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ANTITRUST LAW – A STRANGER IN THE WIKINOMICS WORLD? REGULATING ANTI-COMPETITIVE USE OF THE DRM/DMCA REGIME

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ABSTRACT

Unlike traditional markets, Information Technology ("IT") markets are characterized by special and unique features that shall be discussed in this article. Competition in IT markets is dynamic; nonmarket based information production models ("peer production") play a significant role in IT markets; and IT markets are usually data markets rather than product markets. The combination of the legal rule prohibiting circumvention of technological measure under the DMCA and the use of DRMs, created a new regime, the DRM/DMCA regime, which bestows the entertainment industry with a new and strong right to control the access to and use of the copyrighted work. The use of such a strong right under the DRM/DMCA regime may have, in some instances, anticompetitive effects in IT markets. A recent example for such allegedly anticompetitive use of the DRM/DMCA regime can be found in the litigations initiated by movie studios and the DVD CCA against two IT companies, Kaleidescape and RealNetworks. These cases demonstrate the attempts of the entertainment industry to block the marketing of technological devices or software products that allow their end users to upload the content of their DVD to the device's hardware and replay it afterwards from the device itself or their own PC. The key question addressed in this article is the limits of the conceptual framework of antitrust law and of copyright law for regulating possible anticompetitive effects of the DRM/DMCA regime on competition in IT markets in the U.S., given the unique features of IT markets.

I. INTRODUCTION

A market for different technologies for retrieving, transferring, storing, and generally using information, *i.e.*, Information Technology ("IT") forces the legal community and policy makers to face new and fascinating puzzles.[1] One of the famous puzzles concerns the appropriate protection and distribution model for music.[2] In this article, I will focus simply on one narrow and specific puzzle likely to emerge from IT markets in the United States: the implications of the combination of technologies known as Technology Protection Measures ("TPMs") and Digital Right Management ("DRM") measures with the U.S. anti-circumvention legal regime governed by the Digital Millennium Copyright Act ("DMCA").[3]

TPMs and DRMs are technological measures aimed at providing an additional technological layer for protecting copyrighted works, above the legal layer that copyright law grants.[4] Generally speaking, the additional protection comes into effect by technologically controlling the access to and the use of the copyrighted works.[5]

However, TPMs and DRMs became very vulnerable as a consequence of the technology race, a common phenomenon in IT markets.[6] In many cases, the technologically savvy can easily evade TPMs and DRMs[7] and release the circumvention tool that he or she programmed to the general public.[8] The entertainment industry therefore demanded an additional layer of legal protection above the TPMs and DRMs.[9] Eventually, as a response to this demand, the United States Congress enacted the DMCA in 1998, which contains anti-circumvention provisions.[10]

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1. *See* William W. Fisher III, Promises to Keep: Technology, Law, and the Future of Entertainment (2004).

2. *See Id.*

3. The Digital Millennium Copyright Act, 17 U.S.C §§ 1201-1205 (1998).

4. Peter K. Yu, *Anticircumvention and Anti-anticircumvention*, 84 Denv. U. L. Rev. 13, 32 (2006); Kirsten Osenga, *Information May Want to be Free, But Information Products Do Not: Protecting and Facilitating Transactions in Information Products*, 30 Cardozo L. Rev. 2099, 2120 (2009); Niva Elkin-Koren, *Making Room for Consumers Under the DMCA*, 22 Berkeley Tech. L. J. 1119, 1127 (2007).

5. *See* Ian R. Kerr et al., *Technological Protection Measures: Tilting at Copyrights Windmill*, 34 Ottawa L. Rev. 6 (2002).

6. *See* Niva Elkin-Koren & Eli M. Salzberger, Law, Economics and Cyberspace: The Effects of Cyberspace on Economic Analysis of Law 58-60 (2004).

7. Neil Conley, *The Future of Licensing Music Online: The Roll of Collective Rights Organizations and the Effect of Territoriality*, 25 J. Marshall Computer & Info. L. 409, 461 (2008).

8. Yu, *supra* note 4, at 14; Dan L. Burk, *DNA Rules: Legal and Conceptual Implications of Biological "Lock-Out" Systems*, 92 Cal. L. Rev. 1553, 1571 (2004) [hereinafter *DNA Rules*].

9. Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. Rev. 1095, 1097 (2003) [hereinafter *Anticircumvention Misuse*].

10. The Digital Millennium Copyright Act, 17 U.S.C §§ 1201-1205 (1998).

In general, the DMCA anti-circumvention provisions prohibit circumventing TPMs or DRMs, which effectively controls access to copyrighted material.[11] In addition, the DMCA prohibits the manufacturing and marketing of technologies or devices that are primarily designed or produced for the purpose of circumvention.[12]

The combination of the legal rule under the DMCA and the technological tool, the TPM or the DRM, created a new regime known as the DRM/DMCA regime.[13] The DRM/DMCA regime bestowed the entertainment industry with a new and strong right, the "paracopyright,"[14] to control the access to copyrighted work. The fact that copyright owners may assert very strong rights under the DRM/DMCA may have anticompetitive effects in IT markets in some instances.[15]

When analyzing possible anticompetitive effects, one must take into consideration the main differences between the IT market and the traditional market. Discussed further in Section III, IT markets are characterized by dynamic competition[16] and nonmarket based information production models.[17]

In light of these unique features of IT markets, anticompetitive behavior can be defined as any behavior aimed at controlling and reducing

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11. *Id.* at § 1201(a)(1).

12. *Id.* at § 1201(a)(2).

13. *See* Michael Geist, *Anti-Circumvention Legislation and Competition Policy: Defining a Canadian Way?*, *in* IN PUBLIC INTEREST: THE FUTURE OF CANADIAN COPYRIGHT LAW 211-50 (Michael Giest ed., 2005); Peter Jaszi, Professor of Law, Washington College of Law, Assoc. of Research Libraries Membership Meeting Proceedings, *Intellectual Property Legislative Update: Copyright, Paracopyright, and Pseudo-Copyright*, (May 1998), http://www.arl.org/resources/pubs/mmproceedings/132mmjaszi.shtml.

14. *See* Geist, *supra* note 13, at 211-50; Jaszi, *supra* note 13.

15. *See* Posting of Ed Felten, *DRM is Retreat*, ED FELTEN'S BLOG (Jan. 22, 2009), http://freedom-to-tinker.com/blog/felten/drm-retreat (last visited Feb. 24, 2010) (stating in the past year the practice of employing DRM on digital music has been declining); *see* Press Release, Apple, Changes Coming to the iTunes Store (Jan. 6, 2009) *available at* http://www.apple.com/pr/library/2009/01/06itunes.html (last visited Feb. 24, 2010) [hereinafter Apple Press Release] (announcing that Apple is going to offer DRM-free content via its iTunes store); Federal Trade Commission, FTC Town Hall: Digital Rights Management Technologies, Public Comments (Mar. 25, 2009) *available at* http://www.eff.org/files/filenode/DRM/DRMCOMMENTS_final.pdf (expressing statement of Corynne McSherry, Electronic Frontier Foundation, that DRMs are still used as a tool for oppression of legitimate competition).

16. Christopher Pleatsikas & David Teece, *New Indicia Antitrust Analysis in Markets Experiencing Rapid Innovation*, *in* DYNAMIC COMPETITION AND PUBLIC POLICY (Jerry Ellig ed., 2001); David Evans, *Antitrust and the New Economy*, *in* MICROSOFT, ANTITRUST AND THE NEW ECONOMY: SELECTED ESSAYS 253 (David S. Evans Ed., 2002).

17. YOCHAI BENKLER, THE WEALTH OF NETWORKS 126-127 (2006). *See also* Section III. B, *supra* (discussing nonmarket information production models and their effect on competition).

the development of innovative technologies and products.[18] There are several examples in IT markets in the United States for the use of the DRM/DMCA regime in a way which might be considered anticompetitive under this definition.[19]

For example, Lexmark, a well-known printer manufacturer, employed DRM to enforce its contractual requirement that prebate toner cartridges be refilled only with Lexmark ink.[20] When Static Control Components ("SCC") broke Lexmark's aforementioned DRM and allowed Lexmark printers to operate even if Lexmark did not refill the toner cartridge, Lexmark filed a lawsuit against SCC, claiming, among other counts, that SCC violated the DMCA.[21] Through that lawsuit, Lexmark unsuccessfully attempted to use the DRM/DMCA regime in order to prevent third parties from developing refilled toner cartridges.[22]

Another case example of an unsuccessful attempt to stifle competition in IT markets through the use of the DRM/DMCA regime is *Chamberlain v. Skylink*.[23] Chamberlain, a firm that developed and manufactured garage door opener systems, sued Skylink, a firm that developed and manufactured a universal garage door opener that allowed its users to open Chamberlain's garage doors.[24] Chamberlin contended that Skylink had broken its DRM measure that was embedded into its garage door opener systems and hence violated the DMCA.[25]

A more recent example for seemingly anticompetitive behavior under the DRM/DMCA regime is the movie studios' use of the Content Scrambling System ("CSS").[26] The CSS is a DRM employed on Digital Versatile Disks ("DVDs") in order to protect the copyrighted content (*i.e.*, the motion pictures) contained on the DVDs from unauthorized copying, and also to enforce region-based viewing restrictions.[27] The DVD Copy

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18. MARCUS GLADER, INNOVATION MARKETS AND COMPETITION ANALYSIS: EU COMPETITION LAW AND US ANTITRUST LAW 28 (2006).

19. *Id.*

20. Robert J. Tomkowicz & Elizabeth F. Judge, *The Right of Exclusive Access: Misusing Copyright to Expand the Patent Monopoly*, 19 INTELL. PROP. J. 351, 373-74 (2006).

21. Lexmark Int'l, Inc. v. Static Control Components, Inc., 387 F.3d 522 (6th Cir. 2004).

22. *Id.*; *See* Ali Martin, *Digital Rights Management (DRM) in Online Music Stores: DRM-Encumbered Music Downloads' Inevitable Demise as a Result of the Negative Effect of Heavy-Handed Copyright Law*, 28 LOY. L. A. ENT. L. REV. 265, 280 (2007-8).

23. Chamberlain Group, Inc. v. Skylink Technologies, Inc., 381 F.3d 1178 (Fed. Cir. 2004).

24. *Id.*

25. *Id.*

26. *See* J.D. LASICA, DARKNET: HOLLYWOOD'S WAR AGAINST THE DIGITAL GENERATION 136-37 (2005).

27. On October 1999, the CSS was circumvented by Jon Lech Johansen (known also as DVD John), then a fifteen-year-old Norwegian programmer, who posted the decryption method, known as the DeCSS, on the internet. *Id.* The decryption and dissemination of

Control Association ("CCA") manages the use of CSS,[28] and its members are companies from the entertainment industry, such as Warner Bros. and Walt Disney, as well as representative of well-known and powerful firms from the hi-tech industry, such as Hewlett-Packard and Toshiba.[29]

Described further in Section IV, two IT companies, Kaleidescape and RealNetworks, recently faced legal battles[30] aimed at preventing them from marketing their innovative technologies, the Kaleidescape System and the RealDVD software and hardware products.[31] The Kaleidescape System and the RealDVD software and hardware products[32] stored a copy of a protected DVD on a hard disk drive of the Kaleidescape System or the RealNetworks Facet product on the users' own computer hard drive and this allowed users to store a vast amount of video files. In the case of RealNetwork's Vegas software, users could upload and play back the stored files of every DVD, in any room within the users' home or wherever the users' PC is located.[33] Both companies obtained a license to use the CSS from the DVD CCA.[34]

Notwithstanding the two companies' assertions of full compliance with the CSS License, the movie studios and DVD CCA filed lawsuits against Kaleidescape and RealNetworks for breaching the CSS License and violating the DMCA.[35] According to the movie studios and DVD CCA, the purpose of both the Kaleidescape System and the RealDVD

DeCSS led to several lawsuits around the globe mainly aimed at blocking the widespread distribution of the CSS circumvention tool. *See* Universal City Studios, Inc. v. Corely, 273 F.3d 429 (2nd Cir. 2001); John Leyden, *DVD John Is Free – Official*, THE REGISTER, Jan. 7, 2003, http://www.theregister.co.uk/2003/01/07/dvd_jon_is_free_official/.

28. *See* DVD Copy Control Association, *Content Scrambling System*, http://www. dvdcca.org/css/ (last visited Feb. 24, 2010).

29. Among the DVD CCA members are Chris Cookson of Warner Bros., Ben Carr of Walt Disney Studios, Jeffrey Lawrence of Intel, Gabe Beged-Dov of Hewlett-Packard, David Harshman of Toshiba, and Andy Parsons of Pioneer Electronics. *See* March Hachman, *Proposed Amendment would Ban All DVD Copying*, PC MAGAZINE (June 20, 2007), *available at* http://www.pcmag.com/article2/0,1759,2148802,00.asp.

30. RealNetworks Inc. v. DVD Copy Control Ass'n Inc., 641 F. Supp. 2d 913 (N.D. Cal. 2009); DVD Copy Control Ass'n Inc. v. Kaleidescape Inc., 176 Cal. App. 4th 697 (6th Dist. 2009).

31. *RealNetworks*, 641 F. Supp. 2d at 913; *Kaleidescape*, 176 Cal. App. 4th at 697.

32. The legal procedure in *RealNetworks v. DVD Copy Control* concerned software and hardware products developed by RealNetworks. *RealNetworks*, 641 F. Supp. 2d 913. The software product, called Vegas, was developed and marketed by RealNetworks until the court had issued a temporary restraint order on October 3, 2008. *Id.* at 917, 924. The hardware product, called Facet, was under development during the legal procedures and its main technological features were based on the Vegas software product. *Id.* at 925. The court, therefore, focused its analysis on the legality of the Vegas software product, referring to the software and hardware products as one - the RealDVD software. *Id.* at 924-27.

33. *RealNetworks*, 641 F. Supp. 2d at 913.

34. *Id.* at 922; *Kaleidescape*, 176 Cal. App. 4th at 705.

35. *RealNetworks*, 641 F. Supp. 2d at 917; *Kaleidescape*, 176 Cal. App. 4th at 702.

software is to allow users to illegally copy DVDs, a purpose which directly contradicts the express purpose of the CSS License, *i.e.* to prevent the wholesale copying of protected DVDs.[36]

Explained further in Section IV, through lawsuits, like those discussed, movie studios and the members of the DVD CCA may gain broad control over types of technologies and technological devices that other companies develop.[37] Furthermore, they can strictly limit the development of innovative technologies.[38] The potential damage to efficient competition in IT markets is quite apparent.

The purpose of this article is to discuss and examine, from a critical point of view, the limits of the conceptual framework of antitrust law and copyright law for regulating possible anticompetitive effects of the DRM/DMCA regime on competition in IT markets in the United States. Because the United States' innovation-based competitiveness has declined in recent years,[39] discussing and analyzing these questions and aiming to define the most adequate law for securing efficient competition in current IT markets becomes even more relevant and important. Furthermore, these key questions, regarding the limits of the conceptual framework of antitrust law and copyright law for regulating possible anticompetitive effects of the DRM/DMCA regime on competition in IT markets in the U.S., are a part of a far broader and comprehensive debate regarding the limits of antitrust law for regulating behaviors in New Economy industries,[40] the intersection between antitrust law and intellectual property law in the information age, and the adequate balance between these two bodies of law.

The intersection between antitrust law and intellectual property law has been a source of perpetual confusion and controversy for a long time. The debate about the appropriate balance between antitrust law and intellectual property law in the information age, or the debate about the

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36.   John Borland, *Hollywood Allies Sue DVD Jukebox Maker*, CNET NEWS, Dec. 7, 2004, http://www.news.com/Hollywood-allies-sue-DVD-jukebox-maker/2100-1025_3-5482206.html; Complaint, 2008 U.S. Dist. Ct. Pleadings 888927, Universal City Studios Production L.L.P., et al. v. RealNetworks, Inc., et al., No. 3:08CV4719 (N.D. Cal. Sept. 30, 2008).

37.   *See RealNetworks*, 641 F. Supp. 2d 913; *Kaleidescape*, 176 Cal. App. 4th at 702.

38.   *See RealNetworks*, 641 F. Supp. 2d 913; *Kaleidescape*, 176 Cal. App. 4th at 702.

39.   *See* Robert D. Atkinson & Scott M. Andes, *The Atlantic Century: Benchmarking EU and U.S. Innovation and Competitiveness*, THE INFO., TECH. & INNOVATION FOUND. (Feb. 25, 2009), http://www.itif.org/index.php?id=226; Steve Lohr, *In Innovation, U.S. Said to Be Losing Competitive Edge*, N.Y. TIMES, Feb. 25, 2009, at B9.

40.   New Economy industries, such as the software industry, differ from old economy industries in a number of ways. New economy industries demonstrate strong network effects, have high fixed costs and low marginal production costs, are more labor-intensive and less capital intensive and the competition in such industries is dynamic. *See* Evans, *supra* note 16, at 255-58.

limits of antitrust law for regulating all sorts of behaviors in New Economy industries and securing efficient competition is, however, far beyond the scope of this article. This article will focus only on a narrower, though not less complex, aspect of the debate: possible antitrust and copyright law regulation of the DRM/DMCA regime's anticompetitive effects on competition in U.S. IT markets.

In order to do so, I will start by introducing and describing the DRM/DMCA regime. Sections III and IV will describe the unique features of IT markets, the essence of competition in IT markets, and possible anticompetitive effects as a result of the use of the DRM/DMCA regime. Section V will examine, based on the conceptual framework and theoretical reasoning of antitrust law, whether antitrust law can provide an adequate framework for regulating anticompetitive behaviors in IT markets, performed under the jacket of the DRM/DMCA regime.

Section VI will examine whether copyright law in the United States can provide a more adequate framework for regulating anticompetitive behaviors performed under the DRM/DMCA regime in IT markets while securing the ultimate goal of further innovation, based on the way that the United States courts in *Lexmark* and *Chamberlain* interpreted and applied the conceptual framework of copyright law. Finally, Section VI will conclude the article with a statement regarding future research seeking the appropriate legal conceptual framework for analyzing the anticompetitive behaviors performed under the DRM/DMCA regime.

II.   THE DRM/DMCA REGIME: WHERE DID IT ORIGINATE AND WHY?

A.   Digital Rights Management: An Additional Lock to a Closed Door?

Digital technology has provided users from all over the world with the ability to easily and quickly copy and disseminate high quality duplicates of any content at a marginal cost. The advent of the Internet, peer-to-peer ("P2P") file sharing computer programs and advanced personal computers have resulted in what the entertainment industry perceived as "rampant piracy" and forced the entertainment industry to face a new and difficult challenge.[41] Aiming to secure its existing copyrights in any copyrighted work in spite of the copyright infringement possibilities that new digital technologies facilitated, the entertainment industry started to release its copyrighted works with Technological Protection Measures ("TPMs") (and later Digital Right Managements ("DRMs") protection).[42]

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41. FISHER, *supra* note 1, at 11-37.
42. Kerr et al., *supra* note 5, at 25-29.

TPMs are a technological method that control the access to or the use of a copyrighted work, and hence facilitate authorized use of copyrighted material. Scholars identified two categories of TPMs; both of them usually exist within the same TPM.[43] The first category is access control measures, such as passwords and cryptography.[44] Under this category is encrypted content; for example, a data encryption and authentication method, such as the CSS, which is aimed at protecting the content of DVDs from unauthorized copying and enforcing region-based viewing restrictions.[45]

The second category of TPMs is use control measures that provide the entertainment industry with the ability to control the underlying use of a copyrighted work.[46] For example, the Serial Copy Management System ("SCMS") uses a watermark to prevent illegal production of multiple generations of digital copies of a copyrighted work.[47]

DRMs are more complex and sophisticated systems for protecting intellectual property rights.[48] Unlike TPMs, DRMs are digital information systems for rights management that are bound into the lifecycle of the copyrighted work, in any format.[49] DRMs usually include a set of technological tools for protecting the content as well as monitoring the consumer's behavior and controlling payment terms.[50]

There are two general categories of DRMs.[51] The first category is DRMs that do not utilize TPMs.[52] An example of this type of DRM is the technology that the Copyright Clearance Center in the United States uses for handling and mediating clearance of rights, establishing license terms, and paying certain fees in consideration for the use of a copyrighted work.[53]

The second category of DRMs is DRMs that do utilize TPMs.[54] Apple's DRM, FairPlay, is an example of a DRM in this category.[55] Fair-

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43. *Id.* at 20-23.

44. *Id.*

45. *Id.*

46. *Id.*

47. Kerr et al., *supra* note 5, at 20-23.

48. *Id.* at 25-29.

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.* at 25-26.

53. Kerr et al., *supra* note 5, at 26.

54. *Id.* at 25-29.

55. *See* Apple, *Technologies – AAC Audio*, http://www.apple.com/quicktime/technologies/aac/ (last visited Feb. 24, 2010) [hereinafter *AAC Audio*].

Play encrypts Advanced Audio Coding ("AAC"),[56] controls the access to copyrighted works, and imposes certain licensing schemes through several restrictions on the use of the AAC encrypted files.[57]

The technology of TPMs and DRMs is frequently challenged. The circumvention of CSS is only one example of such a challenge.[58] The outcome of these challenges was the evolution of a technology "arms race," a common phenomenon in IT markets.[59] A technology arms race induces technological development and innovations. This is because it urges technology companies as well as individuals to try to enter the race by introducing the new "killer" application, hot gadget, or state of the art technology.[60]

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56. AAC is an international standard for compression of digital audio files, developed through the cooperation of several technology companies, such as AT&T and Sony. *See AAC Audio, supra* note 55.

57. Among these use restrictions are the restriction on the number of devices a file can be played on, the portable media player on which a file could be played on and the number of times an individual user can burn a set of files collectively, known as a "playlist." In order to enforce these restrictions, FairPlay also collects data regarding the usage of each content file. As of January 2009, Apple offers for sale via its iTunes store songs free of DRM protection. Apple's DRM, Fairplay, is still employed on movies and television shows. *See* Apple Press Release, *supra* note 15.

