods); Barak Y. Orbach, *Antitrust Vertical Myopia: The Allure of High Prices*, 50 ARIZ. L. REV. (forthcoming 2008) (discussing the value of exclusivity).

⁶⁰ See generally 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. INDUS. ORG. 633 (2004); Katz & Shapiro, *supra* note 56. Some authors use the term “membership externalities” to describe indirect network externalities. See, e.g., Rochet & Tirole, *supra* note 32, at 3.

⁶¹ For analysis 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); Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 488–500 (1998); James B. Speta, *Handicapping the Race for the Last Mile?: A Critique of Open Access Rules for Broadband Platforms*, 17 YALE J. ON REG. 39 (2000); and Bradley H. Weidenhammer, *Compatibility and Interconnection Pricing in the Airline Industry: A Proposal for Reform*, 114 YALE L.J. 405 (2004).

⁶² Cf. Lisa George & Joel Waldfogel, *Who Affects Whom in Daily Newspaper Markets?*, 111 J. POL. ECON. 765 (2003) (studying the negative impact of groups of daily newspaper readers with different preferences on each other).

externalities) and are also affected by the burden of advertising (i.e., indirect network externalities).⁶³ Advertisers are interested in maximizing audience exposure. Therefore, their willingness to pay for placement with a particular file-sharing service is related to the number of users (i.e., indirect network externalities). That is, in the case of file-sharing services, the number of users represents direct network externalities on the users' side and indirect network externalities on the advertisers' side.

To further simplify the discussion of direct and indirect network externalities, consider the industry of heterosexual dating services.⁶⁴ A woman's choice of a dating service depends, among other things, on the size of the pool of male members whose profiles are appealing to her, which represents indirect network externalities.⁶⁵ For this woman, the number of female members represents negative direct network externalities because this number affects the crowdedness of the "connection channels" to men.⁶⁶ The exact same analysis applies, of course, to men who consider subscribing to a dating service.⁶⁷

In the literature, direct and indirect network externalities are still very often indistinguishably referred to as "network externalities."⁶⁸ Accordingly, network externalities are sometimes described in imprecise terms. For instance, an observer applying this muddled terminology might define network externalities as the value of a videogame console for a user that is derived from

⁶³ See, e.g., Lee Gomes, *Technical Adviser: Getting a Handle on Adware*, WALL ST. J., July 15, 2002, at R8 (describing popular measures to overcome the burden of spyware that piggyback file sharing applications); John Schwartz, *When Free Isn't Really Free*, N.Y. TIMES, Nov. 23, 2003, § 3, at 1 (describing the burden of advertising and spyware on users of freeware, such as file-sharing applications).

⁶⁴ This example is inspired by the general discussion in Evans, *supra* note 35, and Evans & Noel, *supra* note 36.

⁶⁵ The example refers to dating services that offer access to members on the basis of "date as much as you can," as opposed to the traditional matchmaking model that is focused on finding the "right one," although it may specify a guaranteed number of dates. For the contemporary version of the traditional matchmaking model, see Melanie Thornstrom, *The New Arranged Marriage*, N.Y. TIMES, Feb. 13, 2005, (Magazine), at 34. It is noteworthy that some online dating services focus on increasing the indirect network externalities by not admitting unappealing candidates. See, e.g., Paul Farhi, *They Met Online but Definitely Didn't Click*, WASH. POST, May 13, 2007, at D1 (describing exclusivity policies of the online dating service eHarmony.com that has rejected approximately one million people since 2000).

⁶⁶ Technically, in network industries, competitiveness may be added to the direct network externalities, but not necessarily. Regardless of any competitive force, the number of members on one side of the market (say, women) affects the transaction costs of members on the other side (say, men) because the signal of each member is less visible.

⁶⁷ Surely, males and females may employ different selection criteria. See, e.g., Raymond Fisman et al., *Gender Differences in Mate Selection: Evidence from a Speed Dating Experiment*, 121 Q.J. ECON. 673 (2006).

⁶⁸ See *supra* note 31.

the number of videogames available for his videogame console *and* the value of the videogame console for a user that is derived from his ability to interact with other users. The source of the confusion is that, for a player, indirect network externalities, like direct network externalities, are often related to the number of players of the same type. When the value of market participation for a type-A player depends on the number of type-B players for whom the value of market participation depends on the number of type-A players, then the value of market participation for each player is related to the number of players of his own type. The point is that in such situations, the value of market participation for a player is *indirectly* related to the number of players of his own type. Applying this point to the example of heterosexual dating services, for a woman who considers a particular dating service, the number of female subscribers is likely to affect the pool of males and, therefore, to be indirectly related the value of the service. At the same time, the number of female subscribers may adversely affect the ability of each woman to signal her qualities. The design of heterosexual dating services, therefore, aims at harnessing indirect network externalities and mitigating negative direct network externalities through good “search engines.”⁶⁹

The distinction between direct and indirect network externalities is crucial to the analysis of dual-use technologies. It is not just a matter of semantics. By definition, there are no indirect network externalities in single-sided markets for dual-use technologies, although direct network externalities may appear in such markets. Thus, given the prevalence of multisided markets in disputes over dual-use technologies, any inquiry into the characteristics of these cases requires an understanding of the nature and significance of indirect network externalities.

F. The Significance of Network Externalities to Copyright Law

Indirect network externalities provide entrepreneurs with incentives to form and operate platforms that facilitate transactions. For owners of television and radio stations and for providers of file-sharing services, these financial incentives represent potential advertising revenues. For operators of physical and online marketplaces, the financial incentives are fees charged to transacting parties.

⁶⁹ Again, the negative direct network externalities in heterosexual dating services should not be confused with competitive effects. The search engines of such services mitigate the negative direct network externalities by improving intergender connectivity, but they enhance competition among members of each group. See *supra* note 66.

Copyright cases that arise in multisided markets tend to be related to indirect network externalities that potentially could be generated in these markets. Defendants are usually one of two types: *piggybackers* or *freeloading platforms*. A piggybacker is a third party that is believed to threaten returns on trade in content in multisided markets. A freeloading platform arguably accommodates infringing activities of transacting parties. In other words, piggybackers threaten the level of indirect network externalities that multisided content markets generate, while freeloading platforms accommodate infringing activities to enhance the indirect network externalities that they generate.

To illustrate the concerns regarding piggybackers, consider again *Sony*. In *Sony*, the plaintiffs raised two lines of arguments that could be framed as concerns regarding the impact of VCRs on generated indirect network externalities.⁷⁰ First, the plaintiffs argued that private copying of copyrighted shows would impair the commercial value of their copyrights.⁷¹ This argument essentially meant that VCRs diminished the indirect network externalities that repeat broadcasting of copyrighted shows could have generated. The second line of argument was that VCRs enabled users to skip commercials, thereby putting at risk the indirect network externalities that connections between viewers and advertisers generated.⁷²

Put simply, the general argument against piggybackers is that they disrupt the allocation of indirect network externalities in multisided markets.

To illustrate the concerns regarding freeloading platforms, consider two lines of cases: first, those against marketplaces that accommodate sales of infringing materials by vendors and concessionaires;⁷³ and second, those against platforms that connect audiences and infringing performers.⁷⁴ In these

⁷⁰ *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 452–56 (1984). The plaintiffs also presented a third argument regarding the potential diversion of content consumers away from other markets (such as movie theaters) because they could watch recorded content at home. *See id.* at 452–53.

⁷¹ *See id.*

⁷² *See id.* at 453 n.36.

⁷³ *See, e.g., Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259 (9th Cir. 1996) (action against flea market); *Shapiro, Bernstein & Co. v. H.L. Green*, 316 F.2d 304 (2d Cir. 1963) (action against department store); *Corbis Corp. v. Amazon.com, Inc.*, 351 F. Supp. 2d 1090 (W.D. Wash. 2004) (action against Amazon.com for transaction through Amazon Marketplace); *Hendrickson v. Amazon.com, Inc. (Hendrickson I)*, 298 F. Supp. 2d 914 (C.D. Cal. 2003) (same); *Hendrickson v. eBay, Inc. (Hendrickson I)*, 165 F. Supp. 2d 1082 (C.D. Cal. 2001) (action against eBay).

⁷⁴ *See, e.g., Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc. (CAMI)*, 443 F.2d 1159 (2d Cir. 1971) (concert promoter); *Dreamland Ball Room, Inc. v. Shapiro, Bernstein & Co.*, 36 F.2d 354 (7th Cir. 1929) (dance hall); *M. Witmark & Sons v. Pastime Amusement Co.*, 298 F. 470 (E.D.S.C. 1924) (movie theater in the days of silent films); *Harms v. Cohen*, 279 F. 276 (E.D. Pa. 1922) (same).

cases, the platforms benefited from the infringements through fees charged for transactions, entry fees, and sales of complementary goods and services (such as soda and parking). In other words, the infringing activities increased the indirect network externalities that the platforms generated, which were roughly related to their revenues. That link between infringing activities and revenues raises concerns among copyright holders. In other cases, the infringing activities may be means to enhance trade through the platform even though the trade itself does not infringe any copyrights. For example, most file-sharing services enable infringing exchanges that attract large numbers of users whose attention is sold by the platforms to advertisers.⁷⁵ The connection between advertisers and users does not infringe any copyrights; however, the means to pool users arguably facilitates copyright infringements by users.

Put simply, freeloading platforms benefit from indirect network externalities that trade in unauthorized copies of copyrighted works generate.

To summarize, indirect network externalities are the value that motivates entrepreneurs to form platforms, to operate multisided markets, and to facilitate commerce. Disputes over dual-use technologies in multisided markets arise in two generic scenarios. In one scenario, copyright holders seek to prevent third parties from piggybacking their markets and disrupting existing allocations of indirect network externalities.⁷⁶ In the other scenario, copyright holders believe that potential indirect network externalities motivate entrepreneurs to operate platforms that accommodate infringing activities. These concerns are the foundations of the quest to impose indirect liability on providers of dual-use technologies in multisided markets.

III. TAXONOMY OF MULTISIDED CONTENT MARKETS

Based on the introduction to indirect network externalities and their significance to copyright law and disputes over dual-use technologies, this Part characterizes generic multisided content markets. The next Part continues the analysis by differentiating among dual-use technologies.

