5 Va. J.L. & Tech. 12 (2000), *at* http://www.vjolt.net
1522-1687 / © 2000 Virginia Journal of Law and Technology Association

VIRGINIA JOURNAL *of* LAW *and* TECHNOLOGY

UNIVERSITY OF VIRGINIA	FALL 2000	5 VA. J.L. & TECH. 12

Method to Their Madness: The Secure Digital Music Initiative, a Law and Economics Perspective

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This article examines the ongoing development of digital music distribution via the Internet. Many observers have been critical of the old-line music industry's resistance to what appears to be a tidal wave of consumer interest in digital content delivery. However, the music industry contends that it will be willing to participate in digital distribution once it develops methods to protect its content from piracy and ensure payment and collection of fees necessary to compensate artists. Their efforts are being spearheaded by an industry-wide standard-setting group formed in 1998, the Secure Digital Music Initiative. While many have accused SDMI members of being protectionist and resistant to change, this article examines past technological evolutions and argues that in fact they are being revolutionary and efficient by allowing many avenues to development, rather than settling on a single standard. As a result, a standards battle of great proportions is underway in the music industry, not unlike the transition from Beta to VHS, the adoption of cable across America, or the current transition from analog to digital television. Though consumers may be confused, and the transition prolonged, law and economics theory posits that the resultant technology will ultimately be far superior to the imposition of standards that may quickly become obsolete. Unfortunately, the slow pace of development and adoption may ultimately be the old-line music industry's downfall, as entrepreneurs and consumers have warmed to the MP3 format and appear unwilling to switch to secure formats that offer less content and more restrictions.

I. Introduction

1. Internet insiders have described the Secure Digital Music Initiative (SDMI), the music industry's response to electronic music distribution, as anti-competitive, backward looking, and antithetical to the music industry's need to move forward into the digital age. This coalition of dominant players from the music and technology industries resembles a cartel that improperly excludes small entrepreneurs and artists not associated with the major labels. Such a coalition has the potential to thwart, rather than encourage innovation. However, though anti-competitive motives may lurk in the background, research from similar horizontal standard-setting coalitions reveals that SDMI could have significant pro-competitive effects, such as pooling research, resources and ideas. Moreover, the law and economics literature is replete with conduct that has engendered antitrust scrutiny, but has nevertheless been condoned because it encouraged innovation and more efficiently led to technological improvements. Interestingly, when put through a law and economics analysis, the often-criticized aspects of SDMI may be justified in the interest of competition, innovation, technological development, and consumer choice, all motives that are encouraged by antitrust and law and economics theory.

2. Though law and economics theory can justify many of SDMI's actions, objections to them pose formidable obstacles to consumer and professional acceptance of its standards. In order for SDMI to be successful, it will need to address these negative perceptions head-on to restore legitimacy to its efforts.

3. Part II of this article discusses the digital music distribution environment as it existed before SDMI. Part III reviews SDMI's objectives and accomplishments. Part IV explores internal obstacles to SDMI's future success, such as the lack of interoperability between SDMI-compatible devices and compression formats, and SDMI's desire to achieve technologically elusive perfect security. Part V examines external issues that threaten to derail SDMI before it even gets off the ground, such as the pervasiveness of the consumer preferred MP3 standard, the perceived illegitimacy of SDMI's motives, the uncertain impact of the America Online - Time Warner - EMI merger, consumer privacy concerns, and new technologies (Napster, MyMP3.com). In conclusion, I offer predictions about the likely course of SDMI and digital music generally over the next few years.

II. Pre-SDMI Digital Music Environment

4. MP3[2] is the most popular compression format for downloading, trading, and listening to music on the Internet.[3] The Internet music industry is predicted to hit $1.6 billion by 2002, and approximately 500,000 MP3 files are available on the web.[4] MP3 is an open format without security protection.[5] This lack of protection has caused concern among copyright owners whose property is being freely traded on the Internet without financial accountability.[6] Indeed, some speculate that more than 90% of MP3s currently in circulation were obtained without the copyright owners permission.[7] However, it is important to note that the MP3 compression format also has legitimate uses.

5. Traditional copyright enforcement mechanisms have had mixed success in the Internet environment.[8] The virtual locations of files and Internet Service Providers (ISP) that host those files are easily identifiable by their uniform resource locator (URL) code. United States copyright owners can demand that domestic ISPs remove infringing files pursuant to the Copyright Act,[9] which provides ISPs safe harbor from infringement prosecutions as long as they comply with notice and takedown requests. If ISPs refuse to take down infringing websites, however, they are as liable for infringement as the website owners. Of course, this method of enforcement is very costly for copyright owners who must devote time and resources to tracking infringing websites and notifying ISPs, and these costs are likely to increase exponentially as the number of infringing files proliferates.