58. On October 1999, CSS was circumvented by Jon Lech Johansen ("DVD John"), then a fifteen-year-old Norwegian programmer, who posted the decryption method, known as the DeCSS, on the Internet. *See* J.D. Lasica, Darknet: Hollywood's War Against the Digital Generation 136-37 (2005). The decryption and dissemination of DeCSS led to several lawsuits around the globe aimed mainly at blocking the widespread distribution of the CSS circumvention tool. *See* Universal City Studios v. Corely, 273 F.3d 429 (2nd Cir. 2001); John Leyden, *DVD John Is Free – Official*, The Register, Jan. 7, 2003, http://www.theregister.co.uk/2003/01/07/dvd_jon_is_free_official/ (last visited Feb. 24, 2010).

59. *See* Elkin-Koren & Salzberger, *supra* note 6, at 58-60.

60. Alongside the increased variety of new and innovative technologies, the technology arms race also leads to a phenomenon known as rent seeking. Rent seeking is an economic term used to describe the quest after what is called "rent" – the pure profit, *i.e.*, the return over and above the cost of generating such return. The costs of rent seeking associated with intellectual property are fairly high comparing with those associated with property rights. Intellectual property is waiting to be invented, created, or discovered, and once it is invented, created, or discovered, the owner of such intellectual property receives a monopoly right. Thus, the rent seeking is reflected by the cost invested in the production of knowledge, in order to be the first to win the big prize of a monopoly right. The investment in the production of knowledge is in excess over the optimal level of necessary investment. This leads to costs, or some say the waste, to the society, from an efficiency perspective. *See* William M. Landes & Richard A. Posner, The Economic Structure of Intellectual Property Law 17-24 (2003). An example of such waste is found in the "race to the bottom" of the two chipmaker giants, Intel and Advanced Micro Devices ("AMD"). Intel cut prices in May 2006 on its dual-core Pentium D chips by up to fifty percent (50%) and on its lower-end Celeron D chips by up to forty-three percent (43%). AMD was forced to respond and cut prices in June that year on its low-end desktop chips by thirty percent (30%). *See* Chris Kraeuter, *AMD, Intel Race to the Bottom*, Forbes, June 28, 2006, http://www.forbes.com/2006/06/28/pricing-earnings-intel-cx_ck_0628intel.html (last visited Feb. 24, 2010).

With respect to DRMs, the battleground for the arms race, in the eyes of the entertainment industry was the vulnerability of DRMs. TPMs and DRMs did not provide a foolproof solution for the entertainment industry. The ease of circumventing DRMs by the technologically savvy and the widespread distribution of such circumvention tools, combined with the inability to locate, sue, and punish each and every unauthorized end user, led to an increased demand by the entertainment industry for additional legal protection.[61]

This time, however, the requested legal protection was not for the copyrighted works themselves, but for the implemented DRMs used to protect intellectual property rights in those works. This ought to be kept in mind when examining the copyright law's possible handling of the implications, both legal and technological, of the DRM/DMCA regime.

B. Legislators to the Rescue: the DMCA Anti-Circumvention Provisions

1. *A Glance at Legislative History*

i. *WIPO Treaties*

The pressure of the entertainment industry over the years has led to discussions held by the U.S. government. These discussions were aimed at seeking the appropriate legislative policy that adequately balances the conflicting interests of the entertainment industry and the public at large, while at the same time encourage the continuing growth and prosperity of the U.S. economy in the information age.[62]

The conclusions of those government researchers were presented in 1995, as the Information Infrastructure Task Force White Paper ("White Paper").[63] The White Paper included recommendations for the enactment of specific anti-circumvention legislation, referring only to anti-trafficking activities. The White Paper was proposed to the U.S. Congress in 1995. At the same time, the Clinton Administration promoted the White Paper internationally, offering it to World Intellectual Property Organization ("WIPO") members as a basis for future treaties.

In December 1996, a diplomatic conference was held in Geneva. This conference was dedicated to discussing the adequate ways to bring the international copyright system up to date with the developments of

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61. *Anticircumvention Misuse*, *supra* note 9, at 1097.

62. *See* Donna L. Lee, *Reverse Engineering of Computer Programs under the DMCA: Recognizing a "Fair Access" Defense*, 10 Marq. Intell. Prop. L. Rev. 537, 549-50 (2006).

63. U.S. Patent and trademark Office, Intellectual Property and the national Information Infrastructure: The Report of the Working Group on Intellectual Property Rights (1995).

digital technology.[64] At the end of this diplomatic conference, two treaties were adopted: the WIPO Copyright Treaty ("WCT") and the WIPO Performance and Phonograms Treaty ("WPPT") (together: the "WIPO Treaties");[65] both of which were said to have been drawn in part from the White Paper.[66]

Articles 11 and 12 of the WCT[67] and Articles 18 and 19 of the WPPT[68] established, within ratifying states' national law, anti-circum-

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64. Richard Li-Dar Wang, *DMCA Anti-Circumvention Provisions in a Different Light: Perspectives from Transnational Observation of Five Jurisdictions*, 34 AM. INTELL. PROP. L. ASS'N 219 (2006).

65. World Intellectual Property Organization, *Copyright Treaty*, Dec. 20, 1996, 36 I.L.M. 65, *available at* http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html [hereinafter WCT]; World Intellectual Property Organization, *Performance and Phonograms Treaty*, Dec. 20, 1996, 36 I.L.M. 76, *available at* http://www.wipo.int/treaties/en/ip/wppt/trtdocs_wo034.html [hereinafter WPPT].

66. Lee, *supra* note 62, at 550-51.

67. Article 11 of the WCT states:

Obligations concerning Technological Measures:

Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.

Article 12 of the WCT states:

Obligations concerning Rights Management Information:

(1) Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing, or with respect to civil remedies having reasonable grounds to know, that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention:

(i) to remove or alter any electronic rights management information without authority;

(ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority.

(2) As used in this Article, "rights management information" means information which identifies the work, the author of the work, the owner of any right in the work, or information about the terms and conditions of use of the work, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a work or appears in connection with the communication of a work to the public.

68. Article 18 of the WPPT states:

Obligations concerning Technological Measures:

Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by performers or producers of phonograms in connection with the exercise of their rights under this Treaty and that restrict acts, in respect of their performances or phonograms, which are not authorized by the performers or the producers of phonograms concerned or permitted by law.

Article 19 of the WPPT states:

vention provisions aimed to provide:

> adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.[69]

The scope of the anti-circumvention provisions in any national law depends, however, on the interpretation of several words in the WIPO Treaties' language.[70] Such interpretation includes, the terms "adequate" and "effective" with respect to the legal protection that each state should provide to DRMs.[71] I will now turn to examine how the United States integrated Articles 11 and 12 of the WCT and Articles 18 and 19 of the WPPT into the DMCA.

ii. The DMCA

The Clinton Administration and the entertainment industry perceived the adoption of the WIPO Treaties and the obligation of the signatory states to ratify it into their national legislation as an opportunity to revive the attempts to enact the DMCA. Thus, in 1998, Congress en-

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Obligations concerning Rights Management Information

(1) Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing, or with respect to civil remedies having reasonable grounds to know, that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty:

(i) to remove or alter any electronic rights management information without authority;

(ii) to distribute, import for distribution, broadcast, communicate or make available to the public, without authority, performances, copies of fixed performances or phonograms knowing that electronic rights management information has been removed or altered without authority.

(2) As used in this Article, "rights management information" means information which identifies the performer, the performance of the performer, the producer of the phonogram, the phonogram, the owner of any right in the performance or phonogram, or information about the terms and conditions of use of the performance or phonogram, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a fixed performance or a phonogram or appears in connection with the communication or making available of a fixed performance or a phonogram to the public.

69. *See* Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulation Need to be Revised*, 14 BERKELEY TECH. L.J. 519, 529 (1999). It is important to note that although the WIPO Treaties mentioned only TPMs, scholars agreed that it should be treated as referring to DRMs as well.

70. *See* Geist, *supra* note 13, at 223-24.

71. Professor Michael Geist contended that the use of such terms implies that national legislation should set some measure of legal protection that would be considered as effective by a reasonable person. *See Id.* at 223.

acted the DMCA.[72] The final version of the DMCA was said to be Congress' attempt to satisfy almost all of the parties involved in one piece of legislation,[73] while implementing the norms set forth in the WIPO Treaties.

2. *The DMCA Anti-Circumvention Provisions*

Section 1201 of the DMCA is considered to be the most intensive regulation of circumvention activities.[74] The section covers any DRM that "effectively controls"[75] the access to or the use of copyrighted work and prohibits both the act of circumvention of such DRMs as well as the manufacturing and marketing of technology or devices primarily designed or produced for the purpose of circumvention. Section 1201(a)(1)(A) of the DMCA[76] refers to the act of circumvention itself and prohibits the circumvention of technological measures that effectively control access to copyrighted work.

Sections 1201(a)(2) and 1201(b) of the DMCA are both known as the anti-trafficking provisions because although they both are related to technological devices and services, the sections differ in focus.[77] While Section 1201(a)(2)[78] focuses on the right to control the access to a copyrighted work, Section 1201(b)[79] protects the familiar set of exclusive

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72. The Digital Millennium Copyright Act, 17 U.S.C. §§ 1201-1205 (1998).

73. FISHER, *supra* note 1, at 93.

74. Wang, *supra* note 64, at 223-24; 17 U.S.C. § 1201 (1998).

75. 17 U.S.C. §1201(b)(2)(B) defines "effectively controls" as "(B) a technological measure [that] 'effectively protects a right of a copyright owner under this title' if the measure, in the ordinary course of its operation, prevents, restricts, or otherwise limits the exercise of a right of a copyright owner under this title."

76. *Id.* at § 1201(a)(1)(A) (stating: "[n]o person shall circumvent a technological measure that effectively controls access to a work protected under this title").

77. *Id.* at § 1201(a)(2)&(b).

78. *Id.* at § 1201(a)(2).

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

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

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or

(C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title. *Id.*

79. *Id.* at § 1201(b).

(b) Additional Violations.—

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

rights of the copyright owner, by prohibiting the production and distribution of technologies that are mainly designed to circumvent content and use control measures.[80]

The goal of both anti-trafficking provisions is to prevent third parties from enabling end users to gain unauthorized access to copyrighted works by providing "black box" devices or services designed to circumvent access control measures. Therefore, both anti-trafficking provisions refer to a technological device that fulfills one of the following conditions: (i) the device is primarily designed for the purpose of circumvention; (ii) has only limited commercially significant purpose or use outside circumvention; or (iii) is marketed with the knowledge that it will be used for purposes of circumvention.

The definition of prohibited technological devices in connection with the anti-trafficking provisions leaves, however, wide leeway for interpretation. Technologies that are not "primarily designed" for circumvention, have commercially significant purposes other than circumvention and are not knowingly marketed for the purpose of circumvention, should be exempt from the scope of anti-trafficking prohibitions.[81] However, if the provisions of the DMCA are interpreted too broadly, the risk increases significantly that the DMCA might end up barring the manufacturing and dissemination of devices or services that have legitimate uses other than to circumvent measures for controlling the access to copyrighted works.[82]

(A) is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof;

(B) has only limited commercially significant purpose or use other than to circumvent protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof; or

(C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof.

(2) As used in this subsection—

(A) to "circumvent protection afforded by a technological measure" means avoiding, bypassing, removing, deactivating, or otherwise impairing a technological measure; and

(B) a technological measure "effectively protects a right of a copyright owner under this title" if the measure, in the ordinary course of its operation, prevents, restricts, or otherwise limits the exercise of a right of a copyright owner under this title. *Id.*

80. FISHER, *supra* note 1, at 93.

81. *Id.*

82. For a counter argument, *see*, for example, Jane C. Ginsburg, *Copyright Legislation for the "Digital Millennium*," 23 COLUM. J.L. & ARTS 137, 145-47 (1999).

i. *Exemptions and Limitations*

In order to correctly weigh the hazardous ramifications of the DRM/DMCA regime, it is necessary to pay attention to the exemptions to and limitations of the anti-circumvention provisions and to properly understand the exact scope of the DMCA anti-circumvention provisions. First, the anti-circumvention provisions as a whole do not prevent the end user from circumventing on her own, the technological measures aimed at effectively protecting the exclusive rights of the copyright owner. The anti-circumvention provisions of Section 1201(b) only prohibit the trafficking of such circumvention tools.[83] However, there are only few technology savvy people among the public that are capable of circumventing such technological protection measures for their own fair use.[84]

With respect to the limitation of the anti-circumvention provisions, the DMCA contains two preservation clauses. Section 1201(c)(1)[85] declares that nothing in Section 1201 affects rights, remedies, or defenses, including the fair use defense. Section 1201(c)(2)[86] states that nothing in Section 1201 diminishes or enlarges vicarious or contributory copyright infringement.

In addition, the prohibitions under Section 1201 are subject to several exemptions. Among these exemptions is, for example, the reverse engineering exemption set forth in Section 1201(f).[87] This exemption is

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83. *Id.* at 139.

84. Samuelson, *supra* note 69, at 522-23.

85. Section 1201(c)(1) of the DMCA states "(c) Other Rights, Etc., Not Affected.—(1) Nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title."

86. Section 1201(c)(2) of the DMCA states "(2) Nothing in this section shall enlarge or diminish vicarious or contributory liability for copyright infringement in connection with any technology, product, service, device, component, or part thereof."

87. Section 1201(f) of the DMCA states:

(f) Reverse Engineering.—

(1) Notwithstanding the provisions of subsection (a)(1)(A), a person who has lawfully obtained the right to use a copy of a computer program may circumvent a technological measure that effectively controls access to a particular portion of that program for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer program with other programs, and that have not previously been readily available to the person engaging in the circumvention, to the extent any such acts of identification and analysis do not constitute infringement under this title.

(2) Notwithstanding the provisions of subsections (a)(2) and (b), a person may develop and employ technological means to circumvent a technological measure, or to circumvent protection afforded by a technological measure, in order to enable the identification and analysis under paragraph (1), or for the purpose of enabling interoperability of an independently created computer program with other programs, if such means are necessary to achieve such interoperability, to the extent that doing so does not constitute infringement under this title.

limited to the reverse engineering of a lawfully obtained copy of a computer program for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve compatibility with another computer program. This exemption was severely criticized, since it is limited only to computer programs, for the purpose of compatibility and is restricted to circumstances in which the elements of the program were not previously readily available to the person engaging in the de-compilation.[88] Section 1201(j)[89] of the DMCA permits circumvention and development of technological tools for such circumvention, for the purpose of security testing of computers, computer networks, or computer systems, in order to identify flaws and the vulnerability of such systems and with the authorization of the owner or operator of such systems.

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(3) The information acquired through the acts permitted under paragraph (1), and the means permitted under paragraph (2), may be made available to others if the person referred to in paragraph (1) or (2), as the case may be, provides such information or means solely for the purpose of enabling interoperability of an independently created computer program with other programs, and to the extent that doing so does not constitute infringement under this title or violate applicable law other than this section.

(4) For purposes of this subsection, the term "interoperability" means the ability of computer programs to exchange information, and of such programs mutually to use the information which has been exchanged.

88. Lee, *supra* note 62, at 549-50.

89. Section 1201(j) of the DMCA states:

(j) Security Testing.—

(1) Definition.— For purposes of this subsection, the term "security testing" means accessing a computer, computer system, or computer network, solely for the purpose of good faith testing, investigating, or correcting, a security flaw or vulnerability, with the authorization of the owner or operator of such computer, computer system, or computer network.

(2) Permissible acts of security testing.— Notwithstanding the provisions of subsection (a)(1)(A), it is not a violation of that subsection for a person to engage in an act of security testing, if such act does not constitute infringement under this title or a violation of applicable law other than this section, including section 1030 of title 18 and those provisions of title 18 amended by the Computer Fraud and Abuse Act of 1986.

(3) Factors in determining exemption.— In determining whether a person qualifies for the exemption under paragraph (2), the factors to be considered shall include—

(A) whether the information derived from the security testing was used solely to promote the security of the owner or operator of such computer, computer system or computer network, or shared directly with the developer of such computer, computer system, or computer network; and

(B) whether the information derived from the security testing was used or maintained in a manner that does not facilitate infringement under this title or a violation of applicable law other than this section, including a violation of privacy or breach of security.

In addition to the exemptions set forth in Section 1201 of the DMCA, the Librarian of Congress, in consultation with the Register of Copyrights, is authorized to identify, every three years, particular classes of works whose users would be "adversely affected by the prohibition. . . in their ability to make non-infringing uses under this title of a particular class of copyrighted works."[90] Unfortunately, there are no guidelines for determining which classes should be exempt.

During the three-year period following the rulemaking procedure that identifies the works, users of these works will not be subject to liability under Section 1201(a)(1) of the DMCA for circumventing measures that control access to the specified classes of works.[91] It should be emphasized that this rulemaking procedure only permits users to circumvent access control measures on their own. Therefore, as noted before, in practice, only technology savvy users can benefit from the exempt classes.

In November 2006, the Librarian of Congress announced six new classes to be exempt from the anti-circumvention provisions of the DMCA.[92] One of those six classes of exemptions is computer programs protected by dongles.[93] In a case where an error in the dongle prevents access to the computer program, the damaged dongle is no longer manufactured and no replacement is readily available on the market, the circumvention of the damaged dongle is allowed.[94]

The rationale behind this class of exempt works was that many times damaged dongles prevented authorized users from accessing their legally purchased computer program. But because in many cases the software vendors were already out of business or unresponsive, the authorized users were left without the ability to access their legally purchased computer software.[95]

However, the Register refused, for technical reasons and without discussing the subject matter itself, to broaden the exempt class of works to include, "hardware or software incompatibilities or require obsolete

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90. 17 U.S.C. § 1201(a)(1)(c).

91. Ginsburg, *supra* note 82, at 139.

92. *See* U.S. COPYRIGHT OFFICE, RULEMAKING ON EXEMPTIONS FROM PROHIBITION ON CIRCUMVENTION OF TECHNOLOGICAL MEASURES THAT CONTROL ACCESS TO COPYRIGHTED WORKS (2006), *available at* http://www.copyright.gov/1201/docs/1201_recommendation.pdf [hereinafter RULEMAKING ON EXEMPTIONS]. The Librarian of Congress extended, on an interim basis, the 2006 existing exempted classes. *See* U.S. COPYRIGHT OFFICE, EXEMPTIONS TO PROHIBITION ON CIRCUMVENTION OF COPYRIGHT PROTECTION SYSTEMS FOR ACCESS CONTROL TECHNOLOGIES (2009) *available at* http://www.copyright.gov/fedreg/2009/74fr55138.pdf [hereinafter EXEMPTIONS TO PROHIBITION].

93. RULEMAKING ON EXEMPTIONS, *supra* note 92, at p. 33 § III(A)(3).

94. *See Id.*

95. *See Id.*

operating systems or obsolete hardware as a condition of access."[96] Thus, a comprehensive analysis of the market power achieved through the use of the DRM/DMCA regime for fostering incompatibility and by doing so, raising the barrier to entry into the market, was not performed.

An additional class of works that was exempt in the 2006 rulemaking process was computer programs that enable wireless telephone handsets to connect to a wireless telephone communication network, when circumvention is accomplished for the sole purpose of lawfully connecting to a wireless telephone communications network.[97] This exempt class of works is referred to by providers of cell-phone telecommunication networks as the practice of locking the cell phones' operating system using software-based locks.[98] The purpose of such locking was to prevent customers from using their cell phones on a competitor's network (even after all contractual obligations to the original wireless carrier had been satisfied).[99] Under this practice, a customer who wished to change telecommunication network carriers had to purchase a new phone from a competing mobile telecommunications carrier.[100]

While approving this exemption, the Register concluded that the software locks providers of cell phone telecommunication networks used are access controls that adversely affect the ability of consumers to make non-infringing use of the software on their cellular phones.[101] Furthermore, the Register determined that the software lock is not employed in order to protect the interests of the copyright owner or the value or integrity of the copyrighted work; rather, the purpose of the software lock is purely business – to limit the ability of customers to switch to a competitive carrier.[102] By accepting this class of exempt work, the Register did express competition related considerations and discussed inexplicitly certain anticompetitive uses of the DRM/DMCA regime.[103] According to the Register:

> The access controls do not appear to actually be deployed in order to protect the interests of the copyright owner or the value or integrity of the copyrighted work; rather, they are used by wireless carriers to limit the ability of subscribers to switch to other carriers, a business decision that has nothing whatsoever to do with the interests protected by copyright.[104]

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96. *See Id.*

97. *See Id.* at p. 42 §III(A)(5) (2006).

98. *See Id.* p. 48.

99. *See* RULEMAKING ON EXEMPTIONS, *supra* note 92, at p. 48.

100. *Id.*

101. *Id.* at p. 50.

102. *Id.* at p. 50-51.

103. *Id.* at p. 52.

104. *Id.*

Interestingly, the Register dismissed several requests for exempting additional classes of work. Some of them referred to the use of the DRM/DMCA regime in an anticompetitive manner without considering the potential damage to the competition in IT markets resulting from such anticompetitive use of the DRM/DMCA regime.[105] Among these dismissed classes was a request to exempt circumvention of technological measures for space shifting. The purpose of this proposed exemption was to permit circumventing DRMs employed on audiovisual and musical works. This would allow copying these content works to other media or devices and to access these works on those alternative media or devices.[106] The proposed exemption did not identify specific technology to which such content would be copied.[107]

Discussing a similar technology as the Kaleidescape System and the RealDVD software, which allowed its users to store a vast amount of video files by making a secure private copy of every DVD that the consumer uploads and plays on a hard disk drive then played the stored files in any room within the consumer's house,[108] the Register refused to accept this proposed exemption. The Register explained its refusal by stating that there is no legal precedent that declared space shifting as a non-infringing use. Hence, under the current copyright regime, the reproduction of a work onto a new device constitutes copyright infringement.[109] Thus, so long as copying content onto an alternative device is considered copyright infringement, there is no basis for recommending an exemption to the ban on circumvention.[110] In its reasoning, the Register ignored the possibility of anticompetitive use of the DRM/DMCA regime in circumstances similar to those of *Kaleidescape* and *RealNetwork* cases.

The Register also declined to allow circumvention of DRMs employed on DVDs in order to be played on Linux operating systems.[111] By rejecting this proposed exemption, the Register did not consider the importance of having a variety of novel technologies. Inversely, the Register believed that present alternatives such as the ability to play DVDs on television sets at a respectively low cost and possibly having a dual-boot system on a computer of a Linux user was sufficient enough.[112]

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105. RULEMAKING ON EXEMPTIONS, *supra* note 92, at p. 69-78 § III(B)(2)-(6).