⁷⁵ See, e.g., *MGM Studios v. Grokster*, 545 U.S. 913 (2005); *A&M Records, Inc. v. Napster, Inc.*, 114 F. Supp. 2d 896, 902 (N.D. Cal. 2000). However, this has not been the business model of *all* file sharing services. See, e.g., *In re Aimster Copyright Litig.*, 334 F.3d 643 (7th Cir. 2003).

⁷⁶ Under present law, the platform itself has no standing in copyright actions against direct and indirect infringers.

The present universe of business models seems to consist of three types of platforms that facilitate trade in content: marketplace, standard, and advertising platforms.⁷⁷ *Marketplace platforms* connect buyers and sellers by creating “marketplaces” in which buyers can locate sellers and vice versa. *Standard platforms* own proprietary rights in technological standards that are used by buyers and sellers, but unlike marketplace platforms, they do not offer search mechanisms for buyers and sellers. *Advertising platforms* connect advertisers, audiences, and, very often, content owners as well. There are other types of platforms⁷⁸ in which content is less likely to be traded and, therefore, such platforms are not discussed in this Article. An example of platforms in which content is not traded is matching platforms that facilitate mutual activities or combinations of members of different groups, such as heterosexual dating services.

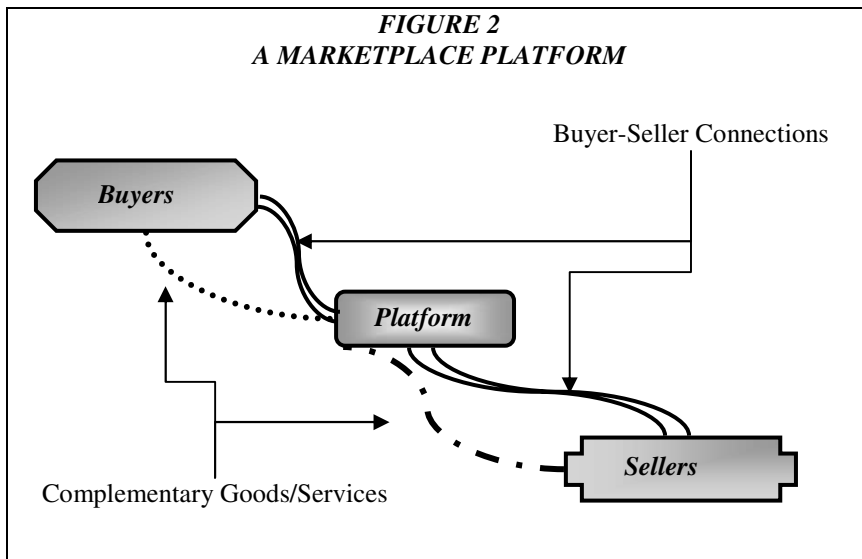
A. *Marketplace Platforms*

Marketplace platforms create focal points (“marketplaces”) that attract “buyers” and “sellers,” thereby lowering some of the search and transaction costs associated with trade and generating indirect network externalities. Intuitive examples of marketplace platforms include flea markets, shopping malls, auction houses, exchanges, eBay, Amazon Marketplace, and music-download retailers.⁷⁹

⁷⁷ The literature on multisided markets and platforms is still undeveloped. The platform classification used in this Article is based on the author’s labeling, although it is possible that other authors have used the same or similar labeling.

⁷⁸ See, e.g., Evans, *supra* note 35 at 327–28; Evans & Schmalensee, *supra* note 35 at 5–6; Evans & Noel, *supra* note 36 at 671–73.

⁷⁹ Marketplace platforms may of course facilitate trade in products other than content. Examples for such marketplace platforms include the medical resident matching system that connects residents (“sellers” of labor) and hospitals (“buyers”), and business-to-business (“B2B”) networks that connect suppliers and buyers. The resident matching system has been challenged on antitrust grounds. See *Jung v. Ass’n of Am. Med. Colls.*, 339 F. Supp. 2d 26 (D.D.C. 2004). For theoretical analyses of B2B platforms, see Rachel E. Kranton & Deborah F. Minchert, *A Theory of Buyer-Seller Networks*, 91 AM. ECON. REV. 485 (2001); David Lucking-Reiley & Daniel F. Spulber, *Business-to-Business Electronic Commerce*, 15 J. ECON. PERSP. 55 (2001).



Marketplace platforms typically charge transacting parties various fees, such as rental fees for stands or stores, admission fees, listing fees, and commissions on sales. In addition, marketplace platforms may sell complementary goods and services, such as parking and storage in physical marketplaces. *Figure 2* depicts a marketplace platform that connects buyers and sellers and offers each group complementary goods and services.

Copyright holders often accuse marketplace platforms of accommodating infringing activities.⁸⁰ For example, physical and online marketplaces have been sued for accommodating sellers who traded in infringing materials.⁸¹ Similarly, dance halls, old movie theaters, clubs, trade-show organizers, and racetrack owners have been sued for accommodating performers who infringed copyrights.⁸²

⁸⁰ See, e.g., *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259 (9th Cir. 1996) (adjudicating claim that flea market infringed copyrights); *Shapiro, Bernstein & Co. v. H.L. Green*, 316 F.2d 304 (2d Cir. 1963) (department store); *Hendrickson v. Amazon.com, Inc.* (*Hendrickson II*), 298 F. Supp. 2d 914 (C.D. Cal. 2003) (online marketplace); *Hendrickson v. eBay, Inc.* (*Hendrickson I*), 165 F. Supp. 2d 1082 (C.D. Cal. 2001) (online auction website).

⁸¹ See *supra* note 73.

⁸² See, e.g., *Famous Music Corp. v. Bay St. Harness Horse Racing & Breeding Ass'n*, 554 F.2d 1213 (1st Cir. 1977) (adjudicating claim that race track infringed copyrights); *Dreamland Ball Room, Inc. v. Shapiro*,

Marketplace platforms vary in their properties. Three specific properties may have potential implications for copyright liability of a platform: (1) the platform's involvement in individual transactions; (2) the facilitation of connections among individuals or groups of individuals; and (3) the nature of the connections as primary or ancillary to the platform's business.

1. *The Platform's Involvement in Individual Transactions*

While all marketplace platforms provide a business environment in which buyers and sellers can locate each other, the actual involvement of marketplace platforms in individual transactions varies across markets. To illustrate, flea-market operators typically have no involvement in transactions among vendors and patrons.⁸³ By contrast, eBay and Amazon Marketplace facilitate transactions, provide negotiation and payment mechanisms, and have complete records of offerings and sales.⁸⁴ The location of a particular platform on this spectrum of varying levels of involvement in individual transactions could be used to establish doctrinal elements of the right to control infringing parties (vicarious liability) or knowledge of the infringing activities (contributory liability).⁸⁵

2. *Connectivity Among Individuals or Groups*

Some marketplace platforms connect *groups* of buyers and sellers, rather than individual buyers and sellers. For instance, dance halls connect audiences (as groups) and performers (as individuals or as groups of performers) and do not facilitate direct connections between individual patrons and performers. This characteristic emphasizes one dimension of the indirect network externalities that multisided markets generate: In the absence of platforms that form and operate multisided markets, certain transactions would not occur or would happen only in small scale. Using the dance hall example, for

Bernstein & Co., 36 F.2d 354 (7th Cir. 1929) (dance hall); Polygram Int'l Publ'g, Inc. v. Nevada/TIG, Inc., 855 F. Supp. 1314 (D. Mass. 1984) (trade show); M. Witmark & Sons v. Pastime Amusement Co., 298 F. 470 (E.D.S.C. 1924) (movie theater); M. Witmark & Sons v. Tremont Soc. & Athletic Club, 188 F. Supp. 787 (D. Mass. 1960) (club); Shapiro, Bernstein & Co. v. Veltin, 47 F. Supp. 648 (W.D. La. 1942) (club); Harms v. Cohen, 279 F. 276 (E.D. Pa. 1922) (movie theater).

⁸³ See *Fonovisa*, 76 F.3d at 263 (finding that flea market promoter provided space for flea market sellers, but was not directly involved in transactions between flea market sellers and flea market customers).

⁸⁴ See, e.g., *Corbis*, 351 F. Supp. 2d 1090; *Hendrickson II*, 298 F. Supp. 2d 914; *Hendrickson I*, 165 F. Supp. 2d 1082; see also *H.L. Green*, 316 F.2d at 306-07 (describing a chain of department stores that processed transactions of its concessionaires).

⁸⁵ See *supra* Part I.A.

unorganized individuals, it would prove very costly to transact with performers. The dance hall creates a focal point that attracts unorganized strangers and administers the transactions between a group of unorganized strangers and performers. Similarly, television networks connect audiences (as groups) with content owners and advertisers. At the present technological stage, connecting viewers as groups with content owners and advertisers generates greater indirect network externalities than connecting them as individuals.⁸⁶ This observation provides an additional emphasis on the significance of indirect network externalities to the understanding of copyright disputes over dual-use technologies. It stresses the need for protecting markets from piggybackers that disrupt the allocation of the externalities. It also highlights the role of freeloading platforms in facilitating infringements.

3. *Connectivity and the Platform's Core Business*

Often, the trade in content that a platform facilitates is ancillary to its core business. A dance hall may use admission fees charged to patrons only to cover its costs and draw profits from beverages and concessions sold to sweaty patrons. Similarly, in sports events and trade shows, the platforms connect audiences and performers to enhance the overall experience of the audience, although the primary goal is an athletic competition or professional exhibitions.⁸⁷ The significance of this property is that marketplace platforms may accommodate infringing activities in order to “enhance the attractiveness

⁸⁶ Some Internet video-streaming technologies already generate indirect network externalities by connecting individual viewers. The leading web-video platform is still YouTube.com, although television networks and retailers have independent initiatives. For YouTube.com's arrangements with copyright holders, see Kevin J. Delaney, *Garage Band: With NBC Pact, YouTube Site Tries to Build a Lasting Business*, WALL ST. J., June 27, 2006, at A1; Kevin J. Delaney & Ethan Smith, *YouTube Model Is Compromise over Copyrights*, WALL ST. J., Sept. 19, 2006, at B1; Saul Hansell, *YouTube's Video Poker: A Bet that Media Companies Will Want to Share Ad Revenue*, N.Y. TIMES, Sept. 30, 2006, at C1; Andrew Ross Sorkin & Jeff Leeds, *Music Companies Grab a Share of the YouTube Sale*, N.Y. TIMES, Oct. 19, 2006 at C1; and Brad Stone, *The Battle over YouTube*, NEWSWEEK, Oct. 9, 2006, at 48. For early initiatives of television networks and retailers, see Brooks Barnes, *CBS Ties its Future to Internet Efforts in New Web Deals*, WALL ST. J., Jan. 10, 2007, at B1; Brooks Barnes & Kevin J. Delaney, *'Clickable' Web Video Ads Catch On*, WALL ST. J., May 18, 2006, at B4; Saul Hansell, *Forget the Bootleg, Just Download the Movie Legally*, N.Y. TIMES, July 4, 2005, at C1; Richard Siklos & Bill Carter, *Old Model Versus a Speedster: Media Giants Ponder How to Outdo YouTube*, N.Y. TIMES, Dec. 18, 2006, at C1; and Brad Stone, *Wal-Mart Plans to Test Online Films*, N.Y. TIMES, Nov. 29, 2006, at C1.