6. In the international context, where the United States Copyright Act has little force, copyright owners are forced to proceed against individual website owners largely without the aid of ISPs. Identifying infringing website owners and physical addresses to send cease and desist letters to typically ends the inquiry, as the infringer's physical location may be impossible to determine.[10] If the copyright owner is able to send a cease and desist letter, it may lack strength as she has no jurisdictional authority to enforce her exclusive copyright rights.[11]

7. Several additional factors have increased copyright owners' digital music enforcement difficulties. The Internet subscriber base in the United States recently reached one hundred twenty two million,[12] forty-four percent of all adults. College students have access to high quality, ultra fast T1 lines,[13] which increase the ease and convenience of downloading large video and music files. In addition, the popularity of MP3 players,[14] which allow MP3 files to be played away from the computer, has increased consumers desire for musical content. Even if the artists could track all of these infringements, it is not likely that they would want to prosecute, since these are their most ardent fans and supporters.

8. A distinction should be made between the copyright owner and the artist. Often they are different entities, as artists may choose to assign their copyrights to publishers in exchange for marketing and distribution. When an artist makes such an assignment, enforcement of the copyright falls to the publisher. The distinction between creation and enforcement often results in publishers and artists having different perspectives on new technology.

9. The Internet and MP3 technology have provided artists with the opportunity to communicate directly with their fans,[15] allowing them to avoid the major label process.[16] Some artists have become disenchanted with major labels that require them to gain the approval of artists and repertoire (A&R) managers and to abide by fixed studio to retail timelines, often forcing them to alter or shelve what they believe to be their best material.[17] Recently, some labels, sensing the value of digital rights, have required their artists to sign over those rights without additional compensation.[18] This has further alienated many artists and drawn them to Internet sites that offer greater financial stakes and increased autonomy.[19]

10. While the major labels fret over the piracy that results from the proliferation of MP3 files, independent and Internet-only labels have developed relationships with both artists and consumers.[20] These entrepreneurs have grasped the opportunity to establish their brand identities by giving away free downloads and by helping consumers locate their favorite tunes.[21] Internet-only labels pose a great threat to the major labels, since the Internet-only labels had less copyright-protected material initially, and therefore have less to fear from MP3 piracy. As a result, they have been freer to test new business models and distribution formats.[22]

11. Notably, with the increasing consolidation of entertainment content producers and distributors, resulting from the recent AOL-Time Warner-EMI and CBS-Viacom mergers,[23] the Internet provides an opportunity for niche marketing and exposure for those artists who do not fit into the predominant musical genres.[24] It also provides a new outlet for older consumers who shun the teenybopper retail environment, and prefer classic back-catalog albums that are too costly to keep in inventory and that are therefore frequently out-of-stock.[25]

12. While the music industry has been the focal point of the digital distribution maelstrom thus far, the other entertainment industries are not far behind.[26] The digital TV,[27] film,[28] and book[29] industries are all watching the music industry's digital distribution security debate with great interest, hoping to be able to free ride on its solutions. This reliance gives the music industry's current standards battle additional importance, because solutions developed in this segment of the entertainment industry will be applied to the other segments.

III. The Secure Digital Music Initiative

A. Objectives

13. Following defeat in its effort to secure a preliminary injunction preventing Diamond Multimedia Systems from shipping its Rio MP3 Player to market,[30] on December 15, 1998, the Recording Industry Association of America engineered the formation of the Secure Digital Music Initiative (SDMI).[31] By this point it was clear to the established music and technology companies that electronic music distribution was more than a fad, and that the only way for the companies to remain viable was to figure out how to parlay their success in the physical world into the digital environment.[32] These adaptive efforts coalesced when over 100 music and technology companies joined together to form SDMI to chart the future of digital music.[33]

14. At the February 26, 1999, kick-off meeting, Dr. Leonardo Chiariglione, Executive Director of SDMI, announced its objectives:

> SDMI is a global initiative providing a forum where technology companies can work together to create an open architecture and specification for digital music security. The ultimate goal of the initiative is to enable consumers to access and enjoy music in new ways, while *ensuring interoperability among digital products and services so as to enhance the consumers listening experience*.[34]

15. The guiding principles behind SDMI are that a successful security standard will spur the "growth of legitimate markets for digital delivery of copyright recorded music,"[35] that the standard will be "widely adopted by the technical industries and their customers,"[36] and that the standard will be voluntarily implemented by SDMI participants.[37] SDMI believes that these objectives will be met "[b]y supporting a wide variety of agreements between rights owners and consumers,…enabl[ing] multiple new and flexible business models to emerge in the marketplace."[38]

B. Accomplishments

16. SDMI has moved fairly quickly, especially given the number of members and competing agendas,[39] to establish the framework for the creation of SDMI-compliant music and players.[40] On June 28, 1999, SDMI adopted reference architecture for moving encoded music in various formats onto devices consistent with SDMI rules.[41] SDMI published this "standard"[42] on July 13, 1999.[43] Phase I is an open format that accepts all content, including MP3, beginning immediately.[44] During Phase I, SDMI music will be encoded with a watermark that will be used to identify it as legitimate in later phases.[45] It is important to note that there is no increased security for SDMI music during Phase I, nor is there any way for consumers to distinguish between MP3, both legitimate and pirated, and SDMI watermarked music.[46] The only distinguishing feature between an MP3 player that is SDMI-compliant and one that is not is that the SDMI-compliant player has been created and tested for its ability to identify the SDMI watermark.[47]