106. *Id.* at p. 69 § III(B)(2).

107. *Id.*

108. Kaleidescape did not circumvent the CSS, but rather kept it secured. *See* Julie Jacobson, *DVD CCA Aims to Prohibit DVD Ripping Once and for All,* CEPRO, June 21, 2007, http://www.cepro.com/article/dvd_cca_aims_to_prohibit_dvd_ripping_once_and_for_all/ (last visited Feb. 24, 2010).

109. RULEMAKING ON EXEMPTIONS, *supra* note 92, at p. 70.

110. *See Id.*

111. *Id.* at p. 72-74.

112. *Id.* at p. 74.

Therefore, reviewing the exemptions to and limitation of the DMCA anti-circumvention provisions reveals a rather gloomy picture. As described above, the exemptions are pretty narrow. Moreover, in most cases, only savvy users can benefit from the existence of the exemptions and limitations.

3. *The DRM/DMCA Regime - A Birth of a New Right?*

Following the enactment of a broad ban on circumvention activity escorted by limited exemptions as described above, the combination of the legal rule under the DMCA and the technological tool, the DRM, created a new regime: the DRM/DMCA regime. By protecting the application of DRMs and prohibiting the circumvention of DRMs and the trafficking of circumvention tools, the DRM/DMCA regime bestowed the entertainment industry with a new and strong right, "paracopyright."[113] This right controls access to the copyrighted work. Such a right is distinguished from the familiar set of exclusive rights of the copyright owner, such as reproduction, creation of derivative works, distribution, and public performance/display.[114]

Indeed, the practice of placing DRMs on digital music has been declining. For example, the major record labels have signed an agreement with Apple for the removal of the DRM from songs sold via Apple's online music store, iTunes.[115] The celebration, however, of the retreat of DRMs[116] based on such developments was premature. DRMs are still used as a tool for oppression of legitimate competition.[117]

There are several instances in which right holders took advantage of the DRM/DMCA regime. I will discuss the use of the DRM/DMCA regime and the effect of such use on competition in IT markets in Section IV. Before delving into this subject, however, it is important to understand the unique features of the IT market as well as the competition in such a market. Understanding the unique features and the competition in such a market is crucial for analyzing the adequacy of the conceptual framework of both antitrust law and copyright law to regulation of anticompetitive behaviors in IT markets in the United States.

III. IT MARKETS AND COMPETITION

As stated earlier,[118] the main goal of this article is to examine the

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113. *See Anticircumvention Misuse*, *supra* note 9, at 1096.

114. Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 Harv. J. L. & Tech. 41, 48 (2001).

115. Apple Press Release, *supra* note 15.

116. Felten, *supra* note 15.

117. Federal Trade Commission, *supra* note 15.

118. *See* Section I, *supra*.

limits of the conceptual framework of the antitrust law and copyright law for regulating possible anticompetitive effects of the DRM/DMCA regime on competition in IT markets in the United States. As I shall further discuss in this Section and in Section IV, the unique features of IT markets and the dynamic competition in such markets may require modifications of antitrust policy.[119] Therefore, a comprehensive examination of this research question requires a prior understanding of the unique features of IT markets and the competition in such markets.

In order to obtain such an understanding, I will start this Section by presenting the difference between competition in IT markets and traditional markets. I will then emphasize the additional feature of IT markets represented by the role that nonmarket production models play in such markets. Afterwards, I will discuss the effect these features may have on the analysis of the conceptual framework of both antitrust law and copyright law for the regulation of anticompetitive behaviors in IT markets in the United States.

A.   IT Markets and Traditional Markets

Generally speaking, markets in the New Economy, such as IT markets, differ from traditional markets in the type of competition. While the competition in the traditional market is static, competition in IT markets is dynamic.[120]

A market that is characterized by static competition is usually a homogenous, substitutable product market, which can be easily identified.[121] A market characterized by dynamic competition, on the other hand, is usually an innovation market with strong R&D efforts and a data market, rather than a product market.[122] Thus, not only is such a market difficult to define,[123] in addition, a data market may also present new concerns relating to consumer protection. Frequently, harm to consumers might be considered to be a violation of antitrust law. For example, undermining compatibility between software products or delaying the development of competing products can be considered examples of

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119.   *See* J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law,* 5 J. Competition L. & Econ. 581 (2009).

120.   Evans, *supra* note 16, at 255-58.

121.   *See* Sidak & Teece, *supra* note 119, at 602-03.

122.   *See Id.* at 603-07. Pamela Jones Harbour & Tara Isa Koslov, *Section 2 in a Web 2.0 World: An Expanded Vision of Relevant Product Markets*, 76 Antitrust L. J. (forthcoming 2010) (on file with author).

123.   J. Thomas Rosch, Antitrust Regulation of Innovation Market, Remarks at the ABA Antitrust Intellectual Property Conference (Feb. 5, 2009), *available at* http://www.ftc.gov/speeches/rosch/090205innovationspeech.pdf.

indirect consumer harm that are also treated as antitrust violations.[124] The ramifications such concerns may have on antitrust law are yet to be examined, however.

Dynamic competition is also characterized by a strong network effect.[125] Network effect is a familiar phenomenon both in dynamic and static competition. A market demonstrates a network effect when, everything else being equal, the value for a buyer of an extra unit is higher when more units are sold.[126] In static competition, for example, the telephone network demonstrates a network effect. In dynamic competition, however, the network effect is different from that in static competition in the sense that in dynamic competition, the network is a collection of different but compatible goods that share a common technical platform called a *virtual network*.[127] For example, all computers running the Microsoft Vista operating system share the same virtual network.[128] Moreover, in static competition, the manufacturer of the controlling homogenous goods holds the dominant market power. Whereas in virtual networks, the dominant market power is vested in the hands of the firm that owns the common technical platform, *i.e.*, the technical standard, which allows all the different but compatible goods to connect to the same virtual network.[129]

Another difference between dynamic competition and static competition concerns the fixed and marginal costs. The fixed cost of producing goods – both in a static competition and in a dynamic competition –is usually high.[130] Firms must invest significant amounts of time, money, and effort in research that is necessary for developing their product. Hence, their fixed costs are rather high. The marginal cost, *i.e.*, the cost for developing an additional unit of the same product, is rather low in a dynamic competition compared to static competition.[131] In dynamic competition, after the initial high investment, and once the development

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124. Mark Cooper, *Antitrust as Consumer Protection in the New Economy: Lessons from the Microsoft Case*, 52 HASTINGS L. J. REVIEW 813, 859-63 (2001).

125. *See* Thomas A. Piraino, Jr., *A Proposed Antitrust Approach to High Technology Competition*, 44 WM. & MARY L. REV. 65, 74-95 (2002); William Landes & Richard Posner, *Indefinitely Renewable Copyright,* 70 UNIV. OF CHIC. L. REV. 471 (2003).

126. *See* Piraino, *supra* note 125, at 74-95; Landes & Posner, *supra* note 125.

127. Seungwoo Son, *Can Black Dot (Shrinkwrap) Licenses Override Federal Reverse Engineering Rights? The Relationship between Copyright, Contract and Antitrust Laws*, 6 TUL. J. TECH. & INTELL. PROP. 63, 138 (2004).

128. Nicholas Economides, *Competition Policy in Network Industry: An Introduction*, *in* THE NEW ECONOMY AND BEYOND: PAST, PRESENT AND FUTURE 96 (Dennis W. Jansen ed., 2006).

129. Wendy Milanese, *The Tension Must Break: The Irreconcilable Interplay Between Antitrust, Defenses to Infringement and Protection of Standardized Software Development Tools*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 407, 415-17 (1999).

130. Evans, *supra* note 16.

131. *Id.*

of the product is complete, the marginal cost is low. For example, Microsoft devoted 10,000 employees over a five year period to develop its Vista operating system.[132] Assuming each employee earned about $200,000 as a yearly average, it cost Microsoft billions of dollars to develop Vista.[133] Once the development was completed, however, the cost of creating an additional copy of the software was nearly zero. Contrastingly, in static competition, once the design of a chair is completed, the marginal cost for producing an additional unit of the same chair could be quite expensive, as each chair that is created requires the same investment in raw materials and human labor.

An additional feature of dynamic competition, which distinguishes it from a static one, concerns the weight of raw material and human labor in each type of competition. In dynamic competition markets, the goods are the result of the creative skills of an individual, be it an individual operating on his own in a nonmarket based platform, or an employee of a commercial firm.[134] Unlike in a static competition market, there is hardly any need for manufacturing plants or equipment in order to develop a successful product.[135] As the most important resource for the development and creation of the goods in dynamic competition markets is the human resource, firms in an IT market are less capital intensive and more labor intensive.[136]

Furthermore, in static competition, the goods compete with each other within the same single period.[137] For example, in the telephone market, the providers of telephone lines and services compete with each other over who will provide consumers with attractive telephone services at the lowest price during the same period. Dynamic competition, however, is not among the same goods at the same single period. Innovative goods do not compete with each other within a single period, but rather over time.[138] Thus, competition between goods sold simultaneously is irrelevant for assessing competition in a dynamic market. In dynamic competition, the competition is not about who can sell a product or provide a service for the lowest price. Competition in a dynamic market is about who will introduce the most innovative product or an improved

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132. Dean Takahashi, *Why Vista Might be the Last of its Kind?*, THE SEATTLE TIMES, Dec. 4, 2006, *available at* http://seattletimes.nwsource.com/html/businesstechnology/2003 460386_btview04.html.

133. *Id.*

134. Evans, *supra* note 16, at 256-57.

135. *Id.*

136. *Id.* This feature of dynamic competition eventually leads to the reduction in the firm's importance and the increasingly significance of nonmarket peer production mechanisms. *See* BENKLER, *supra* note 17, at 126-27.

137. Ariel Katz, *Making Sense of Nonsense: Intellectual Property, Antitrust and Market Power*, 49 ARIZ. L. REV. 837, 874-75 (2007).

138. *Id.*

product into the market.[139] Therefore, in order to evaluate competition in a dynamic market, one should examine the competition between different entities for the development of a new product that may replace the existing one.[140]

B.   Different Production Models

IT markets are not only characterized by dynamic competition, as opposed to static competition in traditional markets, but also the role that nonmarket based production models play in the production of information goods.[141] This feature of IT markets is also relevant to the main goal of this article – examining the limits of the conceptual framework of the antitrust law and copyright law for regulating possible anticompetitive effects of the DRM/DMCA regime on competition in IT markets in the United States. As I shall further discuss in Section III.B.2 *infra*, the strengthening of nonmarket production models in IT markets may also have significant implications on the adequacy of the conceptual framework of antitrust law and of copyright law for regulating possible anticompetitive effects in IT markets in the United States.

1.   *Nonmarket Based Information Production Models*

In traditional markets, the production of information and knowledge is governed by the industrial information economy.[142] The production and distribution of valuable and important information goods requires physical capital.[143] Making information goods widely accessible and distributing them to a wide audience involves a lot of physical and financial capital.[144] Raising the financial investment necessary for funding the physical capital is only possible if market based production and organizational strategies are taken.[145]

Thanks to the development of the Internet, personal computers, and network connections during the past decade and a half, the physical capital that was once necessary for the production of information goods is now widely distributed throughout society.[146] Personal computers, which serve as the physical capital necessary for information production, are rather cheap and widely distributed.[147] Most of the raw material necessary for information production, such as information, knowledge,

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139. *Id.*

140. *Id.*; Sidak & Teece, *supra* note 119, at 599-00.

141. BENKLER, *supra* note 17, at 41-48.

142. *Id.* at 31-32.

143. *Id.*

144. *Id.*

145. *Id.*

146. *Id*.

147. BENKLER, *supra* note 17, at 6.

and culture, are now available for use as a public good.[148] Furthermore, the technical architecture of the Internet provides a solution for most of the problems associated with information production.[149] Thus, the physical capital is no longer the economic core of information production.[150] Moreover, these technological developments led to a significant reduction in the cost of producing and distributing information and knowledge, which eventually led to a reduction in the necessity of commercially concentrated business models as the single economic structure for the production and communication of information and knowledge.[151]

Thus, as Professor Benkler brilliantly explained, these technological developments and changes have led to the emergence of network information production that uses the physical capital held by individuals in society.[152] Network information production is characterized by peer production (also known as "wikinomics"),[153] *i.e.*, cooperative and coordinated actions taken by decentralized individuals in a nonmarket mechanism, free of proprietary strategies.[154]

There are several prominent examples of nonmarket peer production mechanisms of information goods.[155] Free software, an approach to software development initiated by Richard Stallman and based on peer production, collaboration between developers, and a nonproprietary model, is one of these examples.[156]

NASA provides another example of nonmarket peer production mechanisms of information goods. NASA requested public help in suggesting creative ways to analyze and electronically catalog a collection of notes by rocket scientist Wernher von Braun.[157]

Another example is Yelp, a review website that allows businesses to post their advertisements and business profiles on it and then in turn

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148. *Id.* at 105.

149. *Id.* at 105-06.

150. *Id.* at 52.

151. *Id.* at 63-68.

152. *Id.* at 6.

153. *See* Daryl Lim, *Beyond Microsoft: Intellectual Property, Peer Production and the Law's Concern with Market Dominance*, 18 FORDHAM INTELL. PROP., MEDIA & ENT. L. J. 291, 300 (2008).

154. BENKLER, *supra* note 17, at 62-63.

155. *See*, *e.g.*, Wikipedia, http://www.wikipedia.org/ (last visited Mar. 25, 2010); Yelp, http://www.yelp.com/ (last visited Feb. 21, 2010 12:00 GMT).

156. BENKLER, *supra* note 17, at 50-56.

157. Betsy Mason, *NASA Wants Your Ideas for Digitizing Rocket Scientist's Notes*, WIRED SCIENCE, June 26, 2009, http://www.wired.com/wiredscience/2009/06/nasadata-2. In addition, NASA invited users to devote a few minutes of their time in order to "mark craters on maps of Mars, classify craters that have already been marked, or search the Mars landscape for "honeycomb terrain." The work done by the users, "the click-workers," substituted an analysis by scientists or graduate students. BENKLER, *supra* note 17 at 69-70.

enables individual users to post their review on any business in their geographical location.[158] This is an example of a powerful nonmarket peer production model. Yelp is even said to have the power to make or break restaurants and small businesses in the San Francisco Bay Area, where the Yelp service started.[159]

Indeed, nonmarket mechanisms already existed in the past and are not new phenomena of IT markets. Helping a friend to move to a new apartment or providing a neighbor a cup of sugar are just a few examples for such nonmarket mechanisms. Previously, the role of such nonmarket production mechanisms, however, was quite minor in light of the need for high physical and financial capital for enabling the creation and distribution of information goods. Hence, it did not have much effect on competition in traditional markets.[160]

Today, nonmarket mechanisms for the production of information and knowledge take a far greater role in IT markets than in traditional markets.[161] Furthermore, nonmarket based information production models are here to stay, and their role in the production of information is about to increase.[162]

2. *The Importance of Nonmarket Information Production Models in IT Markets*

Nonmarket based information production mechanisms are an important and distinctive feature of IT markets.[163] Nonmarket based information production mechanisms present a new source of competition in IT markets.[164] The new source of competition is not the familiar outcome of R&D efforts conducted by commercial firms, governmental funded entities, or research institutions. It is an additional and new source of competition whose origins are outside the familiar commercial structure of traditional markets and should be taken into account as a real and efficient alternative to market based information production mechanisms.[165]

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158. Yelp, http://www.yelp.com (last visited Feb. 21, 2010).

159. Claire Cain Miller, *The Review Site Yelp Draws Some Outcries of Its Own*, N.Y. TIMES, Mar. 2, 2009, at B1, *available at* http://www.nytimes.com/2009/03/03/technology/start-ups/03yelp.html (last visited Feb. 24, 2010).

160. *See generally* BENKLER, *supra* note 17, at 59-90 (discussing peer production and product sharing).

161. *See generally Id.* at 359-90 (discussing peer production and product sharing).

162. *Id.* at 105-06. Large commercial firms are leaning upon such nonmarket based information production mechanisms for the provision of customers' service. Steve Louhr, *Customer Service? Ask a Volunteer*, N.Y. TIMES, Apr. 25, 2009, at BU4, *available at* http://www.nytimes.com/2009/04/26/business/26unbox.html.

163. BENKLER, *supra* note 17, at 68.

164. *Id.* at 122-23.

165. *Id.* at 108-09.

The market of web browsers provides a good example for the enhancement of dynamic competition through nonmarket based information production mechanisms.[166] Firefox, a free, open-source web browser, was first introduced into the market in 2004 by two young developers, Dave Hyatt and Blake Ross.[167] Over the years, it has become more popular, introducing security standards and features that were not offered by the dominant browser, Microsoft's Internet Explorer.[168] After three years, in November 2007, Firefox's market share was 14.45% and Explorer's was 79.26%.[169] Firefox continues to remain competitive with Microsoft in the web browser market, taking a larger market share away from Explorer's dominance in the browser market.[170]

Furthermore, nonmarket information production mechanisms introduce new and innovative information goods produced by individual users, thus adding to the variety of information goods produced by commercial firms.[171] For example, Encyclopedia Britannica introduced a new feature to its online version, allowing its users to edit its online content.[172] Microsoft also responded to the competition it faces in the web browser market by introducing the tabbed browsing feature in its Internet Explorer version 7, released in 2006, a feature long used by Firefox.[173]

Moreover, when the source of competition is peer production nonmarket mechanisms, it is difficult to define the relevant market and predict its scope. Unlike traditional markets, where the identity of the competitors can be deduced from the existing commercial firms in the market, the source of competition in IT markets is unknown.[174] In addi-

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166. *Id.* at 56-58.

167. JESSICA LIVINGSTON, FOUNDERS AT WORK: STORIES OF STARTUPS' EARLY DAYS 395 (2007).

168. Josh McHugh, *The Firefox Explosion*, WIRED, Feb. 2005, *available at* http://www.wired.com/wired/archive/13.02/firefox.html.

169. Net Applications Browser Market Share for November 2007, http://marketshare.hitslink.com/browser-market-share.aspx?qprid=0&qpmr=100&qpdt=1&qpct=0&qptimeframe=M&qpsp=102&qpnp=1(last (last visited Feb. 24, 2010).

170. *See* Net Applications Browser Market Share for January 2010, http://marketshare.hitslink.com/browser-market-share.aspx?qprid=0&qpmr=100&qpdt=1&qpct=0&qpcal=1&qpcal=1&qptimeframe=M&qpsp=133 (last visited Feb. 24, 2010). Firefox's market share increased to 24.43%, while Microsoft Explorer's market share declined to 62.12%. *Id.*

171. BENKLER, *supra* note 17, at 126-27.

172. Stephen Hutcheon, *Watch out Wikipedia, Here Comes Britannica 2.0*, SYDNEY MORNING HERALD (Jan. 22, 2009), *available at* http://www.smh.com.au/news/technology/biztech/watch-out-wikipedia-here-comes-britannica-20/2009/01/22/1232471469973.html.

173. Robert Vamosi, *Internet Explorer v. 7 v. Firefox 2*, CNET REVIEWS, http://reviews.cnet.com/4520-10442_7-6656808-1.html?tag=hed (last visited Feb. 24, 2010). The tabs feature is the little labels living above the site currently browsed. The tabs allow browsing multiple sites at once.

174. *See generally* BENKLER, *supra* note 17.

tion, the products in the IT market are not predictable and change rapidly. The competition in IT markets is not only between existing participants with respect to known and substitutable products;[175] competition in IT markets is also between unknown individuals, commercial firms, or products not yet in the market.[176] Products not yet in the market cannot be products that are substitutable. It is difficult, therefore, to define in advance the relevant IT market.[177]

In light of the abovementioned implications of nonmarket based information production mechanisms, any economic analysis of an IT market must consider the dynamic nature of the competition in IT markets as well as the existence of nonmarket based information production mechanisms. Analysis of the conceptual framework of antitrust law and of copyright law for regulating IT markets should also consider these factors.[178]

In this article, however, I will only discuss the regulation of anticompetitive behaviors under the DRM/DMCA regime, which is a narrower aspect of the conceptual framework of antitrust law and of copyright law for regulating IT markets. The regulation of anticompetitive behaviors under the DRM/DMCA regime will be discussed in light of the dynamic feature of competition in IT markets and the significant role nonmarket based information production models play in such markets. In order to delve into the examination of this narrow matter, I will first present in the following section several case study behaviors under the umbrella of the DRM/DMCA regime.

IV. ANTI-COMPETITIVE USE OF THE DRM/DMCA REGIME

In IT markets, anticompetitive behaviors may be defined as any behavior aimed at controlling and reducing the continuing development of innovative technologies and products.[179] This section will explore several examples that show how the DRM/DMCA regime may facilitate anticompetitive behaviors. These examples will serve as my case studies for the examination of the limits of the conceptual framework of antitrust law and of copyright law for regulating IT markets in the next sections.

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175. Sidak & Teece, *supra* note 119, at 614-16.

176. MICHAEL A. CARRIER, INNOVATION FOR THE 21ST CENTURY: HARNESSING THE POWER OF INTELLECTUAL PROPERTY AND ANTITRUST LAW 31 (2009).

177. GLADER, *supra* note 18, at 27.

178. BENKLER, *supra* note 17, at 108-09.

179. GLADER, *supra* note 18, at 28.

A. KALEIDESCAPE

Kaleidescape, a technology company founded in 2001 in Sunnyvale, California, developed the Kaleidescape System. The Kaleidescape System is an expensive tool for storing, indexing, organizing, searching, and playing DVDs. It allows consumers to store a vast amount of video files by making a secure, private copy on a hard disk drive of every DVD that the consumer uploads. The system then allows the consumers to play back the stored files, without the need to reinsert the DVD, in any room within the consumer's house.[180]

The Kaleidescape System is not accessible via the Internet; hence, the content stored on it cannot be transformed or shared via the Internet.[181] Furthermore, Kaleidescape designed its system so that decrypted copied content could not be pirated. However, the system cannot distinguish between a DVD owned by the user and one borrowed or rented. Therefore, the system copies content from any DVD a user inserts into the system.