⁸⁷ See, e.g., *Famous Music Corp. v. Bay St. Harness Horse Racing & Breeding Ass'n*, 554 F.2d 1213 (1st Cir. 1977) (holding racetrack owner liable for playing music provided by an independent contractor); *Polygram Int'l Publ'g, Inc. v. Nevada/TIG, Inc.*, 855 F. Supp. 1314 (D. Mass. 1984) (holding organizer of trade show liable for music played by exhibitors in show).

of the venue to potential customers.”⁸⁸ In such situations, the argument for imposing indirect liability on the platform is stronger.⁸⁹

B. *Standard Platforms*

Standard platforms are similar to marketplace platforms in the sense that buyers and sellers use them. However, unlike marketplace platforms, standard platforms do not form focal points that assist buyers and sellers in locating each other. Rather, they provide technological environments through which buyers and sellers connect. Examples of standard platforms include videogame consoles through which game developers (“sellers”) and players (“buyers”) connect and operating systems through which hardware manufacturers (“sellers”), application developers (“sellers”), and users (“buyers”) connect.⁹⁰ Standard platforms collect revenues through commissions on transactions, through sales of complementary products and services to the connecting parties, or through integration with one or more of the connecting parties.⁹¹

Owners of standard platforms often blame third parties for providing means to circumvent the platform’s technological design.⁹² When the platform’s design or transmitted content is protected by copyrights,⁹³ one argument is that such third parties should be liable for infringements by users. Examples of

⁸⁸ *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 263–4 (9th Cir. 1996) (finding that sale of pirated recordings in flea market is “draw” for customers).

⁸⁹ See *infra* Part IV.D.2.b.

⁹⁰ Credit cards are an example of standard platforms that facilitate trade in content and other products. Thus far, the literature on multisided markets has been driven by litigation in the credit-card industry. For representative literature on the two-sided nature of the credit-card industry, see DAVID S. EVANS & RICHARD SCHMALENSEE, *PAYING WITH PLASTIC: THE DIGITAL REVOLUTION IN BUYING AND BORROWING* (2d ed. 2005); William F. Baxter, *Bank Interchange of Transactional Paper: Legal and Economic Perspectives*, 26 J.L. & ECON. 541 (1983); Timothy J. Muris, *Payment Card Regulation and the (Mis)Application of the Economics of Two-Sided Markets*, 2005 COLUM. BUS. L. REV. 515; and Jean-Charles Rochet & Jean Tirole, *Cooperation Among Competitors: Some Economics of Payment Card Associations*, 33 RAND J. ECON. 549 (2002).

⁹¹ Because standard platforms do not connect buyers and sellers, they are not often in the position to monitor transactions and to charge fees that are related to transactions.

⁹² See generally Pamela Samuelson, *Fair Use for Computer Programs and Other Copyrightable Works in Digital Form: The Implications of Sony, Galoob and Sega*, 1 J. INTELL. PROP. L. 49 (1993) (discussing three key infringement cases, where Universal Studios alleged that viewers could use Sony’s Betamax machines to circumvent Universal’s copyrights; Nintendo objected to Galoob’s product because it altered aspects of the play of Nintendo’s video games; and Sega challenged Accolade’s disassembly of Sega’s game consoles to determine how to create videogames that were compatible with Sega’s consoles).

⁹³ For the copyrightability of standards, see Pamela Samuelson, *Questioning Copyright in Standards*, Berkeley Ctr. for Law and Tech.: Law and Tech. Scholarship, Paper No. 22, 2006), available at <http://repositories.cdlib.org/bclt/lts/22/>.

such cases include claims against cable descramblers that allow users to connect to cable systems without paying fees,⁹⁴ add-on software that allows videogame players to alter games,⁹⁵ add-on software that allows DVD users to skip or mute “indecent” scenes,⁹⁶ and means to circumvent the DVD region codes.⁹⁷

Because the circumvention of standard platforms involves dedicated means, typically the technologies in question are not dual-use technologies and, therefore, the discussion of these technologies is beyond the scope of this Article. However, because of the conceptual ties between standard platforms and other content platforms, two comments are noteworthy. First, standard owners who integrate one side of the market have tried to block access to that side through actions of direct copyright liability.⁹⁸ For example, manufacturers of videogame consoles have tried to use direct liability to block independent game developers from developing compatible videogames.⁹⁹ Second and related, the Digital Millennium Copyright Act of 1998¹⁰⁰ (DMCA) provides standard owners, including DVD player and videogame console manufacturers, with effective tools to obtain injunctions against and recover damages from manufacturers, sellers, and distributors of circumvention means.¹⁰¹ Given the effectiveness of the DMCA, standard owners often need not employ risky legal strategies of indirect copyright liability.

⁹⁴ See *Cable/Home Commc’n Corp. v. Network Prods., Inc.*, 902 F.2d 829 (11th Cir. 1990).

⁹⁵ See, e.g., *Lewis Galoob Toys, Inc. v. Nintendo of Am., Inc.*, 964 F.2d 965 (9th Cir. 1992); *Sony Computer Entm’t Am., Inc. v. GameMasters*, 87 F. Supp. 2d 976, 986 (N.D. Cal. 1999).

⁹⁶ See, e.g., *Huntsman v. Soderbergh*, No. Civ. A02CV01662, 2005 WL 1993421 (D. Colo. Aug. 17, 2005). In 2005, Congress passed the Family Entertainment and Copyright Act that explicitly permits development and distribution of such technologies. See 17 U.S.C. § 102 (2006).

⁹⁷ See, e.g., *GameMasters*, 87 F. Supp. 2d at 986 (rejecting argument that use of non-territorial DVDs or games is infringing activity).

⁹⁸ See, e.g., *Midway Mfg. Co. v. Artic Int’l, Inc.*, 704 F.2d 1009 (7th Cir. 1983) (holding that improved game that substituted original game infringed copyright in original game); *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992) (holding defendant’s copying of console’s source to reverse engineer it for purpose of creating games to be fair use).

⁹⁹ See *supra* note 96.

¹⁰⁰ 17 U.S.C. § 1201 (2006).

¹⁰¹ See, e.g., *GameMasters*, 87 F. Supp. 2d at 987–88 (videogames); *Universal City Studios, Inc. v. Corley*, 273 F.3d 429 (2d Cir. 2001) (DVDs); see also generally Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095 (2003) (discussing the impact that the DMCA will have on copyright liability).

C. Advertising Platforms

1. The Basic Structure

Advertising platforms capture audiences' attention and sell the attention to advertisers, thereby indirectly connecting audiences and advertisers. Traditional advertising platforms attract audiences' attention by offering free or subsidized content.¹⁰² Examples of such content platforms include newspapers, free television networks, radio stations, and Internet search engines.¹⁰³ Internet advertising platforms, such as file-sharing services, free e-mail services, and YouTube.com, use different business models. They attract audiences' attention by providing access to content provided by the audience itself.

In markets of advertising platforms, audiences are always expected to pay with an "attention currency",¹⁰⁴ and, when content is not fully subsidized, also with a monetary currency. This means that, for content consumers, monetary fees for content are lower in advertising platforms than they are in advertising-free marketplace platforms, such as premium television channels and satellite radio. The flip side is that, in advertising platforms, audiences incur the burden of advertising, while they incur much less of it in advertising-free marketplace platforms.¹⁰⁵ It is noteworthy that certain mandatory disclosure rules that govern advertising platforms raise the price that audiences pay with the attention currency. These disclosure rules require certain content platforms

¹⁰² Advertising platforms are also common in other business models of captive audiences, such as sports stadiums and airplanes. See, e.g., Brian Steinberg & Melanie Trotman, *Advertisers Find a Captive Audience: Travelers on Planes*, WALL ST. J., Dec. 20, 2005, at B1 (discussing advertisers targeting airline passengers on flights as a means of promoting their product).

¹⁰³ For the emergence of the audience platform business model in the radio industry, see Herman S. Hettinger, *The Future of Radio as an Advertising Medium*, 7 J. BUS. U. CHI. 283 (1934); Arthur C. Nielsen, *Trends Toward Mechanization of Radio Advertising*, 6 J. MARKETING 217 (1942).

¹⁰⁴ There are practical difficulties in estimating the value of "attention currency," since it is unclear how much information the audience absorbs and even whether it avoids paying attention all together. See, e.g., Peter J. Danaher, *What Happens to Television Ratings During Commercial Breaks?*, 35 J. ADVERTISING RES. 37 (1995) (illustrating the decrease in television ratings during commercial breaks); Brian Steinberg & Brooks Barnes, *Nielsen Plans to Track Viewership of TV Commercials for First Time*, WALL ST. J., July 11, 2006, at A1 (discussing the monitoring of viewership of television commercials).

¹⁰⁵ Up to a certain level, audiences welcome some advertising. Beyond this level, advertising becomes a burden. The amount of advertising that audiences can tolerate varies across individuals and cultures. See generally Nathalie Sonnac, *Readers' Attitudes Toward Press Advertising: Are They Ad-Lovers or Ad-Averse?*, 13 J. MEDIA ECON. 249 (2000) (arguing that circulation of newspapers should rise if readers like advertising); see also Roger D. Blair & Richard E. Romano, *Pricing Decisions of the Newspaper Monopolist*, 59 S. ECON. J. 721, 731 (1993) (suggesting that "circulation demand rises with increases in the quantity of advertising").

to disclose the fact that they are paid to provide certain content (i.e., advertising), thereby increasing awareness of the fact that the attention currency is paid.¹⁰⁶ This awareness is a direct burden of advertising on audiences.