17. Though one of the key tenets of SDMI is that adoption of its standards by participants will be voluntary,[48] in deciding on the watermark for Phase I, SDMI selected Verance (formerly Aris/Solana) as the exclusive provider of the Phase I screening technology.[49] According to SDMI, selection of one watermark provider was necessary,[50] although it is not clear why exclusivity was necessary for this particular feature of the standard and not for others.[51] Importantly, once this selection was made, it became imperative for all hardware manufacturers planning to bring SDMI-compliant players to market in time for the holiday season to ensure that their technology was compatible with the Verance Phase I watermark.[52] Unfortunately, the final contract with Verance was not signed until December 6, 1999,[53] and the Big Four music companies (Warner/EMI Music, Universal Music, BMG, and Sony Music) did not agree to license the watermarking technology from Verance until March 20, 2000.[54]

18. With Phase I SDMI-compliant players and applications on their way to market, SDMI announced the required functionality for the Phase II screening technology on December 9, 1999,[55] and issued a Call for Proposals on February 28, 2000.[56] The call for proposals describes the technical and legal requirements companies must meet when applying to be considered as a Phase II screening technology provider, and notes that proposed technologies must be compatible with the Phase I watermark.[57] The proposed functionality for Phase II calls for a screen that creates default rules, restricting the user to four copies from original CD, DVD, electronic music distribution (EMD), or MP3 files (both legal and pirated).[58] One copy stays with the host machine and three may be loaded to peripherals.[59] The screen does not allow transfers to the Internet or other host machines.[60] Consumers requiring more than four copies will have to go back to the original and begin the process anew.[61]

19. Once the Phase II technology has been selected and implemented, Phase I SDMI-compliant players will be given the signal to upgrade to Phase II.[62] The actual design of the upgrade system has not yet been determined, but it will use the encoded watermark to trigger acceptance of approved SDMI files.[63] SDMI emphasizes that the transition mechanism will not cut off any functionality from the Phase I application or portable device.[64] However, consumers who want to be able to play or copy SDMI-compliant music through an SDMI-compliant player or computer program will have to upgrade to the Phase II watermark screening technology.[65] SDMI emphasizes that the only content SDMI-compliant devices will be unable to play, is illegally copied SDMI music beginning in Phase II.[66] Such music will be identified by the lack of an approved watermark. Apparently this screening process will not affect MP3 files that are freely shared by the owners without watermarks, but rather it will only discriminate against SDMI files that are lacking the required mark.[67]

IV. SDMI Internal Obstacles

20. The two most daunting obstacles to SDMI's success are of its own making. The first, lack of interoperability, was the result of dominant forces within SDMI that preferred the "winner take all" gamble of standards adoption. By going it alone, and creating individual rather than group standards that conform to SDMI's loose architecture, successful companies stand to gain the most if their standard is adopted. This approach has led to a proliferation of standards and consumer confusion. The second internal obstacle is the conflict between the music and technology companies over the acceptable level of copyright protection. The music industry wants perfect protection and is working to achieve this goal through both legislative and technological means. The technology industry realizes that perfect protection is difficult to achieve and once achieved will be vulnerable to hacking and working around. Given its desire to get hardware to market as soon as possible, the technology industry is willing to move ahead with enough protection to keep honest people honest. The outcome of this struggle will probably determine the success or failure of the SDMI effort.

A. Lack of Interoperability

21. From the very beginning of this process SDMI had two important and conflicting objectives.[68] The first was to provide a forum for music and technology companies to come together to determine the future of digital music in an open environment where, in order to foster efficiency, sharing was encouraged.[69] The second was to ensure that the association and its standards remained voluntary, so that any standard developed would serve only as a guideline for others.[70] From these two objectives, SDMI's leadership believed that widely adopted interoperable standards would emerge.[71] Unfortunately, interoperability was last on the agenda in an environment that fostered competition by making adherence to standards voluntary.[72] What happened instead was a race, both to be first to market with new technologies, and to form alliances with companies thought to be most likely to win the standards war.[73] Music and technology companies kept one foot in SDMI and the other in the marketplace, ensuring that they had a stake in SDMI while waging a standards battle.[74] The result was consumer confusion due to the proliferation of compression formats and players, all

compatible with MP3, but largely incompatible with each other.[75] Due to uncertainty about which technologies will win the standards battle and which compression formats will agree with which players, consumers may take a wait and see approach and accept the new technology slowly, waiting until evidence of mass adoption is plain.[76]