Kaleidescape sought to prevent illegal use of its system through contractual means. It required all purchasers of the Kaleidescape System to sign an agreement by which they agree to import content only from DVDs they own. Moreover, the Kaleidescape System reminds the user of their promise each time a user imports a new DVD, requesting a user to confirm that she owns the DVD and will otherwise delete the unauthorized content of the DVD from the Kaleidescape System.[182]

In order to manufacture and distribute the Kaleidescape System, which is a CSS enabled DVD product, Kaleidescape obtained the CSS License. It invested substantial efforts in order to comply with the CSS License restrictions and to keep the CSS protection on any video file stored on its system.[183] In December 2004, the DVD CCA filed a lawsuit against Kaleidescape for breach of the CSS license. According to the DVD CCA, the Kaleidescape System's purpose was to allow illegal copying of DVDs. This purpose directly contradicted the explicit purpose of the CSS License to prevent the wholesale copying of protected DVDs.[184]

On March 29, 2007, after a seven day trial, Judge Leslie C. Nichols of the Santa Clara Superior Court in California dismissed the lawsuit and held that the document (known as the "General Specification"), which details the technical specifications required for the implementa-

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180. *See* Kaleidescape, *Products*, http://www.kaleidescape.com/products/ (last visited Feb. 24, 2010).

181. *See Id.*

182. DVD Copy Control Ass'n Inc. v. Kaleidescape, Inc., 176 Cal. App. 4th 697, 704 (6th Dist. 2009).

183. Jacobson, *supra* note 108.

184. Borland, *supra* note 36.

tion of the CSS within the licensee's technology was not part of the CSS license agreement. Therefore, Kaleidescape did not breach the CSS license agreement.[185] The Court of Appeal of the State of California reversed this ruling.[186]

The Court of Appeal interpreted the parties' mutual intent at the time the CSS license agreement was signed. The court concluded that the parties meant to treat the "General Specification" as an integral part of the CSS license agreement. Therefore, the Court of Appeal remanded the case back to the trial court to determine whether Kaleidescape breached the CSS license agreement, including the "General Specification."[187]

Although the Court of Appeal's ruling examined the contractual matter, it may impose serious obstacles on future innovation. The Court of Appeal described the Kaleidescape System as mainly facilitating infringing use by allowing "users to make permanent copies of borrowed or rented DVDs so that a user could amass a sizeable DVD library without purchasing a single DVD."[188] The court reached this conclusion without addressing possible implications of the DRM/DMCA regime, examining the technological architecture of the Kaleidescape System or balancing the interests of copyright owners and the public.

This ruling may have destructive implications on future innovation. A technology entrepreneur company that wishes to develop a DVD recording device would have to develop a technology that complies with the technical specifications set forth years earlier by the DVD CCA. Among the main members of the DVD CCA are the Hollywood studios as well as top consumer electronics manufacturers and computer makers in the industry.[189] Thus, the mandatory technical specifications would likely impose strong copyright protection standards and reflect the interests of the major and powerful hi-tech firms in the industry. As a result, the scope of innovative technologies that are allowed to be developed would be strictly limited to those that will not impose serious threats on the dominant position of the major and powerful hi-tech firms in the industry. Furthermore, all future technologies would have to comply with overly broad copyright protection standards. Therefore, this ruling imposes serious setbacks on any hi-tech entrepreneur attempting to develop the next innovative "killer" application and compete with the major technology companies currently operating in the same market.

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185. DVD CCA v. Kaleidescape, Santa Clara Superior Court, California, Statement of Decision, *available at* http://www.kaleidescape.com/files/legal/DVDCCA-vs-Kaleidescape-Statement-of-Decision.pdf.

186. *Kaleidescape*, 176 Cal. App. 4th 697.

187. *Id.* at 727.

188. *Id.* at 729.

189. *See* Jacobson, *supra* note 108.

Only Judge Rushing in his concurring opinion seemed to balance between the interests of the copyright owners and the importance of future innovation. Judge Rushing concluded that the Kaleidescape System was not "designed or intended to facilitate the theft of intellectual property."[190] Rather, the possibility to create unauthorized copies of copyright protected content using the Kaleidescape System is only an incidental effect. Moreover, such ability is identical, according to Judge Rushing, to the use of "an ordinary personal computer with freely available DVD-copying software" which is far more powerful and much cheaper than the Kaleidescape System.[191] Judge Rushing further emphasized that unlike all other widely available PC and DVD-copying software, Kaleidescape made every effort to warn consumers from illegally using the Kaleidescape System.[192] Moreover, Judge Rushing noted that the Kaleidescape System allows the user to create only one copy of a DVD and that copy resides only on the Kaleidescape System itself, while using an ordinary PC with DVD copying software allows a user to create as many illegal copies as they want.[193]

Judge Rushing, therefore, concluded that Kaleidescape should not be condemned for "marketing a system that, as an incident of its core function, stores a copy of a DVD's content on a secure hard drive."[194] Judge Rushing's concurring opinion resembles in its rationale the Sony safe harbor, a judicially made defense argument based on the Supreme Court's ruling in the *Sony Corp v. Universal City Studios*.[195] According to the Sony safe harbor, a manufacturer of a technological device would not be liable for copyright infringement using its device, if its device is capable of substantial non-infringing uses.[196] The Court's decision in *Sony* was motivated by several important policy considerations. The goal of the Court was to strike the correct balance between the need to provide copyright holders adequate protection of their statutory monopoly and the right of others freely to engage in substantially unrelated areas of commerce.[197] The same policy consideration should be taken into account today in order to minimize the negative ramifications of the DRM/DMCA regime and the strengthening of the rights of the copyright owners.

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190. *Kaleidescape*, 176 Cal. App. 4th at 728.

191. *Id.* at 729-30.

192. *Id.*

193. *Id.*

194. *Id.* at 885.

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

196. *See Id.*

197. *See Id.* at 442.

B. REALNETWORKS

Following the trial court ruling in *Kaleidescape*, RealNetworks developed, marketed, and distributed a software product internally called Vegas. Vegas was available for download on any personal computer with the Microsoft Windows operating system.[198] Vegas was capable of making a copy of any CSS-protected DVD on a personal computer hard drive, laptop computer, or portable hard drive. This software would then allow the user to play back the copied content without the DVD.[199] In addition, Vegas had several other features, including looking up information about the specific film, TV series, or other creative content on the DVD from an Internet database.[200]

RealNetworks also began developing a new hardware product whose software was based on Vegas. The new hardware platform, internally named Facet, was designed by RealNetworks as the "next generation" DVD player. Similar to the Kaleidescape System, it was intended to allow its users to save a CSS-protected DVD on its internal hard drive. It would then organize and playback the saved DVD without the need of the physical DVD. Because Vegas and Facet's software functioned the same way, the court chose to refer to both the Facet and Vegas programs as RealDVD.[201]

RealDVD was capable of avoiding any interference in the DVD ripping process caused by either ARccOS or RipGuard software used by movies studios to prevent DVD ripping.[202] Nevertheless, RealDVD was designed to preserve the CSS content encryption and to add an additional and stronger encryption called the Advanced Encryption System ("AES"). The Advanced Encryption System is far more secure and difficult to crack than CSS. Moreover, because both the master keys to that AES encryption are held by RealNetworks, copies of DVDs made by the RealDVD products can only be played back by RealDVD software.[203]

RealDVD's end user license agreement restricted the use of the software to DVDs that are legally owned by the user.[204] However, as the court concluded, there was no way for RealDVD software products to avoid making copies of rented or borrowed DVDs. RealDVD software products were not capable of distinguishing between DVDs legally owned by a user and DVDs borrowed or rented by a user.[205]

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    198. *RealNetworks*, 641 F. Supp. 2d at 924.
    199. *See Id.* A user was capable of making copies of a stored DVD on up to five computers that contained Vegas and were registered under the same user's license key. *Id.*
    200. *Id.*
    201. *Id.* at 924-25.
    202. *Id.* at 929-30.
    203. *Id.* at 927.
    204. *RealNetworks*, 641 F. Supp. 2d at 926.
    205. *Id.* at 926-27.

In September 2008, certain movie studios and the DVD CCA filed a lawsuit against RealNetworks seeking to prevent it from marketing the RealDVD software product. The movie studios claimed that RealNetworks breached the CSS License and violated Section 1201(a)(2) of the DMCA by circumventing the CSS.[206] As described in Section II.B.2. *supra*, Section 1201(a)(2) of the DMCA prohibits, among other things, manufacturing and trafficking a technology knowing that such technology can be used for circumventing a technological measure that effectively controls access to a copyrighted work.[207] In order to prevail on a DMCA claim for violation of the access-control provision based on circumvention of CSS technology, it is necessary, therefore, to show that CSS is a "technological measure" that "effectively controls access" to copyrighted works. A technological measure that effectively controls access to a copyrighted work is defined in Section 1201(a)(3)(B) as a measure that imposes certain requirements prior to obtaining access to a copyrighted work.[208] RealNetworks argued, in its defense, that because the CSS had been hacked years before the development of RealDVD products, the CSS does not "effectively control" access to a copyrighted work in the manner defined by the DMCA.[209] Therefore, RealNetworks argued that the movie studios and the DVD CCA could not prevail on their claim for DMCA violation.[210] The court rejected RealNetworks' argument, holding that the test for determining whether a measure effectively controls access to a copyrighted work is whether it provides access to a work in its ordinary course of operation and with the authority of the copyright owner.[211] The fact that the measure had been hacked and the keys for circumventing it were made available over the Internet is not sufficient to invalidate it as a measure that effectively controls access to a copyrighted work.[212]

Following that determination, the court examined whether RealDVD circumvents the CSS technology without the authorization of the copyright owners.[213] RealDVD's main purpose, as admitted by RealNetworks, was to allow its users to create copies of DVDs to computer hard drives and play back those DVDs without the physical copy of

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206. *Id.* at 917.

207. *See* 17 U.S.C § 1201(a)(2).

208. "[A] technological measure "effectively controls access to a work" if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work." *Id.* at §1201(a)(3)(B).

209. *RealNetworks*, 641 F. Supp. 2d at 932-34.

210. *Id*.

211. *Id.*

212. *See Id.*

213. *Id.* at 935-37.

the DVD.[214] In order to create a copy of a DVD, RealDVD circumvents the CSS.[215] The CSS license agreement permits a licensee to circumvent the CSS technology *only* for the purpose of reading the physical copy of a DVD in order to play it on a DVD player.[216] Therefore, RealDVD's circumvention for the purpose of playing the DVD directly from a computer hard drive without the physical copy of the DVD was not permitted under the CSS license agreement and was done without authorization from the copyright owners.[217] Furthermore, the court held that RealDVD's circumvention of the CSS technology was also a violation of the DMCA. The DMCA's purpose is to protect the right of copyright owners "to decide who may gain access to their copyright works in digital format."[218] Determining that the purpose of the DMCA is to protect copyright owners' right to control the access to their copyrighted work further confirms the allegation that the DRM/DMCA regime gives copyright owners a new and strong right: the right to control any access, even if the purpose is for fair use, to their protected work.[219]

The court continued strengthening the rights of copyright owners when it rejected RealNetworks' Sony safe harbor defense that the circumvention of the CSS was done for the purpose of fair use.[220] The court cited the holding in *Universal City Studios v. Reimerdes* and noted that "*Sony* came down before the DMCA was enacted and, thus, is superseded to the extent that the DMCA broadened copyright owners' rights beyond the *Sony* holding."[221] Furthermore, the court reasoned that because RealNetworks' technology is different from the technology at the time *Sony* was decided, RealNetworks cannot rely on the Sony safe harbor defense in order to establish a new form of time shifting under the DMCA. The court further held that the fair use defense provides an exemption only from liability under section 1201(b) of the DMCA.[222] Thus, only a circumvention of a copy protection measure by an individual can be considered fair use.

The court explained, "the DMCA's 'user exemption' is only for the individual who has gained authorized access and who may circumvent the protection measures pursuant to lawful conduct, such as to make fair use of the subject work."[223] According to this holding, under the DRM/

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214. *Id.* at 935.

215. *RealNetworks*, 641 F. Supp. 2d at 935.

216. *Id.* at 936.

217. *Id.* at 936-37.

218. *Id.* at 936.

219. *Id.* at 935.

220. *Id.* at 936-37 (N.D. Cal. 2009). *See Sony*, 464 U.S. 417.

221. *RealNetworks*, 641 F. Supp. 2d at 942 (citing *Universal City Studios v. Reimerdes*, 11 F. Supp. 2d 294, 323 (S.D.N.Y. 2000)).

222. *Id.*

223. *Id.* (citing *Reimerdes*, 11 F. Supp. 2d at 323).

DMCA regime, in order to perform fair use, it is necessary to obtain access to the digital format of the copyrighted content.[224] A user can no longer perform a fair use of protected content without having purchased access to the whole work in a digital format.

The court was perfectly aware that its ruling would strengthen the copyright owners set of rights.[225] According to the court, it was bound to hold this new balance as long as it followed the balance set forth by Congress while enacting the DMCA.[226] The "DMCA re-balanced the competing interests of copyright owners against copyright users" and "tipped the balance towards copyright owners."[227] The court has no discretion to change this balance by weighting the public interest as a factor in determining whether RealDVD circumvents the DMCA or not.[228]

C. LEXMARK

Lexmark has also tried to take advantage of the DRM/DMCA regime.[229] Lexmark divided the market for toner cartridges according to the type of consumer.[230] Regular consumers were offered non-prebate toner cartridges, which were sold free of any use restriction and were available for refill by any third party.[231] Business consumers were entitled to prebate cartridges that were sold at an upfront discount.[232] The prebate cartridges were subject to several restrictions that were detailed on the shrink-wrap license agreement.[233] One of these restrictions demanded business consumers to only refill the prebated cartridges with Lexmark ink.[234] This restriction was technologically anchored via a DRM measure in the form of an authentication sequence that performed a secret "handshake" between the Lexmark printer and a microchip on each Lexmark toner cartridge.[235]

Static Control Components ("SCC") mimicked Lexmark's computer chip and created the Smartek chip that broke the Lexmark authentication code, and thus, caused Lexmark printers to operate even if the cartridge was not refilled by Lexmark.[236] SCC sold its Smartek chip to

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224. *Id*.
225. *Id*.
226. *Id*.
227. *RealNetworks*, 641 F. Supp. 2d at 943.
228. *Id.* at 942-43.
229. Lexmark Int'l., Inc., v. Static Control Components, Inc. (*Lexmark II*), 387 F.3d 522 (6th Cir. 2004).
230. *Id.* at 529-31.
231. *Id*.
232. *Id*.
233. *Id*.
234. As claimed by SCC. *See Id.* at 529-31.
235. *Lexmark II*, 387 F.3d at 529-31.
236. *Id*.

companies interested in selling remanufactured toner cartridges to customers of Lexmark printers.[237]

Lexmark filed a lawsuit against SCC, claiming, among other counts, that SCC violated the DMCA, by circumventing a technological measure designed to control access to the Toner Loading Program, and violated the DMCA by circumventing a technological measure designed to control access to the Printer Engine Program.[238] The court did not analyze Lexmark's behavior under antitrust law.[239] However, Judge Sutton from the Court of Appeals for the Sixth Circuit criticized Lexmark's use of the DRM/DMCA regime and noted that:

> Nowhere in its deliberations over the DMCA did Congress express an interest in creating liability for the circumvention of technological measures designed to prevent consumers from using consumer goods while leaving the copyrightable content of a work unprotected. In fact, Congress added the interoperability provision in part to ensure that the DMCA would not diminish the benefit to consumers of interoperable devices "in the consumer electronics environment.[240]

Concurring with the ruling, Judge Merritt revealed Lexmark's intention to stifle competition and hinder innovation by using the DRM/DMCA regime. In Judge Merritt's words:

> Congress gives authors and programmers exclusive rights to their expressive works (for a limited time) so that they will have an incentive to create works that promote progress. Lexmark's reading of the extent of these rights, however, would clearly stifle rather than promote progress. It would allow authors exclusive control over not only their own expression, but also over whatever functional use they can make of that expression in manufactured goods. Giving authors monopolies over manufactured goods as well as over their creative expressions will clearly not 'promote the Progress of Science and the useful Arts,' but rather would stifle progress by stamping out competition from manufacturers who may be able to design better or less expensive replacement parts like toner cartridges.[241]

D.   CHAMBERLAIN

Another example for an attempt to stifle competition using the DRM/DMCA regime is *Chamberlain v. Skylink*.[242] Chamberlain develops, manufactures, and markets a garage door opener system that consists of a handheld portable transmitter and a garage door opening

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237. *Id*.

238. *Id.*

239. *Id.* at 549 (6th Cir. 2004).

240. *See Id.*; 144 Cong. Rec. E2136 (daily ed. Oct. 13, 1998) (remarks of Rep. Bliley).

241. *See Lexmark II*, 387 F.3d at 553.

242. Chamberlain Group, Inc. v. Skylink Technologies, Inc., 381 F.3d 1178 (Fed. Cir. 2004).

device mounted in the homeowner's garage.[243] The opening device in-cludes both a receiver with an associated signal processing software and a motor to open or close the garage door.[244] In order to open or close the garage door, a user must activate the transmitter, which sends a radio frequency signal to the receiver, located on the opening device.[245] Once the opener receives a recognized signal, the signal processing software directs the motor to open or close the garage door.[246]

Usually, the manufacturer of a garage door opener system provides the customers with both the opening device and a transmitter.[247] How-ever, universal transmitters, which could be interoperated with any ga-rage door opener system, regardless of its brand and model, are available for purchase in the aftermarket.[248]

Skylink developed a universal garage door opener that allowed its users to open Chamberlain's garage door.[249] It is important to note that Skylink and Chamberlain were the only significant distributors of uni-versal garage door opener transmitters in the U.S. market.[250] Chamber-lain contended that by manufacturing and marketing the garage door opener, Skylink violated Section 1201(a)(2) of the DMCA, the anti-traf-ficking provision.[251] Skylink's garage door opener circumvents Cham-berlain's rolling code, which is a technological protection measure that effectively controls the access to Chamberlain's copyrighted software in-corporated within Chamberlain's garage door system.[252] Chamberlain further argued that Skylink's garage door opener has no other signifi-cant commercial purpose other than circumventing Chamberlain's roll-ing code.[253]

The Court of Appeals for the Federal Circuit affirmed the district court's ruling dismissing Chamberlain's lawsuit.[254] The Court of Ap-peals did not perform an antitrust law analysis.[255] However, the Court of Appeals did emphasize the hazardous implications on competition as-sociated with accepting Chamberlain's position that the DRM/DMCA re-gime creates a new protection for copyrighted works, *i.e.* access to the

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243. *Id.* at 1183.
244. *Id.*
245. *Id*.
246. *See Id*.
247. *Id*.
248. *Chamberlain*, 381 F.3d at 1183.
249. *Id*.
250. *Id.*
251. *Id.* at 1185.
252. *Id.* at 1183-85.
253. *Id.* at 1183.
254. *Chamberlain*, 381 F.3d at 1181-82.
255. *See generally Id.*

copyrighted work.[256] In the court's words, "Chamberlain's construction of the DMCA would allow virtually any company to attempt to leverage its sales into aftermarket monopolies — a practice that both antitrust law. . . and the doctrine of copyright misuse. . . normally prohibit."[257]

E.   Antitrust Law to the Rescue?

In light of these described attempts to use the DRM/DMCA regime in an anticompetitive manner, there are also constant attempts to call antitrust law to the rescue. Antitrust law is regarded as the final resort for securing competition in IT markets.

In *Kaleidescape*, Kaleidescape's CEO, Mr. Michael Malcolm, warned the DVD CCA that by requiring a physical copy of a DVD as a condition to play back the content of such DVD, the DVD CCA might expose itself to liability for a violation of antitrust law.[258] However, he did not specify in his allegation the exact antitrust law section violated by the DVD CCA.[259]

Contrary to *Kaleidescape*, RealNetwortks did go further with its antitrust violation allegations and filed a lawsuit against the DVD CCA and several major movie studios in the District Court of the Northern District of California.[260] In its lawsuit, RealNetworks argued that the DVD CCA and several major movie studios violated the antitrust law due to, among other things, their anticompetitive behavior.[261] As shall be further discussed in Section V.D. *infra*, the court, however, dismissed RealNetworks' allegation without performing a thorough discussion of the implications of the unique features of IT markets on antitrust law analysis and enforcement.[262]

In *Lexmark*, SCC also alleged an antitrust violation.[263] SCC contended that Lexmark's actions were of an anticompetitive nature and an attempt to monopolize the market of remanufactured toner cartridges.[264] Furthermore, in the preliminary injunction ruling, the district court examined SCC's copyright misuse defense.[265] In order to

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256. *Id.* at 1201.

257. *Id.*

258. Jacobson, *supra* note 108.

259. *Id.*

260. *RealNetworks*, 641 F. Supp. 2d at 913.

261. *Id.* at 932-34.

262. *Id.* at 942-43.

263. *See* First Amended Complaint, Lexmark Int'l, Inc., v. Static Control Components, Inc., No. 1:02CV01057 (M.D.N.C. 2004), *available at* http://www.eff.org/files/filenode/Lexmark_v_Static_Control/antitrust_complaint.pdf.

264. *Id.*

265. Lexmark Int'l., Inc. v. Static Control Components, Inc. (*Lexmark I*), 253 F. Supp. 2d 943 (E.D. Ky. 2003).

establish a copyright misuse defense, the defendant must show either a violation of antitrust law, illegal extension of the monopoly granted to the plaintiff under copyright law, or a violation of the public policies underlying copyright law.[266] While reviewing the facts of the case, the district court held that SCC did not present any factual or legal basis for its argument that Lexmark violated antitrust law and that Lexmark's prebate software was anticompetitive.[267] The district court further concluded that based on the facts presented to it, Lexmark did not attempt to illegally extend its granted monopoly under copyright law.[268] Rather, the court described Lexmark's actions as an attempt to enforce and protect the access to Lexmark's copyrighted work.[269] Thus, the court rejected the argument that Lexmark misused its copyrights or used the DRM/DMCA regime as a means to stifle competition.[270]

The Court of Appeals for the Sixth Circuit did not address the allegation of an antitrust violation directly, although Judge Merritt in his concurring opinion did mention competition considerations and the effect on further innovation while applying the DMCA anti-circumvention rules.[271] Judge Merritt also addressed concerns that interpreting the DMCA as shifting the burden of proof to the defendant to prove it operated under one of the DMCA or copyright exceptions may lead to devastating implications on future innovation.[272] He stated:

> Misreading the statute to shift the burden in this way could allow powerful manufacturers in practice to create monopolies where they are not in principle supported by law. Instead, a better reading of the statute is that it requires plaintiffs as part of their burden of pleading and persuasion to show a purpose to pirate on the part of defendants. Only then need the defendants invoke the statutory exceptions, such as the reverse engineering exception.[273]

In *Chamberlain*, Chamberlain advocated the interpretation that the DMCA nullified and superseded "all pre-existing consumer expectations about the legitimate uses of products containing copyrighted embedded software."[274] Therefore, according to Chamberlain, the DMCA permitted "manufacturers to prohibit consumers from using embedded software products in conjunction with competing products,"[275] unless the manu-

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266. *Id.* at 966.