2. *Types of Advertising Platforms*

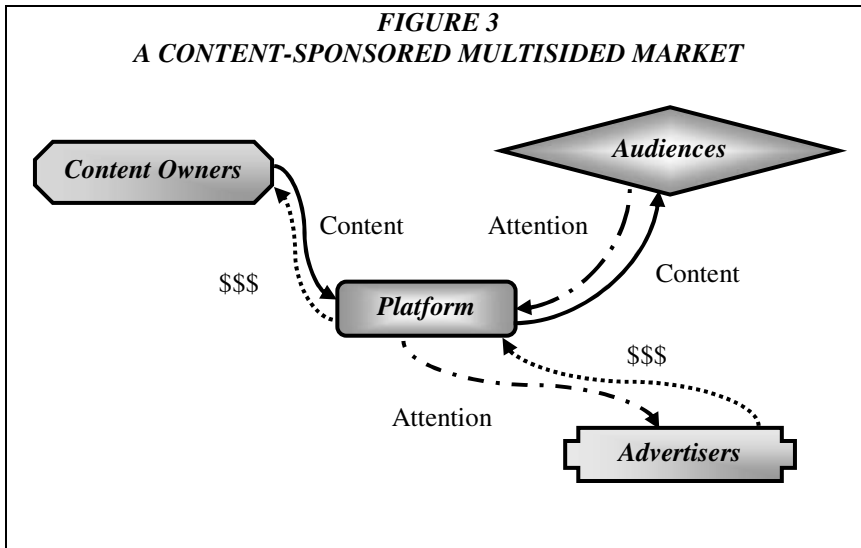
Common advertising platforms appear in two generic forms: *content-sponsored multisided markets* and *content-exchange multisided markets*. This section explains the nature of these platforms, as well as justifications and strategies for the imposition of liability on certain alleged indirect infringers that operate in advertising multisided markets.¹⁰⁷

Content-sponsored multisided markets connect advertisers, audiences, and content owners. In such multisided markets, platforms charge advertisers for the audiences' attention, and they may also charge audiences for content, although the price that audiences pay is below the content costs. The proceeds collected from advertisers and audiences are paid to content owners or finance content production.¹⁰⁸ Familiar examples of content-sponsored platforms include television networks, radio stations, and newspapers. *Figure 3* depicts a content-sponsored platform in which the content is fully subsidized.

¹⁰⁶ See, e.g., 47 U.S.C. §§ 317, 508 (2006) (requiring sponsorship identification when a matter is broadcast for consideration); 47 C.F.R. §§ 73.1212, 73.418 (2007) (regulating the sponsorship identification); 18 U.S.C. § 1734 (2006) (requiring publishers and editors of mailed materials to label content published for consideration as "advertisement"). See also generally Richard Kielbowicz & Linda Lawson, *Unmasking Hidden Commercials in Broadcasting: Origins of the Sponsorship Identification Regulations, 1927–1963*, 56 FED. COMM. L.J. 329 (2003–2004).

¹⁰⁷ Advertising platforms that directly infringe copyrights are quickly sued and regularly lose in court. This was the situation when newspapers adopted the business model of advertising platforms. See, e.g., *Journal Pub. Co. v. Drake*, 199 F. 572 (9th Cir. 1912) (holding liable newspaper that published copyrighted photo without permission); *McDonald v. Hearst*, 95 F. 656 (N.D. Cal. 1899) (holding liable newspaper that published copyrighted map without permission). Similarly, this was the situation when the first advertising-sponsored radio stations appeared. See, e.g., *M. Witmark & Sons v. L. Bamberger & Co.*, 291 F. 776 (D.N.J. 1923) (holding liable radio station for unauthorized performance of copyrighted song).

¹⁰⁸ When the platform produces content, it vertically integrates one side of the market, or at least operates on one of the sides. For discussion, see *infra* note 190.



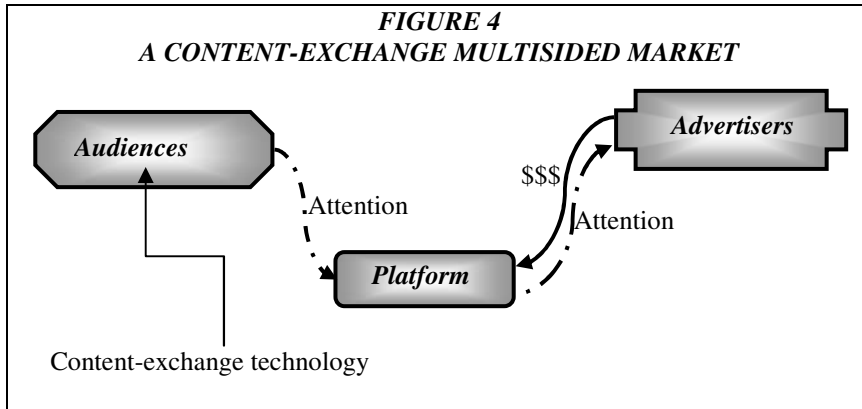
Piggybackers that allow audiences to avoid advertising in content-sponsored multisided markets indirectly disrupt the payment systems of these markets. This disruption ultimately affects the platforms' ability to attract advertisers and to pay content owners. As discussed below, the problem in such situations is that traditional copyright law protects copyright owners and not content distributors, including platforms.¹⁰⁹ In some circumstances, platforms may find remedies under the DMCA anti-circumvention provision,¹¹⁰ which represents a deviation from traditional copyright law. In *Sony*, content owners used indirect liability doctrines to attack a piggybacker that arguably threatened the viability of the business models of their distribution outlets.¹¹¹

Content-exchange multisided markets connect advertisers and audiences and capture audiences' attention through the provision of means to exchange content among members of the audience. *Figure 4* depicts a generic content-exchange multisided market.

¹⁰⁹ See *infra* Part I.A.

¹¹⁰ 17 U.S.C. § 1201 (2006). Such remedies include fines of \$250 to \$2,500 per violation, actual damages, and statutory damages representing three times actual damages for repeat copyright violators.

¹¹¹ See *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 479 (1984).



Exchanged content in such multisided markets is typically correspondence and notes created by members of the audience or audio, image, and video files. Free e-mail services and instant messengers are examples of content-exchange multisided markets in which the exchanged content is primarily correspondence. Most file-sharing applications fit the model of content-exchange multisided markets in which the exchanged content is audio, image, and video files. YouTube.com and its competitors offer another form of content-exchange multisided markets,¹¹² in which users exchange infringing and noninfringing materials.¹¹³ In this business model, the content remains on the platform database, so that users' exposure to advertisers is maximized because they cannot view the content without the advertising.

In content-exchange markets, the prevalence of infringing activities is likely to be related to the nature of the exchanged content. Where the exchanged content is standardized and multiple users offer identical content,

¹¹² See *supra* note 86 (describing YouTube.com's arrangements with copyright holders).

¹¹³ For an anecdotal report on copyrighted movies on YouTube.com, see Laura M. Holson, *Hollywood Asks YouTube: Friend or Foe?*, N.Y. TIMES, Jan. 15, 2007, at C1. For praises of exchanged, uncopyrighted works through YouTube.com, see Lev Grossman, *Time's Person of the Year: You*, TIME, Dec. 13, 2006. One of the most celebrated examples of this new wave of creativity is the story of "Bree" (also known as "Lonelygirl15") who starred in a series of popular original video clips (i.e., *noninfringing* works). The clips suggested that Bree, the home-schooled daughter of strictly religious parents, uploaded video blogs of her innermost thoughts. See Brian M. Carney, *Fact or Fiction? On YouTube We'll Never Know*, WALL ST. J., Sept. 8, 2006, at W13; Virginia Heffernan & Tom Zeller Jr., *Well, It Turns Out that Lonelygirl Really Wasn't*, N.Y. TIMES, Sept. 13, 2006, at C1; Julie Bosman, *Trying to Figure Out How Much Tease Is Too Much*, N.Y. TIMES, Sept. 19, 2006, at C5.

the likelihood that exchanges involve infringing materials is high. Content standardization is a market feature, whereby, when multiple sources offer an identical content item, the platform groups them together to facilitate faster or more reliable exchanges. Standardized content could be copyrighted works, such as songs,¹¹⁴ images, and movies, but it could also be uncopyrighted works, such as the bible, national anthems, or court decisions.

As demonstrated by the file-sharing litigation, the source of the concerns regarding standardized content is that, in reality, the level of exchange of copyrighted content is overwhelmingly greater than that of uncopyrighted content. Put simply, while content standardization by platforms is not a conclusive indication that all exchanged content is copyrighted, the probability that such infringements occur is high. This likelihood, however, is not the strongest justification for the imposition of liability on content-exchange platforms. Rather, because filtering copyrighted materials is possible when content is standardized,¹¹⁵ a failure to install filtering mechanisms could justify the imposition of secondary liability. In *Grokster*, Justice Souter noted that the lack of “effort to filter copyrighted material from users’ downloads” was an indication that the principal object of the defendants’ business model was to facilitate downloads of copyrighted works.¹¹⁶ Justice Breyer, however, was reluctant to draw any conclusions from the absence of filtering mechanisms.¹¹⁷ The analysis of content-exchange platforms supports the view that courts ought to factor the installation (or lack thereof) of filtering systems in considering secondary liability of such platforms.

¹¹⁴ Songs include sheet music. See Bob Tedeschi, *Now the Music Industry Wants Guitarists to Stop Sharing*, N.Y. TIMES, Aug. 21, 2006, at C1 (describing the music industry’s threats of copyright lawsuits used to shut down guitar tablature web sites that facilitate exchange of tips on how to play melodies on guitar).

¹¹⁵ Filtering standardized content is possible because the grouping element of the standardization requires an analysis of the content profile. Once such an analysis is conducted, the profile could be compared to profiles of copyrighted works. Such filtering systems are unlikely to be perfect, but they could substantially reduce unauthorized traffic of copyrighted works. For technologies that identify profiles of copyrighted materials, see Brad Stone & Miguel Helft, *New Weapon in Web War over Piracy*, N.Y. TIMES, Feb. 19, 2007, at C1; Kevin J. Delaney et al., *Policing Web Video with ‘Fingerprints’*, WALL ST. J., Apr. 23, 2007, at B1.

¹¹⁶ *MGM Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005).