22. Such an outcome may be undesirable for consumers, but many economic scholars believe that incompatibility is the best approach to achieving innovation in high technology networked markets.[77] Compatibility is desirable for consumers because it narrows their decision making to traditional factors like price and availability,[78] rather than deciding which technology is superior or most likely to be adopted by other consumers.[79] However, economists argue that compatibility in high technology markets is actually socially undesirable for consumers because it leads to inefficient inertia that retards innovation.[80] Once consumers have settled on a standard, and all manufacturers adhere to that standard, other potentially superior innovative technologies may be ignored in favor of maintaining the status quo.[81] Moreover, manufacturers in compatible markets may collude to maintain price and profits, removing the incentive to invest in research and development.[82]

23. Thus, compatibility may remove important incentives for dominant players to innovate. If a particular standard is selected as the one with which others must be compatible, the dominant manufacturer may cease to develop new technology and lose its technological advantage, and ultimately find that its technology has become obsolete.[83] Scholars further argue that incompatibility in high tech markets gives potential new innovations a "winner take all" effect.[84] The first manufacturer to stumble upon the next major innovation will reap all of the benefits of its victory, rather than sharing in a single standard equally with other manufacturers. This high stakes battle encourages research and development investment in new technology, and equalizes opportunities between large and small firms,[85] thus further spurring innovation. This is precisely the type of environment that should be encouraged when technology is rapidly evolving. If standardization and compatibility were preferred in this situation, it could lead to the rapid adoption and irreversible lock-in of inferior technology,[86] rather than continued development of superior technologies.

24. SDMI's objective to provide a forum for cooperation was a good one, as rivalry among dominant players in standard setting may lead to inefficient over-development of separate standards and thus delay adoption of a single standard. However, participation in SDMI's cooperative environment did not preclude individual participants from pursuing parallel technologies. By working both within the group and outside of it, parallel paths to innovation were pursued.[87] This inter-standard competition created a level playing field where old-line and new-media firms could compete on an equal footing. The result is a process that encourages innovation, with each manufacturer vying for consumer adoption and searching for the best technology in the digital music environment. Though in the short term consumers may be confused, in the long term they will benefit from the rapid development of superior technology.[88]

B. Labels Want Perfect Copyright Protection

25. Part of the tension within SDMI revolves around the level of copyright protection that will be acceptable to the music and technology industries.[89] The technology industry realizes that perfect security is not achievable and once a new standard is adopted, it will be circumvented, forcing further technological development. Instead of going through this circular process, the technology industry would prefer to get their gadgets to market with enough protection to keep honest people honest.[90] The music industry prefers to wait until an acceptably high level of protection is developed,[91] and initially it resented the inclusion of even legitimate MP3 files in the new SDMI environment.[92] Critics of SDMI note that not only is perfect copyright protection impossible to achieve, it is more copyright restrictive than the law allows.[93] As a result, the music industry's attempts to expand copyright protection through legal and technological means will continue to be a roadblock to SDMI's progress and consumer acceptance.

1. Law and Legislation Favoring Copyright Owners Rights Expansion

26. As digital technology was expanding the potential for communication among consumers and between creators and their fans, the entertainment industries were lobbying Congress to limit the impact of digital copying on their underlying businesses.[94] Copyright in this environment is perceived as a zero-sum game: as consumers' rights expand, copyright owners' rights contract. As a result of this perception, the copyright industries have sought to ensure that copyright protection will not be compromised in the digital age, though digital technologies make infringement easier than it has ever been. They have sought to make the law conform to their ends, and in this respect, they have been quite successful.[95]

27. The Audio Home Recording Act[96] (AHRA), passed in 1992, was the result of a compromise between the recording and technology industries to prevent digital copying without financial accountability to copyright owners.[97] The legislation was developed amid music industry concern over consumer availability of digital audio tape recorders (DAT).[98] The AHRA imposed a compulsory license on hardware manufacturers[99] and required them to install a serial copy management system (SCMS) or some other approved system to prevent successive generation copying.[100] In return for meeting these increased burdens, the hardware manufacturers and distributors received immunity from copyright infringement prosecution based on manufacturing, importing, or distributing "a digital audio recording device, a digital audio recording medium...or for using any of these devices or media for personal, noncommercial recording."[101] The additional financial and technological burden assessed by the AHRA delayed the DAT recorders entry into the consumer market, increased its retail price, and removed the consumer benefit (successive digital copying), successfully thwarting its popularity. DAT use today remains effectively limited to recording professionals.[102]

28. The entertainment industries also expanded their enforcement power by transforming civil penalties for copyright infringement into criminal ones. The No Electronic Theft Act (NET),[103] passed in 1997, provides that a copyright infringer can get up to six years in prison for a second offense, three years for a first offense, or a substantial fine for distributing as little at $1,000 worth of music.[104] The NET Act defines a criminal infringer as any person who infringes a copyright willfully "for the purposes of commercial advantage or private financial gain" by the "reproduction or distribution, including by electronic means…one or more copies or phonorecords of one or more copyrighted works, which have a total retail value of more than $1,000."[105] Importantly, the NET Act also amends the Copyright Act definition of financial gain to include receipt, or expectation of receipt, of anything of value, including the receipt of other copyrighted works.[106]