267. *Id.* at 965-66.

268. *Id*.

269. *Id*.

270. *Id*.

271. *Lexmark II*, 387 F.3d at 552-3 (2004).

272. *Id*.

273. *Id*.

274. *Chamberlain*, 381 F.3d at 1193.

275. *Id.*

facturer explicitly authorized consumers to do so.[276]

The Court of Appeals for the Federal Circuit held that the practical implications of Chamberlain's interpretation of the DMCA would be granting "manufacturers broad exemptions from both the antitrust laws and the doctrine of copyright misuse."[277] Moreover, the court noted that "Chamberlain's construction of the DMCA would allow virtually any company to attempt to leverage its sales into aftermarket monopolies – a practice that both the antitrust laws and the doctrine of copyright misuse normally prohibit."[278]

With respect to the intersection between copyright law and antitrust law, the court repeated its previous holdings[279] and stated that "intellectual property rights do not confer a privilege to violate the antitrust laws," and antitrust law does not deny the right of an intellectual property owner to exclude others from its property.[280] Furthermore, the court concluded that "the DMCA, as part of the Copyright Act, does not limit the scope of the antitrust laws, either explicitly or implicitly" and that there is no plain repugnancy between the antitrust laws and the DMCA which justifies supremacy or cancellation of antitrust law in light of the DMCA.[281]

F.   SUMMARY

Regulation of IT markets using antitrust law is not unique to the circumstances fostered by the DRM/DMCA regime. Companies like Microsoft, the giant software developer,[282] Google, the giant search engine,[283] Intel, the big PC based chips manufacturer[284] and AOL,[285] one of the major Internet based service providers in the U.S., found them-

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276. *Id.*

277. *Id.*

278. *Id.*

279. *See* CSU, L.L.C. v. Xerox Corp., 203 F.3d 1322, 1325 (Fed. Cir. 2000).

280. *Chamberlain,* 381 F.3d at 1193.

281. *Id.* at 1201-02.

282. United States v. Microsoft Corp. (*Microsoft I*), 84 F. Supp. 2d 9 (D.D.C. 1999); United States v. Microsoft Corp. (*Microsoft II*), 87 F. Supp 2d 30 (D.D.C. 2000); United States v. Microsoft Corp. (*Microsoft III*), 253 F.3d 34 (D.C. Cir.2001).

283. The Justice Department submitted views on the original and the amended settlement agreement between Google and the groups of authors and publishers regarding Google Books. U.S. DEPARTMENT OF JUSTICE, JUSTICE DEPARTMENT SUBMITTED VIEWS ON AMENDED GOOGLE BOOKS SEARCH SETTLEMENT, *available at* http://www.justice.gov/opa/pr/2010/February/10-opa-128.html.

284. Dawn Kawamoto & Michael Singer, *AMD Files an Antitrust Suit against Intel*, CNET NEWS (June 28, 2005), http://www.news.com/AMD-files-antitrust-suit-against-Intel/2100-1001_3-5765844.html (last visited Feb. 24, 2010); Reuters, *EC Takes Antitrust Steps against Intel*, ZDNET NEWS (Apr. 24, 2009), http://news.zdnet.com/2100-9595_22-291618.html (last visited Feb. 24, 2010).

285. Cyber Promotions, Inc. v. Am. Online, Inc., 948 F. Supp. 436 (E.D. Pa. 1996).

selves in the past fifteen years defending their actions against antitrust violation allegations.

So far, however, none of the attempts to find an adequate solution to the anticompetitive use of the DRM/DMCA regime has led to a substantial discussion in courts regarding the application of antitrust law to what is perceived as anticompetitive effects of the DRM/DMCA regime in IT markets. I will now turn to examine the limits of the conceptual framework of antitrust law for regulating anticompetitive use of the DRM/DMCA regime in IT markets in the United States.

V.   ANTITRUST LAWS – THE RIGHT DRUG FOR CURING MARKET FAILURE?

The suitability of antitrust laws to regulating dynamic competition has already been examined by several scholars.[286] In this article, I would like to examine the limits of the conceptual framework of antitrust law for regulating anticompetitive uses of the DRM/DMCA regime not only in light of the dynamic feature of competition in IT markets and the fact it is usually a data market, but also given the significant role nonmarket based information production mechanisms play in IT markets. So far, no thorough analysis of this matter has been performed.

I will start by exploring the conceptual framework governing the application of antitrust law. Thereafter, I will continue by examining the practical application of antitrust law according to this conceptual framework for regulating anticompetitive uses of the DRM/DMCA regime. While examining the application of antitrust law in practice, I shall take into consideration the treatment accorded to the IT market in the Antitrust Guidelines for the Licensing of Intellectual Property[287] and the report on Antitrust Enforcement and Intellectual Property[288] issued by the Antitrust Division of the U.S. Department of Justice and the U.S. Federal Trade Commission (the "agencies"). I will also examine the way courts applied antitrust laws to intellectual property cases.

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286. *See also* Daniel L. Rubinfeld & John Hoven, *Innovation and Antitrust Enforcement*, *in* DYNAMIC COMPETITION AND PUBLIC POLICY 65 (Jerry Ellig, ed., 2001); Pleatsikas & Teece, *supra* note 16, at 95; Evans, *supra* note 16.

287. U.S. DEP'T OF JUSTICE & THE FED. TRADE COMM'N ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY (1995), *available at* http://www.justice.gov/atr/public/guidelines/0558.htm [hereinafter ANTITRUST GUIDELINES].

288. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION (2007), *available at* http://www.ftc.gov/reports/innovation/P040101PromotingInnovationandCompetitionrpt 0704.pdf [hereinafter ANTITRUST ENFORCEMENT].

A. The Conceptual Framework of Antitrust Laws

While framing the Sherman Act,[289] Congress did not provide a clear definition or explanation for the conceptual framework or purpose of the law. Rather, Congress applied a broad language prohibiting all sorts of activity "in restraint of trade,"[290] leaving the task of providing the exact purpose of the law to the courts.[291]

As economic thinking became more and more widespread and economic analysis of the law in general turned to be very common, economic analysis of antitrust law became prevalent as well. Antitrust policy was influenced by different approaches of economic analyses of the market.[292] I shall further explore the current controlling economic reasoning.[293]

1. *Chicago School Era*

At the beginning of the mid-1970s, the Chicago School Approach, a neoclassical economic theory, had a tremendous influence on antitrust policy.[294] The Chicago School Approach was the rational choice theory.[295] According to the rational choice theory, human beings, either individually or collectively, operate out of their rational desire to maximize their ends in life. This behavior is termed "self interest" or "utility."[296]

The rational choice theory assumes that people are rational, have willpower, and will act in their own self-interest. Furthermore, since determining that a "rational" choice is difficult and it is a rather moral and

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289. ,The Sherman Act 15 U.S.C §§ 1-7 (2009).

290. 15 U.S.C. § 1.

291. Terry Calvani & John Siegfried, *Economic Analysis and Antitrust Law* 7-10 (2nd ed., 1988).

292. Richard A. Posner, Economic Analysis of Law 23-29 (7th ed., 2007).

293. A more comprehensive review of the different approaches to economic analysis of antitrust law is beyond the scope of this article.

294. *See* James W. Meehan, Jr. & Robert J. Larner, *The Structural School, Its Critics, and Its Progeny: An Assessment*, *in* Economic and Antitrust Policy 188-190 (Larner & Meehan, Jr. eds., 1989) (citing Joe S. Bain, Industrial Organization 252 (1968)). The Supreme Court seemed to adopt the Chicago School analysis for the first time in *Continental v. Sylvania*, where the court held that non-price vertical restraints can enhance economic efficiency as well as reduce competition. Thus such vertical restraints should be analyzed under the rule of reason and should not be treated as illegal *per se*. *See* Continental Con'l T.V., Inc., et. al. v. GTE Sylvania Inc, 433 U.S. 36 (1977). The influence of the Chicago Schools Approach on judicial analysis of antitrust law became more and more preeminent as several of its most dedicated scholars, such as Robert Bork, Richard Posner and Frank Easterbrook, became Federal Judges. *See* Jonathan B. Baker, *A Preface to Post-Chicago Antitrust*, *in* Post-Chicago Developments in Antitrust Analysis 60-66 (Van Den Bergh, Pardolesi & Cucinotta, eds, 2003).

295. Steven L. Green, *Rational Choice Theory: An Overview* (May 2002), http://business.baylor.edu/steve_green/green1.doc (last visited Feb. 24, 2010).

296. Posner, *supra* note 292, at 3-4.

ethical question, the rational choice theory assumes that people respond in a predictable and similar manner to financial incentives and will pursue their material self-interests without caring about social goals *per se*.[297]

Therefore, the rational choice theory advocates for perfect competition where the price equals the marginal costs, as the most adequate model for achieving efficiency. Perfect competition occurs when the following assumptions are met: (i) all the participants in the market (customers and producers) are well informed and act reasonably, based on their information[298] (for example, producers always know how to maximize their profits); (ii) there are zero transaction costs in the market; and (iii) no participants in the market can be strong enough to exercise any market power.[299] Accordingly, Aaron Director and Richard Posner emphasized that the appropriate test for examining a certain behavior under antitrust laws should be whether such conduct enhances the firm's ability to restrict output and increase price above the competitive level.[300]

Given the unique features of IT markets, however, it seems that the rational choice theory is unlikely to adequately address anticompetitive behavior in IT markets.[301] The model of perfect competition is a static model, and according to the rational choice theory, all the products in the same market are substitutable, as the consumer selects the product she desires based on its price.

Competition in IT markets is, however, dynamic. Consumers' selection of innovative goods is influenced by other parameters besides price. Mostly, a consumer is looking for the innovative feature in the good.[302] For example, Apple's smartphone, the iPhone, was the leading smartphone sold in the last two quarters of 2008.[303] Consumers were willing to pay the expensive price to purchase an iPhone because it offered the best user experience and easier Internet access compared to

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297. Maurice E Stucke, *Behavioral Economist at the Gate: Antitrust in the Twenty-First Century*, 138 LOY. U. CHI. L. J. 513, 518-521 (2007) (citing George Stigler, *Economics of Ethics?*, *in* TANNER LECTURES ON HUMAN VALUES (S. McMurrin ed., 1981)).

298. GLADER, *supra* note18, at 24.

299. *Id.*

300. *See* Meehan & Larner, *supra* note 294, at 188-90.

301. Sidak & Teece, *supra* note 119, at 588-89.

302. Pleatsikas & Teece, *supra* note 16, at 111; Evans, *supra* note 16, at 258-59.

303. In the first quarter of 2009, the BlackBerry Curve, which offers similar features as the iPhone was said to outsell iPhone in consumers sales, as a result of significant discount in the price of the Curve and a wider availability of the Curve compared with the iPhone. Despite these findings, experts say the iPhone is still very popular and profitable. *See* Tom Keneshige, *Apple iPhone Needs not Fear BlackBerry*, PCWORLD, May 8, 2009, http://www.pcworld.com/businesscenter/article/164585/apple_iphone_need_not_fear_blackberry.html (last visited Feb. 24, 2010).

other smartphones at the time.[304] Furthermore, as competition in IT markets is dynamic, it is affected by the abilities of new technologies and technologies not yet in the market (in-development technologies), developed either by commercial firms, individuals or via peer production, to access into and compete in the market.[305] The ability to enter an IT market is affected by many factors such as compatibility with the controlling technical standards in the virtual network. Thus, a test that focuses only on a firm's ability to restrict output and increase price above the competitive level seems ill-suited for securing dynamic competition in IT markets.

Moreover, in IT markets, the lack of monetary incentives for the production of information goods may not have an actual or noticeable effect on the production of information goods. In light of the significant role nonmarket information production models have in IT markets, the production of information goods, for example, the content contributed by users to Wikipedia,[306] is not always driven or induced by monetary incentives.[307]

In conclusion, the rational choice theory does not seem to apply to the needs and characteristics of IT markets. However, the significant role nonmarket production mechanisms play in IT markets and the dynamic character of IT markets, render it difficult to identify and determine what should be the most efficient market structure and competition level in such markets.[308] Furthermore, there has not been a decisive conclusion regarding the adequate market structure and competition level that will efficiently encourage innovation and will lead to a socially optimal rate of economic growth.[309]

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304. Posting of Seth Weintraub, *EETimes: iPhone success? "It's the User Experience, Stupid*," COMPUTERWORLD BLOGS (Feb. 15, 2008), http://blogs.computerworld.com/eetimes_iphone_success_its_the_user_experience_stupid (last visited Feb. 24, 2010). As other firms develop smartphones with similar features and offer their smartphone devices at a similar price, iPhone popularity may decline. See Jenna Wortham, *Palm's Pre Already Wins the Wallet Wars*, N.Y. TIMES, June 3, 2009, *available at* http://gadgetwise.blogs.nytimes.com/2009/06/03/palms-pre-already-wins-the-wallet-wars/?partner=rss&emc=rss (last visited Feb. 24, 2010).

305. GLADER, supra note 18, at 26-47.

306. *See* Wikipedia, www.wikipedia.com (last visited Feb. 24, 2010 12:00 GMT).

307. According to the Swiss economist, Bruno Frey, motivation is driven by extrinsic motivation, such as money or fear of punishment, and intrinsic motivation, mainly social-psychological rewards. The production of information goods in nonmarket production models seems to be driven by such intrinsic motivation. *See* BENKLER, *supra* note 17, at 92-99.

308. Susan DeSanti & William Cohen, *Competition to Innovate: Strategies for Proper Antitrust Assessments*, *in* EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY 327 (Dreyfuss, et al., eds., 2001); Sidak & Teece, *supra* note 119, at 588-89.

309. GLADER, supra note 18; DeSanti & Cohen, *supra* note 308, at 317.

B. The Practical Implementation of the Conceptual Framework of Antitrust Laws

As discussed in Section V.A. *supra*, the conceptual framework of antitrust law based on the rational choice theory does not seem to appropriately address the unique features of IT markets. It is necessary, however, to examine the manner in which courts and the agencies applied the rational choice theory to the enforcement of the antitrust laws with respect to intellectual property rights.[310]

1. *The Agencies' Guidelines*

The agencies issued several guidelines during the years regarding the appropriate standards for enforcing antitrust laws with respect to certain behaviors in IT markets.[311] Although the guidelines have no binding authority over courts, their importance rises as both the agencies and courts abide by it.[312]

2. *The Horizontal Merger Guidelines*

The Horizontal Merger Guidelines, issued by the agencies in 1992 and amended in 1997,[313] do not specifically address the issue of applying the antitrust laws to IT markets. The FTC and the Antitrust Division acknowledged the possible inadequacy of the merger guidelines to dynamic markets. Thus, the FTC and the Antitrust Division decided to hold a public workshop for examining whether the Merger Guidelines "should be revised to explain more fully than in the current [version] how market shares and market concentration are measured and interpreted in dynamic markets, including markets experiencing significant technological change."[314]

There are, however, several instructions in the Horizontal Merger Guidelines that may have some influence on the enforcement of antitrust laws in IT markets. First, the Horizontal Merger Guidelines acknowledged the notion that a firm's market share may not always accurately reflect the firm's future competitive significance in a market. For example, in case a firm does not have access to a new technology that is "important to long-term competitive viability," the firm's market share may not necessarily reflect the firm's competitiveness in the future.

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310. Glader, *supra* note 18, at 59-84; DeSanti & Cohen, *supra* note 308, at 327.

311. Glader, *supra* note 18, at 67.

312. *Id.*

313. Fed. Trade Comm'n & U.S. Dep't of Justice, Horizontal Merger Guidelines: Questions For Public Comment (Sept. 22, 2009), *available at* http://www.ftc.gov/bc/workshops/hmg/hmg-questions.pdf.

314. *Id.*

Thus, according to the Horizontal Merger Guidelines, in order to assess whether a proposed merger will have an anticompetitive effect on the market, it is necessary to take into account any predictable effect of recent or ongoing changes in market conditions on the firm's estimated market share.[315] These guidelines, therefore, allow the agencies and the courts to treat any possible outcome of the unique features of dynamic competition and of the significant role of nonmarket based information production models as a change in the market condition. However, examining the actual influence of these guidelines is beyond the scope of this article.

i.   Antitrust Guidelines for the Licensing of Intellectual Property

a.   The General Framework

Antitrust Guidelines for the Licensing of Intellectual Property[316] declare as a starting point that antitrust laws and intellectual property laws share the same purpose: to promote innovation and enhance consumer welfare.[317] However, the manner in which the licensing guidelines address intellectual property rights does not seem to properly address the unique features of the IT market.

First, according to the licensing guidelines, intellectual property should be treated the same as real property as far as antitrust enforcement is concerned. The special characteristics of intellectual property can be taken into account within the application of the general principles of antitrust law.[318]

When the general framework of antitrust enforcement under the licensing guidelines compares between intellectual property and real property, it seems that there are only slim chances that the practical enforcement of antitrust law would properly address the unique features of the IT market. The flexibility in enforcing antitrust law, which is highly advocated by the licensing guidelines, is not enough to change it. When it comes to IT markets, the key to efficient dynamic competition is the existence of a certain level of development of new inventions and the ability of new and improved inventions to be developed and produced in market or nonmarket ways, and to enter the market freely.[319] The application of regular antitrust rules, the same rules that apply to regular property, may override any innovation considerations. I shall further emphasize this in the following paragraphs.

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315. *Id.* at § 1.52.

316. ANTITRUST GUIDELINES, *supra* note 287.

317. *Id.* at § 1.

318. *Id.* at § 3.

319. *See* discussion in Sections III.A and III.B *supra*.

b. *The Guidelines for Defining a Market*

The starting point for examining a certain license restriction and analyzing whether it is anticompetitive, is defining the relevant market and licensor's market power in the relevant market.[320] Market power, according to the licensing guidelines, is not automatically assumed when the licensor has an intellectual property right.[321] Rather, if a licensor has "the ability profitably to maintain prices above, or output below, competitive levels for a significant period of time" it will be considered as having market power.[322]

Although the agencies acknowledge that market power "can be exercised in other economic dimensions, such as quality, service, and the development of new or improved goods and processes," it assumes that under its proposed test for market power all other "competitive dimensions are held constant," and need not be specifically addressed.[323] Thus, the licensing guidelines maintain the focus of antitrust enforcement on the price of a good. By doing so, the licensing guidelines ignore the dynamic character of competition in IT markets. As explained in Section III.A., in dynamic competition, the competition is not about who will produce a product at the lowest price, but rather who will produce the most innovative product.[324]

Furthermore, the licensing guidelines also ignore the possibility that information goods may be produced in nonmarket based information production models. Additionally, not only are such production models not affected by the price of market based goods, but also nonmarket based information production models present a new source of competition in the market and increase the variety of information goods in IT markets.

In addition, a test that focuses on the price of the goods is difficult to apply when the goods in the market are provided for free. In IT markets, however, providing free goods or services, produced commercially or by peers, for free is rather common. The Yahoo e-mail program, the Yahoo

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320. The general rule set forth in the licensing guidelines states that the analysis of a license restriction should be done under the rule of reason that allows the agencies flexibility and leeway. Only if the license restriction's nature is plainly anticompetitive, it shall be treated as illegal *per se*. Under the rule of reason analysis, the agencies shall examine whether a specific license restriction has an anticompetitive effect and balance such anticompetitive effect against any possible efficiencies resulting from such license restriction. *See* ANTITRUST GUIDELINES, *supra* note 287, at § 2.

321. This was the licensing guidelines position long before the Supreme Court officially changed the market power presumption. The market power presumption was finally rebutted by the Supreme Court in *Illinois Tool Works, Inc. v. Independent Ink, Inc.*, 547 U.S. 28 (2006).

322. ANTITRUST GUIDELINES, *supra* note 287, at § 2.2.

323. *Id.*

324. Pleatsikas & Teece, *supra* note 16, at 111; Evans, *supra* note 16, at 258-599; Sidak & Teece, *supra* note 119, at 602.

search engine, Google search engine, Gmail, Google Chrome, and Google Chrome operating system, which is an open source system based on Linux,[325] are all provided free of charge. Thus, it seems that under a test that focuses solely on the price, Google's or Yahoo's market power in a relevant market cannot be properly assessed.

c.   Guidelines for Identifying and Treating Anticompetitive License Restrictions

1.   Potential Competitors

The licensing guidelines define a possible anticompetitive license restriction as any license restriction that is likely to harm competition among "potential competitors." The use of the term "potential competitors" could open the way for including new information goods or information goods not yet in the market, produced by a commercial entity or peers in the definition of the relevant market. In a dynamic market, the inclusion of potential competitors is crucial for assessing competition and performing correct antitrust analysis.[326] However, according to the licensing guidelines, only when there is evidence that entry of an entity into the market is reasonably probable, absent the license restriction, such an entity should be considered as a potential competitor.[327]

The requirement for evidence that the entry into the market by an entity is reasonably probable absent the license restriction raises the bar and de facto blocks the possibility to include, in the definition of the relevant market, products still in development or products developed in a nonmarket based manner by many individuals.[328] For example, in *United States v. Microsoft,* the District Court found that the relevant market is the market for Intel-compatible PC Operating Systems and declined to include web portals in its definition of the relevant market.[329] The court examined the possibility that web portals will be used for accessing software applications and held that these days are not yet here:

The variety and ease of use of server-based applications accessible through browsers would have to increase a great deal from today's levels, however, before the total costs of dispensing with an Intel-compatible PC operating system would decline sufficiently to impose a significant constraint on the pricing of those systems. Again, that day is not imminent; for at least the next few years, the overwhelming majority of consumers accessing server-based applications will do so using an

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325. *See* Google Blog, *Introducing the Google Chrome OS*, http://googleblog.blogspot.com/2009/07/introducing-google-chrome-os.html (last visited Feb. 24, 2010).