¹¹⁷ See *id.* at 958 (Breyer, J., concurring)

IV. DIAGNOSIS OF DUAL-USE TECHNOLOGIES

A. *Dual-Use Technologies Are Not All Alike*

Sony's safe harbor represents a judicial choice to shield any technology that is "capable of substantial noninfringing uses," with no distinctions among properties of dual-use technologies.¹¹⁸ This judicial choice presumably equates "VCRs, typewriters, tape recorders, photocopiers, computers, cassette players, compact disc burners, digital video recorders, MP3 players, Internet search engines, and peer-to-peer software."¹¹⁹ Notwithstanding, courts did not allow *Napster*,¹²⁰ *Aimster*,¹²¹ and *Grokster*¹²² to use this shield. In *Napster*, the Ninth Circuit focused on *Napster's* ability to control traffic in its system; unlike *Sony*, *Napster* had actual knowledge that specific infringing materials were available on its system and could remove these materials.¹²³ In *Aimster*, the defendant encrypted users' communications to avoid knowledge of infringements.¹²⁴ The Seventh Circuit held that, because the defendant should have known of the direct infringements, the defendant's willful blindness constituted knowledge that could establish liability.¹²⁵ The attempt of *Grokster's* defendants to sail into *Sony's* safe harbor was no more successful.¹²⁶ The Supreme Court refused to absolve them of liability because "nothing in *Sony* requires courts to ignore evidence of intent,"¹²⁷ and the defendants "acted with a purpose to cause copyright violations."¹²⁸ Thus, while *Sony's* safe harbor is still the stated governing rule, in practice, courts regularly carve out exceptions for dual-use technologies that, they believe, do not deserve *Sony's* protection.

This Part explains the functional differences among categories of dual-use technologies. Specifically, the analysis identifies two distinct groups of dual-use technologies: conventional and advanced dual-use technologies. *Conventional dual-use technologies*, such as typewriters and photocopiers,

¹¹⁸ *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 442 (1984).

¹¹⁹ *Grokster*, 545 U.S. at 957 (Breyer, J., concurring).

¹²⁰ *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1029 (9th Cir. 2001).

¹²¹ *In re Aimster Copyright Litig.*, 334 F.3d 643, 656 (7th Cir. 2003).

¹²² *Grokster*, 545 U.S. at 948.

¹²³ *See Napster*, 239 F.3d at 1021–22.

¹²⁴ *Aimster*, 334 F.3d at 650.

¹²⁵ *Id.*

¹²⁶ *See Grokster*, 545 U.S. at 941.

¹²⁷ *Id.* at 915.

¹²⁸ *Id.* at 938.

could appear in any market. *Advanced dual-use technologies*, such as video recording devices and file-sharing services, intervene in or operate multisided markets.¹²⁹

This Part argues that the functioning characterization of dual-use technologies provides practical differentiating criteria that courts could apply when addressing cases of indirect liability of providers of dual-use technologies.

B. Properties of Alleged Indirect Infringers

As discussed above,¹³⁰ the two general justifications for indirect copyright liability are enforcement practicability and inducement. This section highlights two properties of alleged indirect infringers that could put an alleged infringer in a position to be an effective gatekeeper (a superior enforcer) or could suggest that it furthers infringement (an inducer).

1. Unauthorized Provision of Access to Copyrighted Works

A person who wishes to create an unauthorized copy of a copyrighted work with his typewriter or photocopier must first obtain a copy of the work. By contrast, file-sharing services offer such a person access to copyrighted works. The unauthorized provision, facilitation, or sale of access to copyrighted works is a form of inducement that justifies indirect liability. Furthermore, a party who provides, facilitates, or sells access functions as a gatekeeper, since its cooperation is required for the specific access. Thus, the provision, facilitation, or sale of access to copyrighted works justifies the imposition of indirect liability also under the enforcement practicability rationale.

In *Sony*, Justice Stevens essentially endorsed this view. Writing for the majority, he explained that the provision of copyrighted works justified liability in *Kalem*,¹³¹ but not in *Sony*.¹³² In *Kalem*, a producer of an unauthorized film dramatization of a copyrighted book was held contributorily liable for the commercial exhibition of the film by exhibitors because he “did not merely provide the ‘means’ to accomplish an infringing activity; [he also]

¹²⁹ There may be other types of dual-use technologies that do not perfectly fit into any of these categories. This Article, however, only seeks to map the common types of dual-use technologies.

¹³⁰ See *supra* Part I.B.

¹³¹ *Kalem Co. v. Harper Bros.*, 222 U.S. 55 (1911).

¹³² *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

supplied the work itself.”¹³³ By contrast, Sony did not supply VCR users with copyrighted works, and therefore, Justice Stevens ruled that *Kalem* did not support the plaintiffs’ “novel theory of liability.”¹³⁴

Typewriter and photocopier manufacturers, as well as providers of many other technologies, do not provide, facilitate, or sell access to copyrighted works. By contrast, content platforms provide or facilitate access to copyrighted and uncopyrighted works. In marketplace and content-exchange multisided markets, platforms allow users to exchange or trade in copyrighted works, thereby facilitating access to such works. This facilitation of access constitutes indirect sales because, as the analysis shows, the platforms’ revenues are related to the use of the access to content. Put simply, access to content is the wheels of commerce in these markets.

2. Gatekeeping Capacity

A gatekeeping capacity, the ability to inexpensively disrupt misconduct, is one of the rationales for secondary liability.¹³⁵ Some providers of dual-use technologies, especially those whose technologies are services,¹³⁶ are in positions that allow them to disrupt infringing activities at low cost. Under copyright law, this ability to block infringing activities may be regarded as the right and ability to supervise infringing activities—a right that may give rise to vicarious liability.¹³⁷ Courts, however, are somewhat reluctant to impose indirect liability on a party with a gatekeeping capacity, absent additional factors, such as actual knowledge of infringing activities or intent to promote such activities.

In *Sony*, the district court and the Supreme Court were unwilling to impose indirect liability for the failure to exercise gatekeeping powers.¹³⁸ The district court was unwilling to allow expert testimony as to the feasibility of installing a jamming device that would prevent unauthorized taping of copyrighted television shows. In declining the plaintiff’s request to allow such testimony, the district court noted:

¹³³ *Sony*, 464 U.S. at 437 (discussing *Kalem*).

¹³⁴ *Id.* at 437.

¹³⁵ See *supra* Part I.B. See generally Kraakman, *Gatekeepers*, *supra* note 11.

¹³⁶ Randal Picker correctly points out that the service-equipment distinction is blurred in the case of networked technologies. See Picker, *supra* note 18, at 755. Many manufacturers continue to have some control over sold products through software and firmware updates. See *id.* at 757.

¹³⁷ See *supra* note 15 and accompanying text.

¹³⁸ See *Sony*, 464 U.S. at 456.

As sure as you or I are sitting in this courtroom today, some bright young entrepreneur, unconnected with Sony, is going to come up with a device to unjam the jam. And then we have a device to jam the unjamming of the jam, and we all end up like Jelly.¹³⁹

The Supreme Court in *Sony* went even further, holding that the defendant was not “in a position to control the use of copyrighted works by others” because the only contact it had with users of its VCRs “occurred at the moment of sale.”¹⁴⁰ At that point, the defendant might have had constructive knowledge that users would use VCRs to make unauthorized copies of shows. Yet the Court insisted that constructive knowledge was insufficient for the imposition of secondary liability.¹⁴¹ This requirement for actual knowledge departs from the gatekeeping rationale that relies on the ability of a party to inexpensively disrupt misconduct regardless of actual knowledge.¹⁴²

In the file-sharing cases, the Seventh and Ninth Circuits held defendants liable for infringements by users because of their unexercised gatekeeping capacities and actual knowledge of infringing activities. In *Napster*, the Ninth Circuit held that the defendant was liable because, as a service provider, “Napster ha[d] actual knowledge that specific infringing material [was] available [on] its system, . . . it could block access [of] suppliers of the infringing material, and . . . it failed to [do so].”¹⁴³ In *Aimster*, the Seventh Circuit held that the defendant’s encryption of users’ communication was

¹³⁹ JAMES LARDNER, FAST FORWARD: A MACHINE AND THE COMMOTION IT CAUSED 104–05 (rev. ed., 2002) (quoting the district court).

¹⁴⁰ *Sony*, 464 U.S. at 437–38.

¹⁴¹ Writing for the narrow 5–4 majority, Justice Stevens explained there was no precedent in copyright law for the imposition of vicarious liability when the alleged indirect infringer only had constructive knowledge that users would use its technology for infringing activities. *Id.* at 439. Justice Blackmun, writing for the dissent, argued that for contributory liability, constructive knowledge is sufficient. *Id.* at 487–88 (Blackmun, J., dissenting).

¹⁴² In *Grokster*, the Court thought that it was unnecessary to revise *Sony*’s requirement for actual knowledge. *MGM Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913, 934–38 (2005). The DMCA’s safe-harbor provision exempts internet intermediaries from liability for infringing activities of users only if they lack actual or constructive knowledge of such activities. 17 U.S.C. § 512 (2006). Under this provision, constructive knowledge is awareness of “facts or circumstances from which infringing activity is apparent.” *Id.* § 512 (c)(1)(A)(ii) (2006). Internet intermediaries are similar to platforms because they may connect members of different, distinct groups, but they may also connect members of the same group. Their role in facilitating and promoting connections and transactions among members of different groups is passive compared to that of platforms. The present controversy over net neutrality is a product of Internet intermediaries’ interest in capturing some of the indirect network externalities that they generate in their platform-like functioning. For a general discussion of net neutrality, see Robert W. Hahn, Robert E. Litan & Hal J. Singer, *The Economics of “Wireless Net Neutrality,”* 3 J. COMPETITION L. & ECON. 399 (2007).