29. Most recently, Congress enacted the Digital Millennium Copyright Act of 1998 (DMCA).[107] In addition to provisions enabling liability actions against ISPs that host infringing material,[108] the DMCA prohibits circumvention of technological measures used to protect copyrighted works.[109] However, the DMCA does not yet take into account the extent to which fair use can be used as a defense to circumvention.[110] Critics have noted that the DMCA provides an unprecedented amount of control to copyright owners by providing that the mere unlocking of technologically secured copyrighted works is an actionable offense.[111] This amount of control, they argue, is beyond what copyright law allows and is anathema to the free flowing Internet environment.[112]

30. These three amendments to the Copyright Act have not been fully tested by the courts. As a result, they are subject to the interpretations favored by the parties.[113] The Recording Industry Association's (RIAA) attempt to broadly interpret the AHRA was thwarted by the Ninth Circuit in the Diamond Rio litigation.[114] In that case the court refused to go along with RIAA's assertion that personal computers were included in the AHRA's definition of digital audio transmission devices.[115] The NET has been underutilized as an enforcement tool, likely due to copyright owners' reluctance to prosecute their core constituencies. There are currently three cases interpreting the DMCA that test its anti-circumvention provisions.[116] Observers are hopeful that courts will recognize a fair use privilege, rather than tilting towards a more restrictive interpretation.[117]

2. Questionable Legality of Securing Rights by Technology that are Granted to the Public by Law

31. As a result of SDMI's efforts to encourage research and development and to bring new technologies to market, digital rights management firms are closer to developing perfect copy control systems.[118] However, they are not quite there yet, as evidenced by recent successful efforts to crack SDMI's code.[119] If digital rights management firms are successful in the future at creating an impenetrable code, the result will be an increased ability for copyright owners to control the total use of their works beyond what the Copyright Act allows.[120] Many fear that consumers clearly enumerated and judicially recognized rights of fair use[121] and first sale[122] will be disregarded by overreaching copyright owners who want to be able to track every circulating copy of their works. It is as if copyright owners have forgotten the deal that was struck in the Copyright Clause,[123] which states that copyrights are granted "[t]o promote the progress of science and useful arts…by securing for limited times to authors…the exclusive right to their writings." The exclusive rights are enumerated and do not include all possible rights.[124] The ultimate goal of the Copyright Grant is to benefit the public by increasing the volume of works available to it for consumption.[125] The economic benefit that results from the exclusive grant is essentially a bribe to ensure that authors and scientist will continue to create.[126]

32. SDMI's attempts at technological lock down have not gone unnoticed by artists[127] and independent labels,[128] many of whom have organized and become quite vocal against these efforts. Organizations such as the Electronic Frontier Foundation,[129] Art to Heart,[130] and Musicians United[131] hope to raise consumer awareness about the rights that are at risk and to lobby Congress on the public's behalf.[132] Unfortunately it appears that SDMI's technological ability to prevent fair use and disregard consumers' first sale rights will arrive before a legislative solution or even consumer awareness of encroachment.

33. The Stephen King e-book test is a good example of a copyright owner's exercise of expansive control and consumer acquiescence.[133] King's publisher offered the book for sale to participating e-booksellers. These booksellers either charged consumers $2.50 per copy or used the book as a promotional tool by offering it for free and advertising other King books and merchandise.[134] Consumers downloaded copies that could not be printed or sent to anyone, effectively limiting them to reading the book on their computer screens.[135] More than 500,000 consumers downloaded King's 66-page short story,[136] which will not be released in any other medium,[137] so they are happy. Stephen King estimates that he will make at least $450,000, as opposed to his normal magazine publication fee of $10,000,[138] so he is happy. His publisher was paid a handsome sum for doing no more than brokering the deal between King and the e-booksellers, so they are happy. No paper was used in this transaction, so the trees are happy. So who is getting the raw end of this deal? Consumers are, because once their rights are ceded they will not be given back. It could be the case that within a reasonable price range, consumers will be willing to cede their fair use and first sale rights in return for cheap desirable content. This is the hope of SDMI and the rest of the entertainment industry. However, the music industry should use caution when cross applying research from book publishing to music. Books are primarily one-use items. Once a book is completed, the consumer may want to share it with a friend, but probably does not want to re-read it. Music, to the contrary, is a repeat use item. A consumer who owns the song wants to be able to play that song at home, in the car, and on headphones, as well as share it with friends. While usage restrictions may be much less noticeable in e-book distribution, they will become glaringly obvious in the music environment.