326. Sidak & Teece, *supra* note 119.

327. Antitrust Guidelines, *supra* note 287, at § 3.2.

328. Sidak & Teece, *supra* note 119.

329. *Microsoft I*, 84 F. Supp. 2d at 22.

Intel-compatible PC system and a browser.[330]

It is interesting to note that Google, the search engine giant,[331] established in 1997,[332] is considered today as the major competitor of Microsoft. Eight years after the Court of Appeals ruling in *Microsoft*, the battle is set for the next operating system platform. Both Google and Microsoft are said to be currently competing for the control of the platform for the next generation of operating systems, which will be a web based software application.[333] Thus, under a less demanding definition of the relevant market in *Microsoft*, Google might have been considered as a "potential competitor" of Microsoft.

2. *The Ability to Develop New or Improved Goods*

Another anticompetitive license restriction, according to the licensing guidelines, is a license clause that restricts the ability to develop new or improved goods. The agencies acknowledged that in certain cases, for example, when the license clause affects the development of goods not yet in the market, the effect of a certain license clause on the ability to develop new or improved goods cannot be adequately addressed through the regular antitrust analysis of goods or technology markets.[334]

Therefore, for the purpose of analyzing the effect a license clause may have on innovation in IT markets, the licensing guidelines define innovation market (such as IT markets) as a market that consists of "the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development." The licensing guidelines define close substitutes for R&D as R&D efforts that (i) can be associated with specialized assets or characteristics of specific firms and (ii) may significantly restrain the exercise of the market power with respect to the relevant substitute R&D.[335]

Under this definition of IT markets and "close substitute R&D," products in development may be considered as part of IT markets only if such products are the probable result of current and known R&D efforts.

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330. *Id.*

331. As of February 2010, Google's estimated global share in the web search market was 65.74%, while Yahoo's global share was 6.09% and Microsoft Bing's estimated global share was 3.39%. *See* NetMarketShare, *February 2010 Search Engine Market* Share, http://marketshare.hitslink.com/search-engine-market-share.aspx?qprid=4 (last visited Feb. 24, 2010).

332. *See* Wikipedia, *Google*, http://en.wikipedia.org/wiki/Google#History (last visited Feb. 24, 2010 12:00 GMT).

333. Google even released its Chrome OS, a Linux based operating system, on July 2009. *See* Miguel Helft & Ashlee Vance, *In Chrome, Hints of a Real Rival to Microsoft*, N.Y. TIMES, July 8, 2009, at B1, *available at* http://www.nytimes.com/2009/07/09/technology/internet/09google.html.

334. ANTITRUST GUIDELINES, *supra* note 287, at § 3.2.3.

335. *Id.*

In many cases, however, it is difficult to predict the outcome of a firm's R&D efforts. For example, when initiating the development efforts that eventually led to the development of the iPhone, Steve Jobs, Apple's CEO, was considering entering the tablet PC market. It was even expected in 2003 that Apple would develop a PDA.[336] The goal to develop the iPhone device became apparent only in 2005.[337]

Furthermore, by defining R&D efforts as associated with specialized assets or characteristic of a specific firm and limiting the scope of a market definition only to products that will be the probable result of current and known R&D efforts, the licensing guidelines maintain the focus of antitrust enforcement on the familiar structure of a market that only consists of commercial firms. This definition, therefore, ignores the possibility that information goods will be produced in nonmarket based information production mechanisms without having commercially comprehensive R&D efforts beforehand. For example, the open source operating system, Linux, started in 1991 as a peer production project with no R&D.[338]

3. *Safety Zone*

The licensing guidelines also provide a "safety zone" in order to provide some level of certainty in IT markets. According to the safety zone:

> The Agencies will not challenge a restraint in an intellectual property licensing arrangement that may affect competition in an innovation market if (i) the restraint is not facially anticompetitive (*i.e.*, restraints that will be considered as illegal per se); and (ii) four or more independently controlled entities, in addition to the parties to the licensing arrangement, possess the required specialized assets or characteristics and the incentive to engage in research and development that is a close substitute of the research and development activities of the parties to the licensing agreement.[339]

This safety zone seems to specifically address the dynamic characteristic of competition in IT markets by acknowledging that IT markets should include firms that have the ability to develop a competitive product, even if no known R&D efforts have been commenced. However, the safety zone seems arbitrary and may perpetuate the dominant control of the strong and big players in a given IT market. For example, in both

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336. Apple, *iPhone History and Development,* http://www.apple-iphone-unlocking.com/history—and—development.html (last visited Feb. 24, 2010).

337. Fred Vogelstein, *The Untold Story: How the iPhone Blew Up the Wireless Industry*, 16 WIRED (Jan. 9, 2008), *available at* http://www.wired.com/gadgets/wireless/magazine/16-02/ff_iphone.

338. LinuxWorld, *Connecting Firms and Peer Production*, (Mar. 24, 2007), http://www.linuxworld.com/community/?q=node/433 (last visited Feb. 24, 2010).

339. ANTITRUST GUIDELINES, *supra* note 287, at § 4.3.

Kaleidescape and *RealNetworks,* the requirement imposed by the DVD CCA under the CSS license agreement to have a physical copy of a DVD present in a device in order to play back the stored content of a DVD was considered justified in order to protect the DVD CCA members' copyrights and under the DRM/DMCA regime. Moreover, since the subject matter of the CSS license is a software product, courts might follow the Court of Appeals' ruling in *Microsoft*[340] and carve an additional exemption from illegal analysis *per se*.

Furthermore, since firms such as Sony, Apple, Microsoft, and Creative[341] have the facilities and incentives to engage in R&D efforts for the development of a substitute to the Kaleidescape system and RealDVD, the second prong of the safety zone is also fulfilled. Thus, in such circumstances, the safety zone will not prevent the foreclosure of the IT market to new entrepreneurs such as Kaleidescape.

4. *Hearing on Antitrust Enforcement in IT markets*

As part of the agencies' efforts to adapt the antitrust enforcement standards to the rapid pace of technology, the agencies held hearings during 2006-2007 to discuss the enforcement of antitrust laws and intellectual property rights. A summary of the hearings and their conclusions was published in the agencies' report on innovation and competition.[342] As in the licensing guidelines, the hearings report also instructed the agencies to consider the effect a license restraint may have on innovation, to apply flexible framework and to evaluate whether the license damages "competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of a license."[343]

The hearings report, however, does not provide any new or different insights with respect to the manner in which antitrust law should be enforced in IT markets. The theme set forth in the licensing guidelines remained the same: the application of antitrust law in IT markets is similar to the application of the law in traditional markets.[344] As I shall further explore in the following subsection, the application of antitrust laws by the courts also did not offer a different way to enforce antitrust laws in IT markets.

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340. *See* the discussion in Section V.C.1.ii.a., *infra*.

341. I chose these firms because all of them have already developed and marketed a similar portable device that can store and play back audio and video content.

342. ANTITRUST ENFORCEMENT, *supra* note 288.

343. ANTITRUST GUIDELINES, *supra* note 287, at § VI.

344. ANTITRUST ENFORCEMENT, *supra* note 288; ANTITRUST GUIDELINES, *supra* note 287, at § 3.1.

C. Innovation Market Related Consideration: Lessons from the Courts' Application of Antitrust law in Intellectual Property Related Litigations

1. *Microsoft*

i. *Defining the Relevant Market*

Innovation related considerations and the dynamic characters of competition in IT markets were explicitly mentioned by the Court of Appeals for the District of Columbia Circuit in *United States v. Microsoft*.[345] On appeal, Microsoft argued that it operates in a dynamic technology market that is characterized by a network effect.[346] According to Microsoft's argument, the competition in a technology dynamic market that is characterized by a strong network effect is for the market and not in the market. Thus, "once a product or a standard achieves wide acceptance, it becomes more or less entrenched."[347] However, because technology is a dynamic market, the entrenchment of one product is only temporary. A new innovation may change the whole market at once. Thus, even a monopolist firm continues to invest in R&D seeking further innovative products in order to preserve its position in the market.[348] In light of these characteristics, Microsoft urged the court to use different measures and tests when applying antitrust laws.[349]

The Court of Appeals, however, dismissed Microsoft's claim for a different application of antitrust laws with respect to a firm's behavior in dynamic technology markets, explaining that competition in the short run needs to be addressed. As the court stated:

> As an initial matter, we note that there is no consensus among commentators on the question of whether, and to what extent, current monopolization doctrine should be amended to account for competition in technologically dynamic markets characterized by network effects . . . Indeed, there is some suggestion that the economic consequences of network effects and technological dynamism act to offset one another, thereby making it difficult to formulate categorical antitrust rules absent a particularized analysis of a given market.[350]

However, the court held that "Microsoft's argument fails because, even assuming that the software market is uniquely dynamic in the long term, the District Court correctly applied the structural approach to de-

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345. *Microsoft III*, 253 F. 3d 34.

346. *Id.* at 49.

347. *Id.*

348. *Id.* "In technology dynamic markets, however, such entrenchment may be temporary, because innovations may alter the field altogether." *Id.*

349. *Id.*

350. *Microsoft III*, 253 F. 3d at 50.

termine if the company faces competition in the short term."[351]   The Court of Appeals chose to stick to the structural approach for defining the relevant market and determining the existence of market power. Similar to the test used for defining the market in the licensing guidelines, the scope of the relevant market under the structural approach is determined according to the Small but Significant and Non-transitory Increase in Price ("SSNIP") test.   According to this test, the relevant market includes all goods or technologies that will be considered by the consumers as substitutes to the allegedly monopolized goods or technology in case the alleged monopolist will raise the price of its goods or technology by a small but significant and non-transitory increase.[352]

The Court of Appeals approved the District Court's conclusion that according to the SSNIP test, the relevant market in which Microsoft has a monopoly power is the market of Intel-compatible PC operating systems.   The court concluded that handheld devices and portal websites are not substitutes in the consumer's opinion.[353]

As discussed in Section V.B.2.i.b. *supra*, by adhering to the SSNIP test for defining the relevant market, the court ignored the special characteristics of IT markets.   In IT markets, the relevant market includes not only the obvious current technologies (in *Microsoft,* the Intel-compatible PC operating systems), but the relevant market may include new technologies, existing products, and developing products that are not yet in the market.   Furthermore, new and in-development technologies cannot be considered, in most cases, as substitutable, because there is no common base for comparing such goods.[354]

The operating system market serves as a good example for the problematic use of the SSNIP test in IT markets.   In 2001, the D.C circuit court in *Microsoft* rejected Microsoft's request to include handheld devices and portal websites in the relevant market for operating systems. However, in 2009, as Net Application's market share chart shows, mobile phones, like the iPhone, and game platforms, like Playstation 3, have shares (although minimal) in the operating system market.[355]   Furthermore, as noted before, Microsoft's major rival these days is Google, and

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351. *Id.* at 56.

352. ANTITRUST GUIDELINES, *supra* note 287 at § 3.2.1-2.

353. *Microsoft III*, 253 F. 3d at 56.

354. GLADER, *supra* note 18, at 67.

355. Net Application, *Operating System Market Share* (Feb. 2010), http://marketshare. hitslink.com/report.aspx?qprid=8&qpmr=100&qpdt=1&qpct=0&qpcal=1&qpcal=1&qptime frame=M&qpsp=133 (last visited Feb. 24, 2010). According to this chart, Microsoft has a 92.12% share in the operating systems market, Mac has 5.02%, Linux 0.98%, mobile devices (iPhone, Symbian, Java ME, iPod Touch, Windows Mobile, Android, Blackberry, Palm) 1.63%, and Game consoles (Playstation, Nintendo Wii) have less than 1 percent. *Id.*

Google is aiming to develop a web based platform that can serve as an alternative to operating system software.

ii.   Identifying Anticompetitive Behavior

a.   Tying Arrangement

The Court of Appeals further ruled that Microsoft's bundling of its Internet browser, Internet Explorer, with a Microsoft operating system, Windows, by integrating the browser into the operating system, was a violation of Section Two of the Sherman Act.[356] The court performed a rule of reason analysis, considering first whether such bundling was anticompetitive and after concluding it had an anticompetitive effect, the court examined whether there were any justifications for such integration.

During the rule of reason analysis, the court acknowledged the dynamic characteristics of competition in IT markets and the rapid phase of innovation as a firm's common practice that should not be condemned:

> In a competitive market, firms routinely innovate in the hope of appealing to consumers, sometimes in the process making their products incompatible with those of rivals; the imposition of liability when a monopolist does the same thing will inevitably deter a certain amount of innovation. This is all the more true in a market, such as this one, in which the product itself is rapidly changing.[357]

Furthermore, in light of the dynamic characteristic of competition in IT markets, the Court of Appeals carved an exception to the antitrust rule.[358] Usually, a tying arrangement is considered illegal *per se* when the following conditions are met: "(1) the tying and tied goods are two separate products; (2) the defendant has market power in the tying product market; (3) the defendant affords consumers no choice but to purchase the tied product from it; and (4) the tying arrangement forecloses a substantial volume of commerce."[359]

While applying the first test for a *per se* illegal tying arrangement, the court inquired whether Internet Explorer and the Windows operating system were separate products. The Supreme Court defined the separate product test in *Jefferson Parish v. Hyde*.[360] The test is derived from the consumer's demand for the two products.[361] The court applied the direct consumer demand test to determine whether historically there was a separate demand for the tied and tying product.[362]

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356. *Microsoft III*, 253 F.3d at 95.

357. *Id.* at 65.

358. *Id.* at 94-95.

359. *Id.* at 85.

360. Parish v. Hyde, 466 U.S. 2 (1984).

361. *Id.* at 86-87.

362. *Id.*

Microsoft argued that applying a consumer demand test to measure whether the two products included in a tying arrangement are separate would chill innovation. Microsoft further contended that developers would refrain from integrating new features into their technology because they would fear that consumers would consider the integrated innovative feature as a separate product. According to the consumer demand test, consumers perceive the innovative feature and the technology as separate products because consumers are not familiar with such innovative features. Therefore, the courts would find that the integration of the two products was a *per se* illegal tying arrangement.[363]

The Court of Appeals accepted Microsoft's argument and held that the direct consumer demand test for separate products may impose serious obstacles on new and innovative technologies in the software market because that particular market "serves as a platform for third party applications."[364] Furthermore, the Court of Appeals held that applying a *per se* rule to tying arrangements in the software market "creates undue risks of error and of deterring welfare-enhancing innovation."[365]

A tying arrangement, which constitutes a "technological integration of added functionality into software that serves as a platform for third-party applications," reflects new circumstances with "no close parallel in prior antitrust cases."[366] The Court of Appeals concluded that in such new circumstances, "simplistic application of *per se* tying rules carries a serious risk of harm."[367]

By crafting this exemption, the court considered the main feature of competition in IT markets – its dynamic characteristic – and addressed it in the application of antitrust enforcement tests.[368] However, the exemption that the Court of Appeals formulated is rather narrow and technology-specific. The exemption is limited to an integrated software application to software that has similar functionality as an operating

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363. For a broader discussion on the incentives paradigm and its adequacy to the information age, *see* Wendy J. Gordon, *Render Copyright unto Caesar: On Taking Incentives Seriously*, 71 U. CHI. L. REV. 75 (2004); Elissa D. Hecker, *Understand and Respect the Copyright Law: Keep the Incentive to Create*, 53 CASE W. RES. L. REV. 741 (2003); Stan Liebowitz, *Back to the Future: Can Copyright Owners Appropriate Revenues in the Face of New Copying Technologies*, in THE ECONOMIC OF COPYRIGHT: DEVELOPMENT IN RESEARCH AND ANALYSIS (Wendy J. Gordon & Richard Watt eds., 2003). As noted before, many times information goods are produced in nonmarket based ways by individuals that operate out of intrinsic motivation independent from financial incentives or reward. *See* discussion in Section III.B *supra*.

364. *Microsoft III*, 253 F.3d at 84.

365. *Id.* at 89-90.

366. *Id.* at 84.

367. *Id.*

368. *Id.* at 92-95.

system.[369] In addition, the exemption does not seem to introduce a new way of thinking or different standards for enforcing the antitrust laws.[370] Rather, the exemption suits the antitrust licensing guidelines, which instruct the agencies to use the rule of reason analysis, unless the license restriction is plainly anticompetitive.[371] Therefore, although the court in *Microsoft* crafted an exemption that reveals the court's awareness and attentiveness to the dynamic characteristics of competition in IT markets, practitioners and commentators should not overrate the exemption's importance. The court maintained the tests and rules discussed above with respect to antitrust enforcement "as is," and did not pay attention to the need for a change in antitrust enforcement considerations with respect to IT markets.

b.   Predatory Pricing

Microsoft also offered its browser and browser access kit for free to Internet Service Providers ("ISPs"), like AOL, in addition to a bounty for each ISP's customer who registered to the service via Internet Explorer.[372] By doing so, Microsoft imposed further barriers to the entry of possible new browsers or operating systems technologies. However, the Court of Appeals chose to focus on the Internet Explorer price.[373] The court examined whether Microsoft is liable for predatory pricing.[374] Under antitrust law, a court may condemn a predator if it "drive[s] out its rivals by pricing below cost on a particular product and then, sometime in the future, raise[s] its prices on that product above the competitive level in order to recoup its earlier losses."[375] The court concluded that Microsoft did not violate the antitrust laws by offering its Internet Explorer free of charge.[376] The court further noted "the antitrust laws do not condemn even a monopolist for offering its product at an attractive price."[377]

This ruling emphasizes the error in the current application of antitrust laws to dynamic technology markets. The price of a product is indeed important from a consumer's point of view. The rational choice theory also encourages antitrust law's focus on a product's price as the

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369. *Id.* at 95.

370. Kara E. Harchuck, *Microsoft IV: The Dangers to Innovation Posed by the Irresponsible Application of a Rule of Reason Analysis to Product Design Claims*, 97 Nw. U. L. Rev. 395, 437 (2002).

371. Antitrust Guidelines, *supra* note 287 § 5.3.

372. *Microsoft III*, 253 F.3d at 68.

373. *Id.* at 68-69.

374. *Id.*

375. *Id.* at 68.

376. *Id.*

377. *Id.*

main factor for antitrust enforcement.[378] However, in IT markets, the product's price is not the only relevant consideration for consumers.[379] Consumers also evaluate the innovative features of information goods.[380] Moreover, in IT markets, the price is only important from a short-term perspective. From a long-term perspective, the more important matter that the court should have addressed was the effect that Microsoft's practice of distributing its browser for free in addition to a bounty had on future innovation due to the dynamic characteristic of the technology market.

2. *Illinois Tool Works v. Indep. Ink*

In *Illinois Tool Works v. Independent Ink*, the Supreme Court continued the *Microsoft* line of analysis in its awareness of the dynamic characteristic of competition in IT markets, but at the same time declined to make substantial changes to antitrust enforcement standards.[381] Furthermore, neither court examined whether to amend antitrust law enforcement in light of the significant role of nonmarket based information production models in IT markets.

In *Illinois Tool Works*, the Supreme Court rebutted the market power presumption with regard to products covered by intellectual property rights.[382] Illinois Tool required that purchasers of its patented printing system refill the system only with Illinois Tool's unpatented ink. The Court stated that Congress amended the Patent Code in 1988, and by doing so, Congress eliminated the market power presumption in the patent misuse context.[383] Section 271(d)(5) of the Patent Act states that one of the conditions for patent misuse is the existence of market power in the relevant market for the tying patent or patented product.[384] Therefore, based on Section 271(d)(5) of the Patent Act, the Court held that it would be anomalous to preserve the presumption within antitrust law in the absence of a market power presumption in the patent misuse

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378. Sidak & Teece, *supra* note 119, at 612-13.

379. *Id.*

380. Pleatsikas & Teece, *supra* note 16, at 111; Evans, *supra* note 16, at 258-59; Sidak & Teece, *supra* note 119, at 602.

381. *Illinois Tool Works*, 547 U.S. at 38-46.

382. *Id*.

383. *Id*.

384. 35 U.S.C. § 271(d)(5) (2009) states:

No patent owner otherwise entitled to relief for infringement or contributory infringement of a patent shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having done one or more of the following: 5) conditioned the license of any rights to the patent or the sale of the patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless, in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned. *Id.*

doctrine.[385] The Court rebutted the market power presumption and concluded that tying arrangements involving patented products should be evaluated under the rule of reason analysis rather than under the *per se* rule.[386] In its ruling, however, the Court did not explicitly discuss the unique features of IT markets as being the reason for rebutting the market power presumption.[387]

3. *RealNetworks v. DVD CCA*

RealNetworks filed a lawsuit against the DVD CCA and several major movie studios in the District Court of the Northern District of California.[388] In its lawsuit, RealNetworks argued that the CSS license agreement, which is the studios' collective agreement not to license a technology that would allow the copying of CSS-encrypted technology, should be considered as anticompetitive behavior that led to an ongoing delay in marketing RealDVD.[389] This delay in marketing RealDVD caused RealNetworks a serious antitrust injury.[390]

The court dismissed RealNetworks' claims on the grounds that the CSS license would be considered an illegal agreement only if the relevant market for antitrust analysis would be limited to the market of technologies that copy content from CSS-encrypted disks.[391] In such a narrow market, an agreement among all movie studios not to license a technology that would allow the copying of CSS-encrypted technology, while the studios use only their own technology for distributing their copyrighted content, should be considered anticompetitive.[392]

The court determined, however, that the relevant market is much broader.[393] The relevant market, even under RealNetworks' own argument, is the market for technologies that allows consumer to obtain and manage digital copies of copyrighted content that are not necessarily CSS protected.[394] Furthermore, individual studios are not prevented from distributing their copyrighted content on non-CSS protected DVDs. On the contrary, Apple and Amazon even reached agreements with certain movie studios for distributing copyrighted content on their own services. The allegedly illegal collective agreement only prohibits RealNetworks and its consumers from accessing an encrypted technol-

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385. *Illinois Tool Works*, 547 U.S. at 39-43.
386. *Id.*
387. *Id*
388. *RealNetworks*, 641 F. Supp. 2d at 913.
389. *Id*.
390. *Id.*
391. *Id*.
392. *Id.*
393. *Id*.
394. *RealNetworks*, 641 F. Supp. 2d at 913.

ogy. The agreement does not impose any obstacles on RealNetworks' ability to reach an agreement for licensing the studios' copyrighted content, in the form of non-CSS encrypted digital copies, in the relevant market, i.e., the market for technologies that allows consumers to obtain and manage digital copies of copyrighted content.[395] Furthermore, the agreement did not limit the movie studios' ability to distribute their copyrighted content on CSS-encrypted DVDs exclusively. Thus, the CSS license could not plausibly be an illegal restraint of trade.[396]

Furthermore, the court held that even if RealNetworks had the right to circumvent the CSS technology, RealNetworks still violated the DMCA.[397] RealNetworks' circumvention of the ARccOS or RipGuard, the additional DRM measures employed by the movie studios, constituted a violation of the DMCA, which justified the injunctive relief.[398] Therefore, RealNetwork's alleged injury, the ongoing delay in marketing RealDVD, was the result of RealNetworks' own illegal behavior and was not a plausible antitrust injury.[399] Throughout its reasoning, however, the court did not explain how it reached the definition of the market. Nor did the court show any awareness of the fact that the relevant market is dynamic or that potential competitors may arise from nonmarket based information production models.