¹⁴³ *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1022 (9th Cir. 2001).

willful blindness that, under copyright law, constituted the required knowledge to establish contributory liability.¹⁴⁴ Furthermore, writing for the Seventh Circuit in *Aimster*, Judge Posner emphasized that “the ability of a service provider to prevent its customers from infringing is a factor . . . in determining whether the provider is a contributory infringer.”¹⁴⁵ The Supreme Court in *Grokster* was less decisive about the implications of unexercised gatekeeping capacities and held the defendants liable because of their intent to promote infringements.¹⁴⁶ Writing for the Court, Justice Souter regarded the defendants’ lack of efforts to screen infringing activities as an indication of intent,¹⁴⁷ while Justice Breyer interpreted *Sony* to say that courts do not necessarily need to rule on whether an alleged indirect infringer possesses monitoring capacity.¹⁴⁸

The present case law, therefore, is inconsistent with the rationale underlying secondary liability. A correct implementation of this rationale is likely to simplify the examination of potential liability of alleged indirect infringers that function as platforms in multisided markets. The nature of multisided markets places platforms in strategic positions to serve as gatekeepers, although they may have imperfect information about traffic in their markets.¹⁴⁹ The case of non-platform alleged indirect infringers is more complex, because it is more difficult to assess their gatekeeping capacities. Still, some non-platform providers of dual-use technologies can serve certain gatekeeping functions, at least by designing and re-designing their products to exclude certain types of uses.¹⁵⁰ For example, DVR manufacturers already design their products to prevent the taping of on-demand shows, and they could prevent other allegedly infringing uses. Moreover, their remote firmware updates allow them to continuously control certain uses of their products, including barring commercial skipping.¹⁵¹ By contrast, typewriter and photocopier manufacturers cannot prevent users from copying copyrighted works.

¹⁴⁴ *In re Aimster Copyright Litig.*, 334 F.3d 643, 650 (7th Cir. 2003).

¹⁴⁵ *Id.* at 648.

¹⁴⁶ *Compare Grokster*, 545 U.S. at 935, with *Aimster*, 334 F.3d at 648.

¹⁴⁷ *Grokster*, 545 U.S. at 925–26.

¹⁴⁸ *Id.* at 958 (Breyer, J., concurring); see also text accompanying *supra* notes 115–17.

¹⁴⁹ See *supra* Part III.

¹⁵⁰ See, e.g., Picker, *supra* note 18; Randal C. Picker, *The Digital Recorder: Unbundling Advertising and Content*, 71 U. CHI. L. REV. 205 (2004) [hereinafter Picker, *The Digital Recorder*].

¹⁵¹ Picker, *The Digital Recorder*, *supra* note 150, at 217; see also Brooks Barnes, *ABC, Cox Bar Ad Skipping in Video on Demand*, WALL ST. J., May 8, 2007, at B1 (reporting that certain content providers had disabled commercial-skipping for on-demand cable viewing).

C. *Conventional Dual-Use Technologies*

Conventional dual-use technologies, such as typewriters and photocopiers, neither provide, facilitate, or sell access to copyrighted works, nor do they possess any gatekeeping capacities. For this reason, theories of secondary liability do not justify the imposition of indirect liability on providers of such technologies.

Sony's substantial-noninfringing-use test intends to protect conventional dual-use technologies, because "if liability for contributory infringement were imposed on the [provider] of every product used to infringe—a typewriter, a camera, a photocopying machine—the 'wheels of commerce' would be blocked."¹⁵² This test, however, has little to do with the properties that may justify the imposition of indirect liability.

D. *Advanced Dual-Use Technologies*

Advanced dual-used technologies provide, facilitate, or sell unauthorized access to copyrighted works and may possess gatekeeping capacities. Providers of dual-use technologies that possess one of these properties are likely to operate in multisided markets. This section further develops the distinction between piggybackers that free ride on multisided markets and freeloading platforms that operate multisided markets.

1. *Piggybackers*

a. *General Characteristics*

Piggybackers free ride on multisided markets. As in the general case of free-riding, piggybackers' free-riding may come at the expense of other market participants but may also enhance value. For example, in broadcasting markets, a piggybacker may cause losses to some participants if it allows viewers to watch shows without paying the monetary and attention fees.¹⁵³ By contrast, early community antenna television systems (CATVs) piggybacked public television systems by picking up signals and retransmitting them to subscribers who had no reception, thereby enhancing value by allowing more

¹⁵² *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 491 (1984) (Blackmun, J., dissenting) (endorsing applicability of staple article-of-commerce doctrine to copyright law, but questioning its specific applicability to Betamax).

¹⁵³ *See, e.g., Cable/Home Commc'n Corp. v. Network Prods., Inc.*, 902 F.2d 829 (11th Cir. 1990) (holding that cable descramblers violated rights of providers of pay television).

viewers to watch broadcasted shows while paying with attention.¹⁵⁴ For simplicity, this Article analyzes only “dual-use piggybackers” that represent third parties who introduce positive and negative effects into multisided markets. While there have been incidents, such as some of the early CATV cases,¹⁵⁵ in which copyright holders have sued piggybackers that only enhanced value, the logic of such actions (or lack thereof) is beyond the scope of this Article. Similarly, the case of strictly negative piggybackers that only reduce value in multisided markets by allowing parties to avoid payments is straightforward and not discussed here.¹⁵⁶

Piggybackers allow users to alter connections in a multisided market and disrupt existing allocations of indirect network externalities. For example, as discussed in greater detail in the subsequent section, one of the effects of video-recording technologies is the disruption of the indirect network externalities that the connections between television viewers and advertisers generate.

Copyright law, however, does not protect indirect network externalities in markets for copyrighted content. Copyright law envisions simple business models in which copyright holders collect revenues from the sales and licensing of their works. Accordingly, the law vests exclusive rights to control such trade in copyright holders.¹⁵⁷ Presently, copyright law does not protect alternative business models in which revenues are collected from products that are bundled with copyrighted content, such as commercials and advertisements.¹⁵⁸ The DMCA anti-circumvention provision¹⁵⁹ offers some protection for multisided markets, in that circumvention of technological protection measures could be illegal under certain circumstances.¹⁶⁰ Thus, a

¹⁵⁴ United States v. Sw. Cable Co., 392 U.S. 157, 161 (1968). See generally MARY ALICE PHILLIP MAYER, CATV: A HISTORY OF COMMUNITY ANTENNA TELEVISION (1972).

¹⁵⁵ See, e.g., Fortnightly Corp. v. United Artists Television, Inc., 392 U.S. 390 (1968) (adjudicating infringement claim by owner of copyrights in motion pictures against owner of CATV station).

¹⁵⁶ Two prime examples of strictly negative piggybackers are (1) cable descramblers that allow television viewers to connect to a cable system without paying connection fees; and (2) means to circumvent the geographic coding of DVDs. See, e.g., *Network Prods.*, 902 F.2d 829 (considering a claim of infringement where cable descramblers allowed users to access subscription television channels without paying subscription fees).

¹⁵⁷ See, e.g., 17 U.S.C. § 106 (2000) (vesting in copyright holders exclusive rights to reproduce works, prepare derivative works, distribute copies of works, perform or display works publicly, and to perform sound recordings publicly by means of a digital audio transmission).

¹⁵⁸ See Picker, *The Digital Recorder*, *supra* note 150 (discussing copyright law’s treatment of alternative business models).

¹⁵⁹ 17 U.S.C. § 1201 (2006).

¹⁶⁰ See *id.* (delineating the relevant circumstances).

platform that installs technological protection measures may have a cause of action against piggybackers who allow users to circumvent its protection measures. This value of the DMCA anti-circumvention provision hardly justifies its broad coverage of any circumvention protection measures and prevents legitimate fair use.¹⁶¹

A modernized copyright law should protect indirect network externalities in markets for copyrighted content in order to encourage inexpensive provision of content. For example, copyright law could treat the unbundling of content and advertising as copyright infringement.¹⁶² Indeed, some courts were open to consider advertising-avoidance as an unauthorized creation of derivative works.¹⁶³ Such rules, or alternative ones that protect markets from negative piggybacking, necessarily entail a shift in traditional copyright paradigms because they would protect the distribution of copyrighted content, i.e., the wheels of commerce.

b. VCRs: The Piggybacker Archetype

To illustrate the problem of dual-use piggybackers, consider again the facts of *Sony*. In *Sony*, a VCR manufacturer piggybacked the multisided markets of television networks which connected audiences, advertisers, and content owners—in other words, content-sponsored multisided markets.¹⁶⁴ The VCRs allowed television viewers to tape shows and to avoid commercials.¹⁶⁵ These two features were valuable for consumers because they allowed consumers to control consumption time, build private content libraries, and avoid attention

¹⁶¹ Although analysis of the DMCA anti-circumvention provision is beyond the scope of this Article, several observers have addressed the topic. See, e.g., Burk, *supra* note 101 (discussing the application of the misuse doctrine to the anti-circumvention right); David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673 (2000) (discussing section 1201 and fair use); see also *Chamberlain Group, Inc. v. Skylink Techs., Inc.*, 381 F.3d 1178 (Fed. Cir. 2004) (applying the anti-circumvention protection to technology that identifies garage-door openers); *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522 (6th Cir. 2004) (applying the anti-circumvention protection to technology that identifies printers' cartridges).

¹⁶² See Picker, *The Digital Recorder*, *supra* note 150 (describing the court's refusal to do so in *Paramount Pictures Corp. v. Video Broadcasting Systems, Inc.*, 724 F. Supp. 808 (D. Kan. 1989)).

¹⁶³ See, e.g., *WGN Cont'l Broad. Co. v. United Video, Inc.*, 693 F.2d 622, 625 (7th Cir. 1982) (holding satellite common carrier liable for copyright infringement for stripping "teletext" from broadcasting); see also 17 U.S.C. § 111 (2006) (providing that retransmission of broadcasting while editing content including any advertising may incur copyright liability); cf. *NFL v. McBee & Bruno's, Inc.*, 792 F.2d 726, 730–32 (8th Cir. 1986) (addressing copyrights in broadcasting of sports event and holding that "the game, and not the inserted commercials and station breaks, constituted the work of authorship").

¹⁶⁴ *Sony Corp. of Am. v. Universal City Studios*, 464 U.S. 417, 423 (1984).

¹⁶⁵ *Id.*

payments.¹⁶⁶ One of the core issues in *Sony* was the evaluation of the impact of this piggybacking on the market.¹⁶⁷

The control over consumption time, commonly known as “time shifting,”¹⁶⁸ increased content consumption because viewers could watch shows at their convenience rather than during broadcasting time.¹⁶⁹ The *Sony* Court implicitly assumed that the commercial value the market generates is based on the volume of consumed content.¹⁷⁰ Accordingly, the Court concluded that time shifting was value-enhancing. This conclusion is rather shaky, because it ignores the characteristics of content-sponsored advertising multisided markets. The link between consumed volume of content and commercial value depends on the ability to capture the audience’s attention and to sell it to advertisers. When time shifting also enables advertising avoidance, it diminishes the value that the multisided market generates because the stream of advertising revenues is likely to decrease.