34. Entertainment companies should not simply take consumers' fair use and first sale rights without some acknowledgement that consumers are relinquishing them in return for a bargain.[139] By taking these rights through technological, rather than legislative means, SDMI is removing consumers' ability to choose the bargains they would like to strike in return for content.[140] SDMI is saying very simply "you will have to pay to play."[141] This is precisely the virtual world to which Professor Lawrence Lessig refers when he speaks of code becoming law in cyberspace.[142] Lessig argues that although copyright law recognizes consumers' right of fair use, code writers, the true governors and law makers in cyberspace,[143] see fair use as a programming bug that stands in the way of their goal of perfect control.[144] He notes that the values of cyberspace have moved away from communal interaction and toward commercialism.[145] In this new environment, programming that increases commerce is good, while programming that reduces commerce is bad. Lessig further notes that engineers are making these critical value judgments without any input from either consumers or their representatives in the legislature.[146]

35. There seems to be nothing to stop entertainment providers from moving to protect their content through technological means in the digital environment in ways that would be deemed unacceptable in the physical world. These actions are of questionable legality and should be challenged in the courts and by the public's representatives in the legislature, before important rights are ceded and become unrecoverable.

V. SDMI External Obstacles

36. In addition to the potentially devastating internal obstacles SDMI faces, it faces a number of external obstacles, each of them formidable in its own right. The first, and perhaps most important of the external obstacles, is consumer adoption.[147] MP3 is the most popular and widely used music compression standard. Consumers can now find almost any song they want to hear in the MP3 format, especially since the launch of Napster.[148] Given the broad availability and acceptance of an existing standard, consumers simply have not demonstrated a desire for a new secure compression standard. In fact, the only complaint about MP3 among audiophiles is that the sound quality, although good enough, could use some improvement.[149]

37. Even if consumers did see value in a secure compression format, reports from the Internet front suggest that trendsetters in that environment despise the SDMI organization and are particularly embittered by its attempts to limit consumers' rights through technology.[150] SDMI opponents point to several factors that undermine its legitimacy. First, they suggest that instead of creating a standard to exist alongside of MP3, SDMI's real goal is to eradicate the unsecured standard.[151] Second, they accuse SDMI of promoting a vaporware specification, not intended to be successful, but rather to disrupt consumer adoption of other formats.[152] Third, as a result of SDMI's restrictive membership criteria, it facially resembles an anti-competitive cartel, in violation of antitrust law.[153] Even if the restrictive criteria pass antitrust scrutiny, some of those excluded may question whether or not their interests will be best served by the resultant solution.[154] Fourth, the same SDMI members that determine the adoption of exclusive technologies often hold patents on the required technology.[155] This leads some to accuse SDMI members of double-dealing and acting in undisguised self-interests.

38. There are several ancillary issues that also threaten to derail, or at the very least redirect the SDMI effort. The recent AOL–Time-Warner–EMI merger increases industry concentration, thereby raising antitrust concerns.[156] More importantly though, this merger emphasizes the possible synergy between the entertainment and Internet worlds, and that probably quickens the race to get online. Recent rumblings in the retail community suggest that retailers are planning their own race into the digital domain because, ironically, of their resentment of label efforts to disintermediate them.[157] Once consumers understand that watermarks have been added to

all of their CDs with the ability to track their usage habits, they will surely complain that their privacy has been invaded,[158] though by then it may be too late. Finally, while the major recording and technology companies went into a cocoon to figure out the future of digital music distribution, the rest of the world did not take a time-out. Instead, Internet entrepreneurs have been busy creating innovative business models, which have increased the security threat SDMI was formed to guard against.[159] As SDMI's deliberations continue, it will continually have to reassess the harms it is working to prevent.

A. MP3 Locked-In As Preferred Standard

39. MP3 is the most popular music compression format on the web.[160] Its dominance is undisputed. The issue that SDMI must tackle is whether or not this early lead will be predictive of the future outcome of the battle between MP3 and SDMI-compliant compression formats and devices. Some argue that MP3 is already locked in as the accepted standard and that all SDMI efforts will fail as a result.[161] Many MP3 supporters concede that it is vulnerable to replacement by a superior standard.[162] However, ardent MP3 users are unwilling to switch to a new standard, even if it is superior, which will jeopardize their connection to other Internet music lovers.[163] On the other hand, SDMI supporters suggest that consumers care about content and that they will only become SDMI-compliant when their favorite tunes are available exclusively in that format.[164]

40. Assuming that MP3 and SDMI provide similar benefits and burdens for consumers, the simple question becomes: "How can SDMI influence consumers who have already adopted MP3 to switch?" Some economic scholars argue that there is nothing SDMI can do because the Internet is a networked environment prone to early adoption and lock-in.[165] Lock-in occurs when consumers adopt a product or technology that links to others in a networked environment.[166] Once this link has been solidified, it may be difficult to break. As a result, even inferior technologies and processes may become imbedded and impossible to dislodge.[167] This problem is also described as one of excess inertia, which occurs when an inferior standard accumulates a large installed base that results in a "socially undesirable failure to adopt an improved technology."[168] Commonly cited examples of locked-in inferior standards are the triumph of VHS over the superior Beta standard in videocassette recorders, and the adoption of the QWERTY keyboard over the more efficient Dvorak model.[169]

41. Others debunk the idea that inferior technologies can win standards battles just by being more widely adopted, and argue that the superior and most efficient technology or process will ultimately prevail.[170] They believe that market forces will sort out these standards battles,[171] countering that VHS and QWERTY won because they were the best, most efficient standards, not just because they were adopted by the masses.[172] They also argue that market forces can be influenced more by consumer expectations than by past market behavior.[173] Therefore, being the first widely adopted standard is not enough to ensure success in the market. In addition, consumers have to believe that the one who produced the standard has, and will continue to have, the best technology.