D. SAME RULES, DIFFERENT CIRCUMSTANCES

As apparent from the discussion above, courts and antitrust enforcement agencies are aware of the dynamic characteristic of competition in IT markets. However, neither the courts nor the agencies addressed the implication that the change in information production models may have on antitrust enforcement in IT markets.[400]

Furthermore, antitrust law enforcement still does not appropriately address the implications of the dynamic characteristic of competition in IT markets. As explained above, the use of the same tests and rules for the application of antitrust law, such as the SSNIP test for defining the relevant market[401] and the definition of relevant competitors[402] mainly perpetuated the focus of antitrust enforcement on a static model of competition referring to substitutable goods currently available in the market and the price of such goods.[403] Thus, although innovation

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395. *Id.*
396. *Id.*
397. *Id.*
398. *Id.*
399. *Id.*
400. See the discussion in Section V.B and V.C *supra.*
401. *See* the discussion in Sections V.B.2.i.b and V.C.1.i.a *supra.*
402. *See* the discussion in Section V.B.2.i.c.1 *supra.*
403. Sidak & Teece, *supra* note 119, at 602.

considerations were known to agencies and courts, they were not translated into an actual change in antitrust enforcement thinking. Moreover, antitrust enforcement does not devote any special attention to the fact that the IT market is a data market, nor does it provide any resolution to the possible harms to consumers that are typical to data markets.[404]

Posner and Landes contend that antitrust law concerns arise only in limited circumstances in IT markets.[405] According to Posner and Landes, market forces are the best tools for securing efficient competition in the market in most cases. The combination of copyright law and contracts can result in excessive market power, for example when a software manufacturer uses a license agreement to restrict the rights of the end user to use its software in a way that is far beyond the restriction provided under copyright law.[406] However, because of the network effect, such a combination does not damage competition.[407]

According to the explanation offered by Posner and Landes, when a market is characterized by a network effect, the competition is for the market and not within the market. It is a competition in the form of "winner takes it all," *i.e.*, the desire of each competitor is to gain a monopoly position and benefit from the network effect.[408] Thus, the more protection from competition the winning firm enjoys, the more competition there will be in order to become the monopolist.[409] Assuming that the permitted means for obtaining a monopoly are socially productive, the competition for the monopoly position will be desirable.[410] The competition for becoming the monopoly will accelerate the rate of innovation, since each firm will attempt to be the first to provide the public with the next new and attractive technology.[411] Moreover, according to Posner and Landes, the winner – the monopoly firm – will initially charge a very low price for its new product in order to gain more users and enjoy a network effect in the market.[412]

According to Posner and Landes, antitrust laws should only justifiably intervene when the barriers preventing the entry into a network market are set.[413] However, even in such limited circumstances, Posner

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404. Harbour & Koslov, *supra* note 122.

405. LANDES & POSNER, *supra* note 60, at 390-02.

406. *Id.* at 394.

407. *Id.* at 394-55.

408. *Id*.

409. *Id*.

410. *Id*.

411. A similar argument was raised by Microsoft as a justification for changing antitrust enforcement tests.

412. *See* LANDES & POSNER, *supra* note 60, at 394-66.

413. *See Id.* at 397-00.

and Landes, like the courts and the agencies, are of the opinion that current antitrust rules are sufficient.[414] Posner and Landes explain that antitrust concerns with respect to barriers preventing the entry into a network market are not a new phenomenon.[415] They existed well before the proliferation of IT markets; hence, it is already an adequate solution under antitrust law.[416]

The treatment provided for the entry barriers by the Supreme Court in 1922 in the *Standard Fashion*[417] case is suitable, according to Posner and Landes, to an increase in the entry barriers in IT markets as well.[418] Standard Fashion manufactured the most popular line of women's dress patterns.[419] It required that any retailer who wanted to have Standard Fashion dress patterns in its store must refrain from holding competing lines.[420] Because consumers preferred to enter stores that had the full line of women's dress patterns, Standard Fashion enjoyed a network effect at the distribution level. Retailers who wanted to have prosperous businesses had to present the full line of the most popular women's dress patterns in their stores, *i.e.*, the Standard Fashion line, and to abstain from giving any space to competing lines.[421] In theory, manufacturers of competing lines could have opened retail stores for their own lines; however, most of the consumers probably would not have entered their stores, since they would have lacked the most popular dress patterns.[422]

In IT markets, the situation, according to Posner and Landes, is quite similar.[423] In both *Standard Fashion* and in IT markets, copyright or other intellectual property law protects the goods at issue.[424] A firm may wish to enter the market by producing one component of the network, but if a competitor who has an exclusive dealing contract with the network refuses to cooperate with the firm, it will have to create the entire network from scratch in order to distribute its product.[425] The development phase of the distribution network in IT markets is in a similar stage as the distribution network discussed in *Standard Fashion*.[426] The distribution facilities may be sufficiently limited to create bottle-

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414. *Id.* 402.

415. *Id.* at 396-02.

416. *Id.* at 397-00.

417. Standard Fashion Co. v. Magrane-Houston Co., 258 U.S. 346 (1992).

418. LANDES & POSNER, *supra* note 60, at 397-00.

419. *Id.* at 397.

420. *Id*.

421. *Standard Fashion*, 258 U.S. 346.

422. LANDES & POSNER, *supra* note 60, at 397-00.

423. *Id.* at 397-89.

424. *Id*.

425. *Id*.

426. *Id.* at 397.

necks that the monopolist can exploit to perpetuate the monopoly.[427] The Internet, however, may eliminate many distribution bottlenecks.[428]

Exclusionary conduct via contracts, as the one demonstrated in *Standard Fashion* and as is common in IT markets, has, as argued by Posner and Landes, efficiency justification.[429] It may encourage the retailer to invest more in presenting and serving the customers with respect to the manufacturer's brand.[430] Posner and Landes acknowledged that a full analysis of the costs and benefits of exclusionary dealing might be beyond the courts' ability.[431] Thus, they offered a test for determining whether the courts should condemn a certain practice of exclusive dealing.[432] According to their proposed test, if the practice is widely employed in industries that resemble the industry where the monopoly firm operates, but the resembling industries are competitive, the presumption should be that the monopolist is entitled to use it as well.[433] Facing such a burden, the plaintiff will have to show that prohibiting the use of that practice will offset the effect of the prohibition on the monopolist's costs by increasing the rate or speed of new entry.[434]

Considering that exclusive dealing and tying arrangements are analytically similar, Posner and Landes proposed to apply the same solution to both practices.[435] Posner and Landes concluded that the antitrust doctrine is sufficient to effectively deal with the antitrust matters in IT markets.[436] But the trouble is in the institutional structure of antitrust enforcement in the United States.[437]

However, Posner and Landes' position has several shortcomings. First, the presumption that the market forces can provide the adequate solution for securing efficient competition in the IT market is not clear of doubts.[438] This presumption might have been correct in IT markets before the enactment of the DMCA and the ramifications of the DRM/DMCA regime. The DRM/DMCA regime, however, allows the monopoly firm to increase the entry barriers into the market by imposing technological locks and relying upon the anti-circumvention prohibition of the DMCA. Hence, the monopoly firm is capable of extending its monopoly. Competition for the market, in the form of the "winner takes it all," is

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427. *Id.*
428. LANDES & POSNER, *supra* note 60, at 397.
429. *Id.* at 397-89.
430. *Id.*
431. *Id.* at 399.
432. *Id.*
433. *Id.*
434. LANDES & POSNER, *supra* note 60, at 397.
435. *Id.* at 400.
436. *Id.* at 402.
437. *Id.*
438. Sidak & Teece, *supra* note 119, at 586-91.

therefore prevented.[439] One of the prominent examples of using the DRM/DMCA regime as a tool for increasing the entry barriers into the market is Apple's use of its DRM software, FairPlay.[440] FairPlay was the DRM measure included in any audio and video file bought and downloaded from Apple's online music store, iTunes.[441] Before removing the anti-copying restrictions imposed by Fairplay and removing the DRM,[442] Apple was said to use Fairplay as a tool for limiting iPod customers to iTunes software and the iTunes online store. Thus, stifling competition and blocking competitors in the market for digital music.[443] Fearing the effect of Apple's monopoly in the digital music market on its bargaining power, Universal, one of the major music labels in the United States, sacrificed its copyrights and released its songs DRM-free with other online music stores attempting to enhance competition in the legal digital music download market.[444]

By ignoring possible anticompetitive exploitation of the DRM/DMCA regime, Posner and Landes did not examine the use of antitrust law for regulating other types of behaviors beside exclusionary conduct.[445] Thus, Posner and Landes did not face the difficulties involved in applying the SSNIP test for defining the relevant market, the test for defining market power and for revealing possible competitors.[446] Nor did Posner and Landes face the shortcomings of these tests in IT markets where the price of the good is not the main indicator for efficient competition.[447] Moreover, IT markets consist of goods produced in market and nonmarket based ways, as well as goods in development that are not yet in the market, are not comparable and therefore cannot be considered as substitutable.[448]

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439. BERKMAN CTR. FOR INTERNET & SOC'Y AT HARV. L. SCH., ITUNES: HOW COPYRIGHT, CONTRACT, AND TECHNOLOGY SHAPE THE BUSINESS OF DIGITAL MEDIA – A CASE STUDY 40-50 (2004), *available at* http://cyber.law.harvard.edu/media/uploads/81/iTunesWhitePaper06 04.pdf [hereinafter ITUNES CASE STUDY].

440. Devin Pastoor, *Apple Blocking iTunes Competition for iPod?*, HOTHARDWARE (Dec. 5, 2008) http://hothardware.com/News/Apple-Blocking-iTunes-Competition-for-iPhone/ (last visited Feb. 24, 2010).

441. Steve Jobs, *Thoughts on Music* (Feb. 6, 2007) http://www.apple.com/hotnews/ thoughtsonmusic/ (last visited Feb. 24, 2010).

442. As of January 2009, Apple offers for sale via its iTunes store songs free of DRM protection. Apple Press Release, *supra* note 15. Apple's DRM, Fairplay, is still employed on movies and television shows. *Id*.

443. Pastoor, *supra* note 442.

444. Posting of Jack Schofield, *Universal Plans DRF-free Downloads, without Apple*, THE GUARDIAN TECHNOLOGY BLOG (Aug. 10, 2007), http://www.guardian.co.uk/technology/ blog/2007/aug/10/universalplans (last visited Feb. 24, 2010).

445. LANDES & POSNER, *supra* note 60, at 399.

446. *Id*.

447. Sidak & Teece, *supra* note 119, at 600-66.

448. *Id*. at 614-66.

Moreover, the Posner and Landes test, with respect to antitrust enforcement in the case of exclusionary conduct, is based upon comparing the exclusionary conduct at issue with similar behaviors in other competitive markets.[449] According to that test, it is necessary to examine whether the same practice at issue is widely used in industries that resemble the monopolist's but are competitive.[450] Posner and Landes did not specify what they meant by referring to industries that resemble the monopolist's.[451] They did not focus the analysis on certain markets or list certain conditions that are required to perform such analysis. As a result, the comparison may be applied to any other market, whether it is an IT market or a traditional goods market.[452]

For example, the U.S. pet food market resembles the women's clothing market discussed in *Standard Fashion*.[453] In both cases, it is necessary to establish a distribution network for distributing the goods. Also, in both cases, intellectual property rights protect the goods involved. A design patent or copyright may protect women's clothing and a trade secret or patent may protect the formula for producing a nutritious pet food. Because the pet food market resembles the market for women's clothing in *Standard Fashion*, following Posner and Landes' argument, the pet food market should resemble the IT market as well. The pet food market in the United States is quite competitive;[454] hence, according to the test that Posner and Landes offered, the pet food market can be used as an objective comparable to behaviors in IT markets. However, it seems farfetched to infer the appropriate enforcement of antitrust law in IT markets from behaviors in the pet food market that are not as dynamic as a typical IT market.

E.   Summary

IT markets present a challenge for antitrust enforcement.[455] It includes different circumstances and market features than those of tradi-

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449. Landes & Posner, *supra* note 60, at 399.

450. *Id*.

451. *Id*.

452. *Id*.

453. *Standard Fashion*, 258 U.S. 346.

454. According to a study conducted in July 2004, the Nestle Purina PetCare Company has 30% of the pet food market share in the U.S., The Lams Company (P&G) and Hill's Pet Nutrition has 12% each, Mars Inc. has 11%, Ol'Roy (Wal-Mart) has 10%; Del Monte Foods has 7%, Nutro Products, Inc. has 4%, and other firms hold together 14% of the market share. *See* Nora Ganim Barnes, *A Market Analysis of the U.S. Pet Food Industry to Determine New Opportunities for the Cranberry Industry*, Center for Business Research, University of Massachusetts Dartmouth 8 (2005), http://www.uts.edu.au/fac/hss/public_communication/student_work/cranberry_ad.pdf.

455. *See* Pleatsikas & Teece, *supra* note 16; Evans, *supra* note 16; Sidak & Teece, *supra* note 119.

tional markets.[456]

In order to correctly apply antitrust law to IT markets, it is necessary to identify the innovating firms and products under development, to consider the information goods that might be produced in nonmarket based ways, to assess the conditions for innovation in the specific field, and to identify common harms to consumers in a data market, such as harm to consumers' privacy rights.[457] In addition, IT market regulation needs to take into account the different level of efficient competition adequate to each level of the IT market.[458] The level of efficient competition may differ according to the level of development of the relevant inventions and the stage of the innovative process.[459] When analyzing actual and potential competition in existing markets, the antitrust enforcement should consider innovation considerations when defining and evaluating the relevant product market.[460] When analyzing actual and potential competition in a market that is highly likely to include products in development, the antitrust enforcement should examine the R&D efforts market.[461]

Current antitrust enforcement, however, does not seem to provide the adequate tools for conducting the appropriate analysis in IT markets.[462] The main notion in the agencies' guidelines, court rulings, and some scholarly writings rejects applying different antitrust tests and enforcement standards and advocates for applying the known and familiar antitrust tests.[463] Such notions, therefore, fix antitrust enforcement to the traditional goods and markets world, and ignore the differences between traditional markets and IT markets. Examining how, if at all, antitrust enforcement should change its tests in order to regulate the anticompetitive effect of the DRM/DMCA regime in IT markets is beyond the scope of this article.

VI.   CAN COPYRIGHT LAW PROVIDE THE SUITABLE SOLUTION?

In several instances involving what seems to be anticompetitive behaviors in IT markets, including during the DRM/DMCA regime, courts and scholars have expressed the opinion that copyright law, through existing copyright doctrines, can provide the efficient and adequate solu-

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456. *See* Pleatsikas & Teece, *supra* note 16; Evans, *supra* note 16; Sidak & Teece, *supra* note 119.

457. GLADER, *supra* note 18, at 189-24.

458. Katz, *supra* note 137.

459. *Id.*

460. GLADER, *supra* note 18, at 189.

461. *Id.*

462. *See* discussion in Section V.B-D *supra*.

463. *See* discussion in Section V.B-D *supra*; Sidak & Teece, *supra* note 119, at 610-30.

tion and that antitrust intervention is not necessary.[464] Posner and Landes, for example, contended that in many cases, antitrust law intervention is not necessary since copyright law can provide the adequate solution alone.[465] For example, in *Lotus v. Borland*,[466] Lotus argued that Borland International, Inc. infringed its computer spreadsheet program, Lotus 1-2-3, when Borland copied the Lotus 1-2-3 menu command hierarchy into its Quattro and Quattro Pro computer spreadsheet programs.[467] The court held that the Lotus menu command hierarchy, which provides the means by which users control and operate Lotus 1-2-3, is not a copyrightable expression, and hence dismissed Lotus' infringement suit.[468] Judge Boudin noted in his concurring opinion the risks concealed in excessive copyright protection stating:

> Requests for the protection of computer menus present the concern with fencing off access to the commons in an acute form. . . If Lotus is granted a monopoly on this pattern, users who have learned the command structure of Lotus 1-2-3 or devised their own macros are locked into Lotus. . . Lotus has already reaped a substantial reward for being first; assuming that the Borland program is now better, good reasons exist for freeing it to attract old Lotus customers: to enable the old customers to take advantage of a new advance, and to reward Borland in turn for making a better product.[469]

In this Section, I will examine the option to regulate anticompetitive behaviors under the DRM/DMCA regime by enforcing copyright law rather than antitrust law. To accomplish this aim, I will start by exploring the theoretical reasoning of the copyright law in the United States. I will then explore the Courts' ruling in two cases involving anticompetitive use of the DRM/DMCA regime: *Lexmark* and *Chamberlain* and examine how existing copyright law doctrines were used to regulate such behaviors.

A.   THEORETICAL AND ECONOMIC REASONING OF COPYRIGHT LAW IN THE U.S.

In 1787, at the Constitutional Convention in Philadelphia, the framers of the Constitution adopted as one of the Constitution's clauses, "[t]he Congress shall have power. . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors,

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464. *See*, Landes & Posner, *supra* note 60 at 391-92; and the discussion in Section VI.B *supra*.

465. LANDES & POSNER, *supra* note 60, at 391-92.

466. Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807 (1st Cir. 1995), *aff'd*, 516 U.S. 233 (1996).

467. *Id.*

468. *Id*

469. *Id.*

the exclusive right to their respective writings and discoveries."[470] The language of this clause contained an important novel element, known as the "idea of progress," the concept of the promotion of progress as the goal of Congress' power under this clause.[471]

Scholars and courts interpreted the term "progress" in the Patent Clause as referring to the word "science" with respect to copyright law, and to "useful art," with respect to patent law, implying the utility character of any patented invention. At the time the Constitution was formulated, the word "science" had a much broader meaning than just natural science, like medicine and chemistry. Back then, the world of "science" encompassed knowledge and learning. Thus, the goal of the Patent Clause was to bestow Congress with the power to promote the progress of knowledge.[472]

The Patent Clause was also considered to reflect the tradeoff between access to a protected work and incentives for further creation of protected goods. The economic reasoning of access versus incentives tradeoff is the utilitarian model[473] that will be discussed in the next paragraph.

1. *Utilitarian Approach and Economic Analysis of Copyright Law in the U.S.*

A property right, according to the utilitarian model, confers two types of economic benefits. The first type of benefit, static benefit, is illustrated by the benefits from a natural pasture. The property right in a natural pasture allows its owner to exclude others from using its pasture and therefore prevents others from overgrazing its pasture. In intellectual property, the static benefit is illustrated by the public domain, *i.e.*, any invention, idea, and expression that is not patented, copyrighted, or propertied in any other way.[474]

The second type of benefit is the dynamic benefit. The dynamic benefit of the property right is reflected in the incentive that the possession of a property right bestows to further create and improve a resource in a certain period, assuming that no one else can appropriate and enjoy the same resource in a certain period of time in the future. An example is the incentive a farmer has to plant a crop assuming that no one besides him may appropriate the field at harvest time. In the intellectual property world, the dynamic benefit is reflected in a firm's likely willingness

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470. U.S. Const. art. I, § 8, cl. 8.

471. Michael D. Birnhack, *The Idea of Progress in Copyright Law*, 1 BUFFALO INTELL. PROP. L. J. 3, 35-38 (2001).

472. *Id.* at 33-37.

473. LANDES & POSNER, *supra* note 60.

474. *Id.* at 12-14.

to invest in developing a new product, knowing its competitors will not be able to duplicate such product and market it without bearing the development costs.[475]

However, because intellectual property is a public good, such features of public good, the inability to block free riding and to stop free distribution of information goods, impair the dynamic benefit of property rights. The non-excludability and non-rivalry features weaken the likelihood to recapture the investment involved in the creation of intellectual property goods. Competitors who did not bear any of the cost associated with the creation of the intellectual property goods can easily, and at a much lower cost, copy and distribute the copied intellectual property goods. Without appropriate legal protection against copying, the incentives to create intellectual property goods will be demolished.[476] The appropriate legal protection of intellectual property must, however, correctly and appropriately balance the costs and benefits associated with intellectual property rights, *i.e.*, the access versus incentives tradeoff.[477]

There are three types of costs associated with any property right, including intellectual property rights. The first cost is the transaction cost, the cost one has to bear while transferring his property right. According to Posner and Landes, transaction costs, with respect to intellectual property, are likely to be very high. Intellectual property goods lack a noticeable physical form; hence, they are hard to identify. As a result, the transaction costs for any transaction involving intellectual property goods are rather high.[478]

Landes and Posner give an example of a painting that may be copied, and the copies may be sold as prints or affixed to other salable objects such as mugs. The original and the copies share the same work of art that is a nonmaterial object separate from the painting itself. The transaction costs associated with selling the original are unlikely to be high. However, the transaction cost associated with transferring the interest in the painting is rather high. For example, the transaction cost

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475. *Id*.

476. For a broader discussion on the incentives paradigm and its adequacy to the information age, *see* Wendy J. Gordon, *Render Copyright unto Caesar: On Taking Incentives Seriously*, 71 U. Chi. L. Rev. 75 (2004); Elissa D. Hecker, *Understand and Respect the Copyright Law: Keep the Incentive to Create*, 53 Case W. Res. L. Rev. 741 (2003); Stan Liebowitz Stan, *Back to the Future: Can Copyright Owners Appropriate Revenues in the Face of New Copying Technologies*, *in* The Economic of Copyright: Development in Research and Analysis (Wendy J. Gordon & Richard Watt eds., 2003). As noted before, many times information goods are produced in nonmarket based ways by individuals that operate out of intrinsic motivation independent from financial incentives or reward. *See* discussion in Section III.B. *supra*.