Content storage provides benefits to viewers beyond simply time shifting. It also enables transformation of content from perishable form (broadcasting viewing) into durable form (a videotape). When durable and perishable goods fulfill the same function, such as watching a particular show, the durable good’s price is higher than the perishable good’s price because the durable good can be used multiple times.¹⁷¹ Thus, when content storage is possible, negotiations between broadcasters and copyright holders over licensing pricing become complex. In *Sony*, however, the majority was convinced that video recording was used primarily for time shifting and only marginally for “library building.”¹⁷² Therefore, the majority dismissed the argument that video

¹⁶⁶ *Id.*

¹⁶⁷ *See id.* at 450.

¹⁶⁸ The term “time shifting” describes the practice of recording a show in order to watch it later.

¹⁶⁹ *Sony*, 464 U.S. at 421.

¹⁷⁰ *See id.* The Court stated that:

[A] significant amount of television programming may be used [through time shifting] without objection from the owners of the copyrights on the programs [E]ven the [plaintiffs], who do assert objections to time-shifting[,] were unable to prove that the practice has impaired the commercial value of their copyrights or has created any likelihood of future harm.

Id.

¹⁷¹ For an analysis of pricing durable and perishable goods, see Barak Y. Orbach, *The Durapolist Puzzle: Monopoly Power in Durable-Goods Markets*, 21 YALE J. ON REG. 67 (2004).

¹⁷² *See Sony*, 464 U.S. at 423.

recording would entail loss of value to the copyright holders.¹⁷³ In the music industry, the battle over the ability to transform content from perishable form into durable form has never settled, and the recording companies consistently challenge, with some degree of success, the legality of means that facilitate content storage.¹⁷⁴

The third effect of content storage, advertising avoidance, concerns the incentives of advertisers to pay fees when VCR users escape attention payments. Reduced attention lowers advertisers' willingness to pay and, therefore, curtails the ability of advertising platforms to pay for content. Early VCRs did not have a precise fast-forward feature that could allow convenient commercial skipping.¹⁷⁵ Possibly for this reason, the *Sony* Court dismissed with no analysis the argument regarding losses associated with commercial skipping.¹⁷⁶ Some twenty years after the *Sony* Court handed down its decision, RePlayTV introduced DVRs that were equipped with a commercial-avoidance feature and could send copies of televised programs via the Internet.¹⁷⁷ Copyright owners sued RePlayTV and its parent company, SONICblue, and

¹⁷³ See *id.* at 421, 423–24 & 443–56. The dissent framed the loss resulting from the transformation of perishable works to durable works as a loss of potential markets for taped shows. See *id.* at 485–86 (Blackmun, J., dissenting).

¹⁷⁴ See, e.g., *RealNetworks, Inc. v. Streambox, Inc.*, No. 2:99CV02070, 2000 WL 127311 (W.D. Wash. Jan. 18, 2000) (granting preliminary injunction against producer of technology that allowed users of music streaming services to download music to their computers); *Atl. Recording Corp. v. XM Satellite Radio, Inc.*, No. 06 Civ. 3733(DAB), 2007 WL 136186 (S.D.N.Y. Jan. 19, 2007) (denying motion to dismiss complaint of record labels against XM Satellite Radio for its XM+MP3 service that allows users to download music); see also Sarah McBride, *Music Industry Sues XM over Replay Device*, WALL ST. J., May 17, 2006, at B1 (describing the dispute between the music industry and the radio satellite companies over devices that allow to store individual songs). In March 2007, the National Music Publishers' Association filed a lawsuit against XM Satellite Radio for its XM+MP3 service. See Complaint, *Famous Music LLP v. XM Satellite Radio, Inc.*, No. 07-2385 (S.D.N.Y. filed Mar. 22, 2007), available at http://www.nmpa.org/pdf/press_releases/Complaint.pdf; see also Audio Home Recording Act of 1992, 17 U.S.C. §§ 1001–1010 (2006) (providing an elaborate royalty scheme to compensate copyright holders for copying). For an example of a case where an association sued a maker of an mp3 player for copyright infringement, see *Recording Industry Association of America v. Diamond Multimedia Systems*, 180 F.3d 1072 (1999).

¹⁷⁵ Sony conducted a survey that showed that its VCRs were used primarily for time shifting, not for library building or for commercial skipping. *Sony*, 464 U.S. at 423–24.

¹⁷⁶ *Id.* at 452 n.36. Notwithstanding, the Court characterized the ability to avoid commercials as a “noteworthy” capacity. *Id.* at 422–23. The dissent mentioned the commercial-avoidance ability and criticized the district court's reluctance to evaluate its impact on advertising revenues, but did not address it. See *id.* at 460 n.1, 483–84 (Blackmun, J., dissenting). Furthermore, the dissent believed that video home-recording did not constitute fair use primarily because it added no productive value. See *id.* at 479–80. In *Aimster*, Judge Posner discussed the commercial-skipping feature of VCRs that was raised in *Sony* and explained why it would reduce the revenues of copyright holders. See *In re Aimster Copyright Litig.*, 334 F.3d 643, 647–48 (7th Cir. 2003).

¹⁷⁷ See *Paramount Pictures Corps. v. RePlayTV*, 298 F. Supp. 2d 921, 923 (C.D. Cal. 2004).

subsequently SONICblue filed for bankruptcy.¹⁷⁸ With the bankruptcy court's approval, RePlayTV was sold to a third party that stripped the commercial-avoidance and internet distribution features from the DVRs.¹⁷⁹

To sum, the case of video recording technologies illustrates that a shift in copyright paradigms that would allow protection of markets for copyrighted works is likely to promote commerce.

2. *Freeloading Platforms*

a. *General Characteristics*

Freeloading platforms accommodate infringing activities to “enhance the attractiveness of the venue to potential customers”¹⁸⁰ in order to increase the indirect network externalities that they generate. Put differently, freeloading platforms facilitate unauthorized access to copyrighted works. As platforms, they are also in a position to serve as gatekeepers.

There are two types of suspected freeloading platforms: marketplace platforms and content-exchange advertising platforms. Marketplace platforms may accommodate sales and performances of infringing materials. Examples of such platforms include physical and online marketplaces,¹⁸¹ dance halls,¹⁸² trade shows,¹⁸³ and old movie theaters.¹⁸⁴ Content-exchange advertising platforms capture audiences' attention by providing audiences with means to infringe copyrights. File-sharing applications, such as Grokster, Napster, and Kazaa, provide the classic example for this type of freeloading platform.¹⁸⁵ Video-sharing platforms, such as YouTube.com, offer a different business

¹⁷⁸ *See id.*

¹⁷⁹ *Id.*

¹⁸⁰ *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 263–64 (9th Cir. 1996).

¹⁸¹ *E.g., id.* (flea market); *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304 (2d Cir. 1963) (department store); *Hendrickson v. Amazon.com, Inc. (Hendrickson II)*, 298 F. Supp. 2d 914 (C.D. Cal. 2003) (online marketplace); *Hendrickson v. eBay, Inc. (Hendrickson I)*, 165 F. Supp. 2d 1082 (C.D. Cal. 2001) (online auction web site).

¹⁸² *E.g., Ball Room, Inc. v. Shapiro, Bernstein & Co.*, 36 F.2d 354 (7th Cir. 1929).

¹⁸³ *E.g., Polygram Int'l Pub., Inc. v. Nevada/TIG, Inc.*, 855 F. Supp. 1314 (D. Mass. 1984).

¹⁸⁴ *E.g., M. Witmark & Sons v. Pastime Amusement Co.*, 298 F. 470 (E.D.S.C. 1924); *Harms v. Cohen*, 279 F. 276 (E.D. Pa. 1922).

¹⁸⁵ *See, e.g., Grokster*, 545 U.S. 913 (2005); *Napster*, 239 F.3d 1004 (9th Cir. 2001); McBride, *supra* note 39.

model in which users share copyrighted and uncopyrighted video clips without downloading the clips to their own computers.¹⁸⁶

Thus far, courts and scholars have failed to identify the properties of alleged indirect infringers as platforms, although a few commentators have studied the role of alleged indirect infringers as intermediaries and gatekeepers.¹⁸⁷ The refined characterization of freeloading platforms shows that the wheels of commerce that freeloading platforms turn are somewhat fictitious because they substitute for trade in copyrighted works.

b. Freeloading Marketplace Platforms

Consider first the case of marketplace platforms. The concerns regarding infringing activities in physical marketplaces, such as dance halls, flea markets, or department stores, are similar to infringing activities in online marketplaces, such as eBay and Amazon Marketplace.¹⁸⁸

The gatekeeping rationale calls for the imposition of liability when the alleged indirect infringer is in the position to disrupt infringing activities in a cost-effective way. The analysis of marketplace platforms explains when a marketplace platform is in the position to monitor inexpensively activities of users.¹⁸⁹ The analysis also emphasizes the incentives that marketplace platforms have to facilitate infringements due to the generated indirect network externalities.¹⁹⁰ These incentives offer an additional justification for the

¹⁸⁶ See *supra* note 86 (discussing copyright issues and file-sharing business models); see also Peter Grant, *Coming to Your TV—Homemade Hamster Videos?*, WALL ST. J., Nov. 8, 2006, at B1; Tim Wu, *Does YouTube Really Have Legal Problems?*, SLATE, Oct. 26, 2006, <http://slate.com/id/2152264>.

¹⁸⁷ See, e.g., Tim Wu, *When Code Isn't Law*, 89 VA. L. REV. 679, 711–17 (2003) (discussing the history and “erosion” of the gatekeeper system in copyright enforcement); Jonathan Zittrain, *A History of Online Gatekeeping*, 19 HARV. J.L. & TECH. 253 (2006) (studying the history of gatekeeping duties in cyberspace). This writing built on the literature of gatekeeping in cyberspace. See Hamdani, *supra* note 34; Lichtman & Posner, *supra* note 34. It is noteworthy that Wu’s observations were part of a broader and influential study on the political economy of anti-circumvention mechanisms.

¹⁸⁸ See *supra* note 181 and accompanying text.

¹⁸⁹ See *supra* Part III.A.