42. If SDMI believes the efficiency optimists argument, then it is not too late for them to succeed. If SDMI is truly a superior standard then it will win. SDMI must begin by managing consumers expectations. If early adopters of MP3 come to believe that the best content will only be available on SDMI-compliant devices, and if they believe that its audio quality is superior to MP3's, they may be enticed to switch.[174] However, once SDMI entices consumers to switch, it will face the reality that its secure standards are more restrictive and inconvenient than the open MP3 standard.[175] The question for consumers is then whether they are willing to give up their fair use and first sale privileges in return for greater content and potentially superior audio quality.[176] Some early SDMI adopters do not seem to be willing to make this trade-off and complain about the

cumbersomeness of SDMI-compliant players.[177] Some consumers liken the SDMI system to DIVX, the ill-fated attempt by Circuit City to implement usage restrictions on DVD players, which was despised by consumers due to its overly restrictive nature and was ultimately pulled from the market.[178] Some consumers also fear that acceptance of MP3 files into SDMI-compliant devices in the early stages may be a trap, and that SDMI will make MP3 files inoperable in later stages.[179] Addressing all of these concerns must be part of any attempt by SDMI to manage consumer expectations and encourage early adoption.

B. Perceived Illegitimacy of SDMI

1. Eradicating the MP3 Format

43. Some of SDMI's critics believe the real goal of SDMI is to eradicate MP3 as a viable standard[180] and to ensure continued distribution dominance by the Big Four record labels.[181] Early statements made by the Recording Industry Association of America in the Diamond Rio litigation support these assertions. These statements emphasized that the MP3 format enabled piracy and therefore should be eradicated,[182] without acknowledging that the format also had legitimate uses. Early reports from inside the SDMI meetings indicated a desire among the participants to exclude the MP3 format from SDMI-compliant players altogether.[183] SDMI responded to these leaks by clarifying that all formats adopted by its organization would accept MP3 files.[184] Moreover, it stated that SDMI is "a forum for … industries to develop the voluntary, open framework for playing, storing and distributing digital music, necessary to enable a new market to emerge,"[185] and that it is not ""producing a single format, technology or design."[186] Though SDMI's denial could not have been any clearer, suspicions of its motives persist.

2. Vaporware Specification

44. Vaporware has been defined as "software that is either not available to the public at a previously announced date or does not possess the features or capabilities promised when the software was announced."[187] The SDMI portable device specification has been appropriately described as vaporware. It was both unavailable at a previously announced date[188] and lacked some of the features initially promised, such as interoperability.[189] As late as September 1999, SDMI promised that SDMI-compliant devices would be available for purchase during the 1999 holiday season.[190] The music industry press made much of the fact that SDMI missed its 1999 holiday season deadline to raise questions about its legitimacy.[191] This deadline was missed because the licensing agreement for the Phase I watermark screen was not finalized until December 1999,[192] too late for manufacturers to create and test compliant devices. Additionally, though SDMI's press documents emphasized that it was not working to create a unitary standard, music industry commentators seemed disappointed that the SDMI standard was simply a guideline or reference architecture.[193]

45. If SDMI's product pre-announcements qualify for designation as vaporware specification, it is natural to ask whether these announcements were made in good or bad faith.[194] All manufacturers make product pre-announcements and such announcements are typically thought to have pro-competitive benefits.[195] By informing consumers of new products in development, consumers are better able to make purchasing decisions.[196] However, product pre-announcements can also have anti-competitive effects. If announcements are misleading and made in bad faith, they may result in poor consumer choices such as

adoption and maintenance of inferior technologies.[197] Bad faith product pre-announcements are sometimes made to ensure that dominant manufacturers maintain their lead, even if they have inferior technology. Determining if product pre-announcements amount to antitrust violations is a difficult task that can only be done after the fact, once previously announced deadlines have been missed.[198] Missed deadlines are common, so courts must determine if the promised deadline was made in good or bad faith. Courts and commentators believe that the pro-competitive benefits of product pre-announcements outweigh any anti-competitive effects.[199] As a result, most agree that such announcements should be encouraged by maintaining a loose standard of analysis.[200] Given this looser level of scrutiny, SDMI's announcements would probably be termed pro-competitive since some of the goals have been met:[201] the specification was announced and the Phase I watermark licensed, though later than anticipated.