477. Landes & Posner, *supra* note 60, at 17-24.

478. *Id*.

associated with transferring the right to copy the painting is fairly high, since the exact definition of the work of art, what can be copied, and what would be considered as infringing copy of the work of art, is difficult to portray.[479]

The second type of cost associated with property rights arises from the motive of rent seeking. Rent seeking is an economic term used to describe the quest after what is called "rent" – the pure profit, *i.e.*, the return over and above the cost of generating such return. Here, again, Landes and Posner contend that the rent seeking cost with respect to intellectual property is fairly high, compared with those associated with property rights. Because intellectual property goods are waiting to be invented, created, or discovered, and the owner of a property right receives a monopoly, there is a race to be the first to discover, invent, or create intellectual property goods. Such a race leads to high investment in producing knowledge that will return only the competitive rate of return on average. The difference between the excess over the optimal level of investment in producing knowledge and the social benefits resulting from additional investment is the cost, or some say the waste, produced by rent seeking.[480]

The third type of cost associated with property rights is the cost of protection. In real property, the costs of protection are, for example, the costs of preventing and punishing trespassing and theft, which are incurred by the police, the property owner, and the courts enforcing the law. The lack of physical form and boundaries of intellectual property goods according to Landes and Posner again leads to a higher cost of protection. Intellectual property goods cannot be seen like land, cannot be traced like land, and the public good character of intellectual property makes it hard to prevent its misappropriation and to exclude free riders, and it is quite difficult to detect unauthorized uses.[481]

In addition to the three types of costs associated with every property right, producing information goods involves additional costs: the cost of expression and the cost of producing the actual copies of the information good.[482] The role of copyright law is to maximize the static and dynamic benefits of property rights in light of these costs associated with every intellectual property right and the costs associated only with the copyright. This balance is also described as a cost-benefit tradeoff, and with respect to intellectual property, the access versus incentives tradeoff.[483]

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479. *Id.*

480. *Id.*

481. *Id.*

482. *Id.*

483. Landes & Posner, *supra* note 60, at 37-41.

The legal rule secures the incentives to create. Without legal protection, the market price of an expressive work would be eventually equal to the marginal cost of copying. As a result, the author or the publisher may not be able to recoup their cost of expression. In addition, since the cost of expression is incurred before the author or publisher knows what will be the demand for the work, the author or the publisher also may not be able to recoup the cost associated with the uncertainty and risk of failure borne by them. In the absence of the possibility to recoup the cost of expression and of uncertainty, there will be low, if any, incentives to create and future expressive works may not be produced.[484]

As part of the access versus incentives tradeoff, the copyright law secures, on one hand, the scope of the exclusive rights granted to the right holder, and on the other hand, the public access to a copyrighted work. The copyright law secures public access to a protected information good by defining the scope of exclusive rights granted to the right holder, and by imposing certain limitations on the exploitation of these exclusive rights. For example, the duration of a copyright is limited to the life of the author plus seventy years following his death. In addition, the copyright law protects only the expression of an idea but not the idea itself.[485]

It is important to keep in mind the need to maintain the balance between access and incentives, since excessively strong legal protection has its downsides as well. The need to secure access to a copyrighted work is best explained by the two common metaphors used by several commentators, such as Robert Merton,[486] while examining intellectual property in general.

The first metaphor is "On the Shoulders of Giants." According to this metaphor, today's creators and authors are only shortsighted dwarfs, standing on the shoulders of giants, creatures of the past who were more farsighted. While standing on those creatures' shoulders, the dwarfs are able to see far more than they or the giants were able to see. The idea is that present day creators and authors lean upon the knowledge generated by previous creators and authors.[487] The second metaphor is the metaphor of building taken from the architecture world. According to this metaphor, each author builds his expressive work based on the works of previous authors.[488]

Posner and Landes gave several actual examples for the use authors make with previous information goods. According to a study they con-

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484. *Id.* at 17-24.

485. *Id.*

486. Birnhack, *supra* note 473, at 41 (citing ROBERT K. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT (1993)).

487. *Id.* at 41-45.

488. *Id.*

ducted, Shakespeare borrowed most of the characters and even some actual language from existing works of history, biography, or drama. The description of Cleopatra in Shakespeare's *Antony and Cleopatra* was merely editing the language of the North-Plutarch description. *Romeo and Juliet* by Shakespeare would have even infringed, in Posner and Landes' opinion, the work of Arthur Brooke's *The Tragical History of Romeus and Juliet* published in 1562.[489]

In light of this "building" notion, Posner and Landes emphasized that although some copyright protection is indeed necessary in order to provide incentives for further creation, excessively strong copyright protection has its flaws as well. Too much protection can raise the cost of expression for those builders and dwarfs who want to use previous information goods as a base for their creation. As a result, future information goods will not be created since the authors or publishers will not be able to recoup their fixed cost of expression even under a strong copyright protection. The optimal level of protection should therefore balance, according to Posner and Landes, between incentives and cost of expression.[490]

The perception of copyright law as balancing creators' incentives and public access seems to adequately address the considerations associated with the dynamic character of competition in IT markets. The outcome of defining a limited and known scope of exclusive rights in the hands of the right holders and securing limited scope of public access to a copyrighted work would be obtaining sufficient incentives for further creation using the copyrighted works. Thus, an efficient level of innovation is reached and dynamic efficiency is obtained.

In practice, however, this perception of balancing copyright law is not clear of doubts. The expansion of copyright law in recent years has led to strengthening of the right holder's monopoly and shook the delicate tradeoff between incentives and public access.[491] Discussing the implications of the expansion of copyright law on its ability and fitting as a regulating tool for anticompetitive behavior in IT markets is, however, beyond the scope of this article.

In addition, new writings in recent years by Posner and Landes criticize this perception of IP law as a tradeoff between incentives and access, *i.e.*, between the incentives of the individual authors to further create and the right of the general public to access the created works. In their opinion, this perception oversimplifies the economic analysis of intellectual property law since it only focuses on the dynamic benefit of a prop-

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489. LANDES & POSNER, *supra* note 60, at 66-68.

490. *Id.* at 73-57.

491. Bruce Abramson, *Intellectual Property and the Alleged Collapsing of Aftermarkets*, 38 RUTGERS. L.J. 399, 436-52 (2007).

erty right, which is the incentives that the possession of a property right conveys in the hand of its owner, and completely ignores the static benefit of a property right, which is the ability to exclude others from using your property and hence the capability to prevent overusing the property.

Posner and Landes resent, therefore, the characterization of information goods as non-rivalry.[492] In their opinion, information goods can be overused; for example, the use of the same trademark too many times may result in blurring the uniqueness of the trademark. For example, if the McDonalds trademark is used to describe all types of food, toys, and other goods, not only by McDonalds itself, it will lose its value and uniqueness.[493]

Accepting Posner and Landes' argument would result in broadening the scope of exclusive rights granted to the right holder and hence strengthen the monopoly right in the hands of the right holder. Such implications also relate to the expansion of the copyright law in recent years and may shake the foundation of copyright law as the adequate regulation measure for anticompetitive behavior in innovation markets. Further discussion on the overgrazing argument and its implications on IT markets is beyond the scope of this article.

Setting these problematic matters aside and assuming copyright law sufficiently balances incentives and public access, hence, can serve as a tool for obtaining dynamic efficiency in IT markets. I will now turn to examine how existing copyright law doctrines were used to serve this aim and adequately regulate anticompetitive behaviors that occurred under the DRM/DMCA regime.

B.   Copyright Law in Action: Regulating Anticompetitive Behavior Using Existing Doctrines in Copyright Law

Anticompetitive use of the DRM/DMCA regime was discussed by federal appellate courts in two of the cases already mentioned in this paper, *Lexmark* and *Chamberlain*. Because the factual background was already described in Section IV.C. and IV.D. *supra*, I will directly delve into the examination of the application of copyright law doctrines in these rulings.

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492. Landes & Posner, *supra* note 60, at 12-14.

493. *See* Landes & Posner, *supra* note 125; Landes & Posner, *supra* note 60 at 11-36. In their opinion, the public domain, which contains all the unprotected works or protected works whose intellectual property right protection period ended, is similar to the natural pasture in the tragedy of commons example. *Id.* Both will be overused absent a legal right to exclude others from using it. *Id.* The way to solve the tragedy of commons with regards to information goods, according to Landes and Posner, is by granting perpetual intellectual property rights and eliminating the public domain. *Id.*

1. *Lexmark*

The Court of Appeals in *Lexmark* began its discussion by identifying the scope of copyright law under the Patent Clause and Section 102(a) of the Copyright Act, which defines the types of works that may be protected under copyright law.[494] The court continued to define the scope of copyright protection by listing the exclusive rights granted under copyright law to a right holder to use her copyrighted work in certain ways as detailed in the law.[495] Those exclusive rights are the rights to reproduce a copyrighted work, create derivative works based on the original copyrighted work, distribute copies of the copyrighted work, and publicly perform and display the copyrighted work.[496]

The court further emphasized that the scope of copyright protection is fenced by several exemptions set forth in the copyright law.[497] For example, Section 102(b) of the Copyright Act sets forth the idea "expression dichotomy" by explicitly stating that copyright protection shall never extend to any ideas or processes.[498] Because it is difficult to identify and draw a line between idea and expression, the court describes two "other staples of copyright law"[499] that can be used to distinguish between an idea and an expression. The first test is known as the merger doctrine. According to the merger doctrine, when the expression is vital to the statement of the idea or where there is only one way or very few ways of expressing the idea, the idea and expression are said to have merged and copyright protection is not granted.

The second test mentioned by the court is the *scènes à faire* doctrine. According to this doctrine, copyright protection shall not be granted to elements that must be included in the work. With respect to software, the elements of a program dictated by practical realities, such as the hardware standards and mechanical specifications, software standards

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494. 17 U.S.C § 102(a) states:

(a) Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. Works of authorship include the following categories: (1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.

495. *Lexmark II*, 387 F.3d at 533-37.

496. 17 U.S.C. § 106.

497. *Lexmark II*, 387 F.3d at 537-38.

498. 17 U.S.C. § 102(b) states "(b) [i]n no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work."

499. *Lexmark II*, 387 F.3d at 535.

and compatibility requirements, are not entitled to copyright protection.[500] The court further explained that with respect to the software industry, the question under both doctrines "is not whether *any* alternatives theoretically exist; it is whether other options practically exist under the circumstances. . . the alternatives must be feasible within real-world constraints."[501]

By applying the merger doctrine and the *scènes à faire* doctrine, the court concluded that "lockout" codes, *i.e.* the DRM employed, are a functional idea, rather than the original expression, because such lockout codes are employed in order to prevent unauthorized use. Furthermore, the code sequence is usually dictated by compatibility standards, because it must operate in conjunction with an unlock code that resides in the applicable device. Hence, according to the court in *Lexmark*, both under the merger doctrine and under the *scènes à faire* doctrine, lockout codes are not entitled to copyright protection.[502]

An additional limitation on the scope of copyright protection is imposed under the fair use doctrine.[503] The rational of the fair use doctrine, according to the court, is to provide a "defense to infringement claims to ensure that copyright protection advances rather than thwarts the essential purpose of copyright" under the Patent Clause in the U.S. Constitution.[504] With respect to the software industry, the fair use doctrine is a tool for securing public access to functional elements embodied in a software application.[505]

While applying these standards and doctrines to the circumstances in *Lexmark*, the court analyzed the operation of the Toner Loading Program that was infringed by SCC according to Lexmark's argument. The court concluded that the:

> Toner Loading Program, recall, serves as input to the checksum operation that is performed each time the printer is powered on or the printer door is opened and closed (i.e., for toner cartridge replacement). After downloading a copy of the Toner Loading Program to calculate toner levels, the Printer Engine Program runs a calculation—the checksum—using every data byte of the Toner Loading Program as input. The program then compares the result of that calculation with a "checksum value" that is located elsewhere on Lexmark's toner cartridge chip.[506]

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500. *Id*. at 538-39.

501. *Id*. at 537.

502. *Id.* at 536-73.

503. 17 U.S.C. § 107.

504. *Lexmark II*, 387 F.3d at 537.

505. *Id*. (citing *Sony Computer Entm't Inc. v. Connectix Corp.*, 203 F.3d 596, 603 (9th Cir. 2000)).

506. *Id.* at 541.

The printer will not function "if any single byte of the Toner Loading Program is altered," therefore, the court concluded that "pure compatibility requirements justified SCC's copying of the Toner Loading Program."[507]

The court further noted that the Toner Loading Program operates as a lockout code and is very brief. A brief program may be entitled to copyright protection if "a creative flair is shown."[508] In the absence of such creative flair, "a very brief program is less likely to be copyrightable because it affords fewer opportunities for original expression."[509] With respect to the Toner Loading Program, no such creative flair was shown, and under the merger doctrine and the *scènes à faire* doctrine the operation of the Toner Loading Program as a lockout code precludes it from being entitled to copyright protection.[510] Because the court concluded that the Toner Loading Program is not copyrightable, it dismissed Lexmark's allegation for copyright infringement.[511]

On appeal, the court of appeals upheld the dismissal of Lexmark's claim for violation of the DMCA.[512] Lexmark contended that Smartek was a device that circumvents its authentication sequence (a type of DRM), which should be considered as Lexmark's technological protection measure that effectively controlled the access to a copyrighted work – the Printer Engine Program and the Toner Loading Program. Because the Toner Loading Program is not a copyrightable work, however, the circumvention of the DRM controlling the access to it is not prohibited under the DMCA anti-circumvention provisions.[513]

By excluding the Toner Loading Program from the scope of copyrightable work, the court annulled any influence the DRM/DMCA regime might have. As a result, the court cut off the foundation of Lexmark's justifications for its anticompetitive behavior.

2. *Chamberlain*

The Court of Appeals for the Federal Circuit, in *Chamberlain*, emphasized the differences between the copyright law, which is a property rule, and the DMCA, which does not create a new property right but is rather a liability rule. As a liability rule, the DMCA creates a new cause of action under which a defendant may be liable.[514]

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507. *Id.* at 542.

508. *Id.*

509. *Id.* at 542-43.

510. *Id.* at 543-44.

511. *Lexmark II*, 387 F.3d at 543-44.

512. *Id.* at 546-50.

513. *Id.* at 548-50.

514. *Chamberlain*, 381 F.3d at 1192-93.

The distinction between a property right and a liability rule also affects the necessary elements for proving a violation of a right or rule. In order to prove copyright infringement, the plaintiff must show that the defendant copied elements of the protected work.[515] Under the DMCA, a plaintiff alleging circumvention (or trafficking) must show that the defendant's access to the protected work was unauthorized.[516]

With respect to the "unauthorized" access requirements, it is important to note that because the copyright law itself authorizes the public to make certain uses of copyrighted materials, consumers who purchase a product containing a copy of embedded software have the inherent legal right to use that copy of the software. The court, in *Chamberlain*, therefore held that copyright owners are not entitled to prohibit legitimate and legal uses, such as fair use, by imposing contractual and technical limitations on such uses.[517]

Furthermore, the court discussed the scope of copyright protection and emphasized that DMCA anti-circumvention provisions do not alter it in any way. In the words of the court:

> The anticircumvention provisions convey no additional property rights in and of themselves; they simply provide property owners with new ways to secure their property. Like all property owners taking legitimate steps to protect their property, however, copyright owners relying on the anticircumvention provisions remain bound by all other relevant bodies of law. . . What the DMCA did was introduce new grounds for liability in the context of the unauthorized access of copyrighted material.[518]

In addition, the court explicitly rejected the interpretation suggested by the plaintiff, Chamberlain, to the anti-circumvention provisions. For this interpretation, it is necessary to distinguish between the right to access a copyrighted work and the copyright protection itself. Chamberlain's interpretation understands the DMCA as creating a new protection for copyrighted works, i.e. the protection over the *access* to the copyrighted work.

The court emphasized the hazardous implications on competition associated with accepting such interpretation.[519] As the court stated, Chamberlain suggested a reading of the DMCA that "would allow virtually any company to attempt to leverage its sales into aftermarket monopolies—a practice that both the antitrust laws and the doctrine of copyright misuse normally prohibit."[520] Thus, the court held that the

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515. *Id.* at 1193 (citing *Feist Pub., Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991)).

516. *Id.*

517. *Id.* at 1202.

518. *Id.* at 1193-94.

519. *Id.* at 1200-01.

520. *Chamberlain*, 381 F.3d at 1201 (omitting internal citation).

DMCA "prohibits only forms of access that bear a reasonable relationship to the protections that the Copyright Act otherwise affords copyright owners."[521]

Furthermore, the court held that a violation of Section 1201(a)(2) of the DMCA consists of the following conditions to be proven by the plaintiff:

> (1) ownership of a valid copyright on a work, (2) effectively controlled by a technological measure, which has been circumvented, (3) that third parties can now access (4) without authorization, in a manner that (5) infringes or facilitates infringing of a right protected by the Copyright Act, because of a product that (6) the defendant either (i) designed or produced primarily for circumvention; (ii) made available despite only limited commercial significance other than circumvention; or (iii) marketed for use in circumvention of the controlling technological measure.[522]

The court ruled that Chamberlain did not show the requisite lack of authorization, and did not prove that there is a nexus between access and protection. Furthermore, Chamberlain did not explain how the access provided by Skylink's garage opener facilitated any infringement of the Copyright Act.[523]

C.   SUMMARY

As is apparent from these two cases, the copyright law can offer several paths for regulating anticompetitive behavior occurring under the DRM/DMCA regime. Such paths become possible due to the application of existing and known copyright law doctrines to the circumstances of the DRM/DMCA regime.

However, there may be possible flaws in regulating anticompetitive actions that occurred under the DRM/DMCA regime. Such flaws derive from the tremendous expansion of copyright law in recent years. In the last decade, intellectual property laws have expanded significantly. Legislation by the U.S. Congress has expanded the scope of copyright and trademark laws, while court rulings have enlarged the scope of patent law and legalized right holders' licensing restrictions, which in practice strengthen intellectual property rights.[524] *RealNetworks* is an example of such an expansion of intellectual property rights. In *RealNetworks,* the District Court for the Northern District of California interpreted the DMCA as granting a new right to copyright owners: the right to control

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521. *Id.* at 1202.

522. *Id.* at 1203.

523. *Id.* at 1204.

524. *See* Mark A. Lemley, *A New Balance Between IP and Antitrust*, 8 SW. J. L. & TRADE AM. 237 (2007) (citing *Walker Process Equip. Inc. v. Food Machinery & Chem. Corp.*, 382 U.S. 172 (1965)); Abramson, *supra* note 493, at 436-69.

any access to their copyrighted work.[525]

These developments have led to overly strong intellectual property laws and unnecessarily reduced public welfare. These developments may also undermine the exact goal of intellectual property laws –encouraging innovation. Excessively strong intellectual property laws may block or prevent fair access to the building blocks of further innovation and ultimately may impede future innovation.[526]

VII.   CONCLUSION

The DRM/DMCA regime is here to stay. Indeed, digital music is now available for download DRM-free in most online music stores.[527] The use of DRM, however, especially the anticompetitive use that occurred under the DRM/DMCA regime, is not necessarily related to attempts to block piracy in the music industry.

For example, Apple's attorney stated that even if Apple is not required by the entertainment industry to employ any type of DRM, it would still continue to employ its own developed DRM – FairPlay.[528] As he correctly predicted, Apple removed its DRM protection from music files, but left it on movies and television shows.[529] Moreover, Apple still employs DRM on its iPod and iPhone devices in order to assure these devices cannot be used with any other software beside iTunes.[530] It seems, therefore, that the use of DRM in coming years may continue, though not as a tool for blocking piracy, but as a means to control the secondary market.[531]

Thus, it is still necessary to address anticompetitive behaviors that occur under the DRM/DMCA regime and find the most suitable law for regulating such behaviors in an efficient way. Such regulation must take into consideration the unique circumstances surrounding any such behaviors occurring under the DRM/DMCA regime. In other words, the most suitable regulation has to adequately address the special characteristics of IT markets discussed herein.

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525. *RealNetworks*, 641 F. Supp. 2d at 913.

526. Abramson, *supra* note 493, at 436-69.

527. *See* discussion in footnote 442, *supra*; EMI Group Ltd, *EMI Music Launches DRM-Free Superior Sound Quality Downloads Across Its Entire Digital Repertoire* (Apr. 2, 2007), http://www.highbeam.com/doc/1G1-161385097.html (last visited Feb. 24, 2010).

528. Fred Von Lohmann, *FairPlay: Another Anticompetitive Use of DRM*, ELECTRONIC FRONTIER FOUNDATION, May 25, 2004, http://www.eff.org/deeplinks/2004/05/fairplay-another-anticompetitive-use-drm (last visited Feb. 24, 2010).

529. Apple Press Release, *supra* note 15.

530. Jacqui Cheng, *A Look at Apple's Love for DRM and Consumer Lock-ins*, ARS TECHNICA, Jan. 4, 2010, http://arstechnica.com/apple/news/2010/01/a-look-at-apples-love-for-drm-and-consumer-lock-ins.ars (last visited Feb. 24, 2010).

531. ITUNES CASE STUDY, *supra* note 441, at 40-50.

Antitrust laws and the current tests and standards for enforcing them do not seem to provide an adequate regulation, given the dynamic characteristic of competition in IT markets and the significant role of nonmarket based information production models in IT markets. However, as described in Section IV.E., antitrust law is still called to the rescue whenever there is alleged anticompetitive behavior in IT markets. Therefore, it is necessary to adapt antitrust law to IT markets.

The copyright law, however, seems to provide a more suitable regulation through existing copyright law doctrines that is aimed at promoting progress. However, as indicated in Section VI.B., the expansion of the copyright law in the last decade may impose several barriers on the ability to create novel and innovative goods using existing copyrighted works.

In conclusion, given the setbacks in the regulation under copyright law, it seems necessary to conduct further research on the application of antitrust enforcement standards. Under such research, it would be necessary to examine how antitrust enforcement standards should be changed in order to adequately address the unique features of IT markets discussed herein.