¹⁹⁰ See *id.* It is noteworthy that the financial benefits of conventional dual-use technologies and piggybackers are rarely related to the scope of infringing activities. Such link could happen only when they successfully tie perishable products required for infringing activities to the dual-use equipment. Examples for such tying schemes could be a typewriter manufacturer who successfully ties ink cartridges to its typewriters, a photocopier manufacturer who successfully forces users to use its maintenance services, or a VCR manufacturer who successfully prevents users from using tapes of other manufacturers. See, e.g., *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 464 (1992) (considering potential infringement by photocopier manufacturer who attempted to prevent users from hiring maintenance services from other companies); *RCA/Ariola Int’l, Inc. v. Thomas & Grayston*, 845 F.2d 773 (8th Cir. 1988) (considering potential

imposition of secondary liability on marketplace platforms that accommodate infringing activities.

Furthermore, the indirect network externalities that marketplace platforms generate contribute to the value of infringing activities for the direct infringers and for the platform. Direct infringers benefit from the externalities because, in marketplace platforms, these externalities correspond to volume of trade, which is the level of connectivity among buyers and sellers. The platform benefits from the externalities because it charges at least some of the connecting parties for various fees, which are roughly related to the volume of trade. That value of infringing activities could be used to establish elements of present indirect liability theories. Under the theory of vicarious liability, the value of infringements for the alleged indirect infringer is the element of direct financial interest in the infringements.¹⁹¹ Under the theory of contributory liability, the value of infringements for the direct infringers could suffice to establish the element of inducement to infringe copyrights, since incentives to infringe are related to the value of infringements.¹⁹²

The contribution to the value of infringing activities provides yet another justification for indirect liability, which is stronger than the gatekeeping justification. The organization of a business environment in which infringements are particularly beneficial for direct infringers and benefit the organizer puts the organizer in a position of an abettor. As far as fault matters

infringement of audiotape duplicating machine that allowed users to tape only on manufacturer's tapes). When a seller effectively ties to his product perishable complementary goods or services, his pricing follows the scope of use. Thus, for a given level of noninfringing uses, infringing users will pay more than users who do not use the product to infringe copyright. For analyses of tying and pricing, see M.L. Burstein, *The Economics of Tie-in Sales*, 42 REV. ECON. & STAT. 68 (1960), and Orbach, *supra* note 171, at 102–08. For modeling of this pricing method, see Walter Y. Oi, *A Disneyland Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly*, 85 Q.J. ECON. 77 (1971); and Lester G. Telser, *A Theory of Monopoly of Complementary Goods*, 52 J. BUS. 211 (1979).

¹⁹¹ See *supra* note 15 and accompanying text. In analyzing the value of a defendant's infringements, one court explained that:

[The defendant] contends that [its] benefits cannot satisfy the financial benefit prong of vicarious liability because a commission, directly tied to the sale of particular infringing items, is required The facts . . . , however, reflect that the defendants reap substantial financial benefits from admission fees, concession stand sales and parking fees, all of which flow directly from customers who want to buy the counterfeit recordings at bargain basement prices.

Fonovisa, Inc. v. Cherry Auction, Inc., 76 F.3d 259, 263 (9th Cir. 1996).

¹⁹² See *supra* note 16 and accompanying text; see also *MGM Studios v. Grokster*, 545 U.S. 913, 926 (2005) (“[O]ne infringes contributorily by intentionally inducing or encouraging direct infringement.”).

for liability, being an abettor places a party closer to the illegal act than the position of the cheapest enforcer.

c. Freeloading Content-Exchange Advertising Platforms

Consider now the case of content-exchange advertising platforms. Advertising platforms must offer bait to attract the audience's attention in order to sell it to advertisers. As discussed, this may be done in various ways. Content-sponsored multisided markets, such as television and radio stations, attract audiences with subsidized content. Likewise, Internet search engines integrate content production and offer audiences customized content—search results. Content-exchange multisided markets, such as file-sharing services and instant messengers, offer a different type of bait by allowing audiences to exchange copyrighted and uncopyrighted content.

The analysis of content-exchange multisided markets suggests that the standardization of the exchanged content could put alleged indirect infringers in a position to disrupt infringing activities at low costs, which justifies the imposition of indirect liability.¹⁹³

Furthermore, the standardization of content and the volume of users contribute to the value of infringing activities due to the generated direct and indirect network externalities. Direct infringers benefit from the standardization and volume because they shorten the time that the infringers need to spend to get an unauthorized copy of a work, which is equivalent to the exposure to the advertising burden. That is, the *direct* network externalities reduce the infringement costs for infringers (which are *indirect* network externalities in this case), thereby inducing them to commit infringements. The platform, in turn, leverages the volume of users into indirect network externalities by connecting users to advertisers. Again, the contribution to the value of infringing activities provide an additional justification for liability and could assist in establishing elements of theories of indirect liability and provides a strong justification for indirect liability.

CONCLUSION

Recent years have witnessed an explosion in copyright literature on potential indirect liability of providers of dual-use technologies. The existing

¹⁹³ See *supra* Part III.C.2.

studies offer deep and thorough analyses of various aspects of the topic, but all fail to identify a prevalent characteristic of disputes over dual-use technologies: they tend to arise in multisided markets. This Article makes the first step in filling this gap in the literature by mapping multisided content markets and diagnosing alleged indirect infringers.

The Article (1) examines typical characteristics of markets in which disputes over dual-use technologies tend to arise; (2) explains why indirect network externalities often turn the wheels of commerce in these markets; and (3) explores the legitimacy and vulnerability of such markets to alleged indirect infringers. This investigation offers two contributions to our understanding of copyright disputes. First, it provides an analytical framework for classifying cases and for distinguishing among alleged indirect infringers. Second, the focus on mechanisms of commerce exposes a critical inconsistency of the wheels-of-commerce argument.

The inconsistency of the wheels-of-commerce argument stems from the quest to promote dissemination technologies, while erroneously assuming that new technologies that cannibalize old technologies *necessarily* keep the capitalist engine in motion.¹⁹⁴ That flawed assumption, fashioned a la Schumpeter's creative destruction hypothesis,¹⁹⁵ ignores the fact that new technologies may undermine the operation of markets without creating new markets. In practice, the cannibalization of an old technology by a new one does not always represent the introduction of a superior substitute, but rather could be a product of a market failure in the form of free riding.

The proponents of the wheels-of-commerce argument mistakenly assume that the protection of new technologies *always* fosters trade and innovation. This mistake leads to willingness to sacrifice the present wheels of commerce

¹⁹⁴ 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 (2002) (arguing that with the advent of digital technology, "copyright is no longer needed to encourage distribution because consumers themselves build and fund the distribution channels for digital content").

¹⁹⁵ In his pioneering 1942 work, Joseph Schumpeter explained that the nature of technological progress relies on creative destruction, which means that new, improved technologies render existing technologies obsolete. See JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 81–86 (1942). Specifically, he argued that:

The fundamental impulse that sets and *keeps the capitalist engine in motion* comes from the new . . . goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates This process of Creative Destruction is the essential fact about capitalism.

Id. at 83 (emphasis added).

for the sake of free riders, without asking, in each particular case, who would turn the wheels of commerce once the free rider takes over the market.

APPENDIX A

<i>Category</i>	<i>Economic Property</i>	<i>Legal Implication(s)</i>	<i>Discussion</i>
<i>Market Characteristics</i>	<p><i>Multisided Markets:</i> High Prevalence in disputes over dual-use technologies.</p> <p><i>Direct and Indirect Network Externalities:</i> The value of connectivity and interactions.</p> <p><i>Marketplace Platforms:</i> Involvement in individual transactions.</p>	<p>Unique characteristics that may justify the imposition of indirect liability.</p> <p>Costs and benefits of infringing activities and the driving force behind disputes over common dual-use technologies.</p> <p>Right to control infringing parties (vicarious liability) or knowledge of the infringing activities (contributory liability).</p>	<p>pp. 419–22</p> <p>pp. 423–29</p> <p>p. 432</p>

<i>Category</i>	<i>Economic Property</i>	<i>Legal Implication(s)</i>	<i>Discussion</i>
	<p><i>Marketplace</i></p> <p>Platforms: Facilitation of trade in content to enhance the attractiveness of the venue.</p>	Potential indirect liability.	pp. 432–33
	<p><i>Content-Sponsored</i></p> <p>Multisided Markets: Circumvention undermines the viability of markets.</p>	Present copyright law does not protect markets for copyrighted content.	pp. 437–38
	<p><i>Content-Exchange</i></p> <p>Multisided Markets: Lack of filtering mechanisms.</p>	Potential indirect liability.	pp. 438–40

<i>Category</i>	<i>Economic Property</i>	<i>Legal Implication(s)</i>	<i>Discussion</i>
<i>Functioning of Alleged Indirect Infringers</i>	<p><i>Standard Platforms:</i> Third parties may provide means to circumvent the payment system.</p>	<p>This is not a case of dual-use technologies: The infringing means typically have no noninfringing uses. Potential indirect liability and direct liability under the DMCA.</p>	pp. 434–36
	<p><i>Unauthorized Provision of Access to Copyrighted Works.</i></p>	<p>Potential indirect liability.</p>	pp. 442–43
	<p><i>Gatekeeping Capacity.</i></p>	<p>Potential indirect liability. Presently, courts tend to discount this capacity.</p>	pp. 443–45

<i>Category</i>	<i>Economic Property</i>	<i>Legal Implication(s)</i>	<i>Discussion</i>
<i>Functioning of Alleged Indirect Infringers</i>	<p><i>Conventional Dual-Use Technologies:</i></p> <p>No provision of access to copyrighted content and no gatekeeping capacity</p>	No indirect liability	p. 446
	<p><i>Dual-Use Piggybackers:</i></p> <p>Disruption of existing allocation of indirect network externalities in content multised markets</p>	No liability under present law, although some courts were open to consider disruption in the form of advertising avoidance as copyright infringement	pp. 446-51

<i>Category</i>	<i>Economic Property</i>	<i>Legal Implication(s)</i>	<i>Discussion</i>
	<p><i>Freeloading Marketplace Platforms:</i> Accommodation of infringing activities to enhance indirect network externalities</p>	Potential indirect liability	pp. 452-54
	<p><i>Freeloading Content-Exchange Advertising Platforms:</i> Facilitation of access to copyrighted content to enhance indirect network externalities</p>	Potential indirect liability	p. 454