3. Exclusive Membership Criteria

46. An additional criticism leveled at SDMI was that its membership rules shut out consumers, independent artists, and labels by admitting only

> [C]ompanies that have significant direct activity in digital music or digital music technology. These companies must express their commitment to SDMI by agreeing to abide by its Terms of Participation and paying a $10,000 membership fee. Societies and associations representing authors, composers, performers, publishers, and other music industry interests who are members of the Music Industry Advisory Council may also attend SDMI meetings.[202]

47. These restrictive participation criteria raise two major concerns. The first is that a group composed of dominant members of an industry may really be an efficiency and innovation-stifling cartel in violation of antitrust laws. The second, and perhaps more important concern is that even if the membership rules are in accord with antitrust laws, they may still exclude the important perspectives of consumers and smaller industry participants. Such an exclusion may result in the development of technologies and standards that do not address the needs of smaller music industry participants.

a. Antitrust Analysis

48. On its face, it appears that exclusion from such an important standard-setting body due to the requirement of a financially prohibitory fee and collusion among dominant players in an industry would constitute a restraint of trade, raising antitrust scrutiny. However, SDMI dealt with the antitrust issue in a simple one-page statement,[203] and none of the subsequent criticism of SDMI has focused on illegal restraint of trade or cartelization.

49. Though there is increased concern about dominant market forces hindering innovation in high technology networked environments,[204] there is a prevailing understanding that standard-setting bodies, even when composed of dominant industry participants, may actually facilitate research and development and promote innovation more efficiently than the same participants working alone.[205] Some scholars argue that horizontal standard-setting arrangements further promote innovation by allowing smaller participants to take advantage of the strengths of all participants.[206] The shifting view of predatory behavior has made it acceptable for dominant firms to defend themselves against competitive actions, as long as their defensive actions have pro-competitive benefits for consumers.[207] As a result, the level of antitrust scrutiny for standard-setting bodies tends to be the relaxed rule of reason rather than the strict per se violation standard.[208] The rule of reason

analysis looks for any pro-competitive rationale for the apparently exclusionary or predatory behavior, and if this rationale is found, it is balanced against presumed anti-competitive rationales.[209] If the balance is in favor of the pro-competitive rationale, then no antitrust violation is found.[210] This looser level of antitrust scrutiny is used in high technology environments because the goal is to encourage innovation, not to stifle it.[211] Since it is difficult for experts and the courts to determine which type of behavior is present, the presumption is in favor of pro-competitive behavior, and the burden is on the plaintiff to prove that the defendant's anti-competitive rationales outweigh pro-competitive rationales.[212] Some criticize the rule of reason as a per se validity test that allows monopolists to ensure their future dominance in the next wave of technology, since it tends to result in a finding that pro-competitive rationales dominate.[213] Others argue that the test needs to be relaxed even further in order to remove the specter of antitrust scrutiny and further spur innovation by allowing market forces to work, particularly in high technology markets.[214]

50. The federal government also advocates a hands-off approach in this area, preferring instead to encourage private industry self-regulation, which it believes results in increased innovation.[215] In 1993, Congress amended the National Cooperative Research and Production Act[216] to underscore that its purpose is to:

> [P]romote innovation, facilitate trade, and strengthen the competitiveness of the United States in world markets by clarifying the applicability of the rule of reason standard and establishing a procedure under which businesses may notify the Department of Justice and Federal Trade Commission of their cooperative ventures and thereby qualify for a single-damages limitation on civil antitrust liability.[217]

51. The Department of Justice also advocates relaxed antitrust scrutiny of industry-wide efforts that provide the most efficient means of research and development[218] and where there are other independently controlled entities capable of providing substitutable technology for licensing and consumer consumption.[219]

52. If the SDMI horizontal standard-setting body is analyzed under the rule of reason analysis approved of by commentators and federal agencies, then it becomes clear that it is permitted under antitrust law because of its substantial pro-competitive benefits. It provides a central group to initiate and validate research and development projects.[220] It brings together groups with the common goal of securing copyright-protected material and allows them to work in a hothouse environment, rather than on separate and lengthy ad hoc projects. In such an environment a centralized group can encourage the development of interoperable formats to ease consumer confusion. It may provide benefits of scale, if hardware can be mass-produced once underlying standards are agreed upon. It provides a forum where previously conducted research can be shared, and later researchers can be spared from making the same mistakes as earlier ones. Additionally, by unifying timing, delivery, and marketing functions,[221] it may facilitate education and proper management of consumer expectations about developing products.

53. Of course, there are also anti-competitive motives that could be attributed to SDMI. It may wish to eradicate the insecure MP3 format and choose to do so by excluding it from future technology.[222] It may wish to have perfect control of music distribution and choose to accomplish this by the creation of technological barriers to copying, greater than those allowed by law.[223] Instead of developing new technology in good faith, SDMI may instead be generating confusion in the marketplace in order to slow the pace of consumer adoption of MP3 players,[224] or to thwart its adoption altogether as was done with DAT recorders.[225] By emphasizing the illegal uses of the MP3 format and failing to mention the legal uses,[226] SDMI may be trying to create doubt in honest consumers minds about the legality of downloading existing and, in some cases, properly licensed MP3 files. SDMI members may be trying to stifle competition in the music industry by slowing the pace of expansion of legitimate independent and Internet-only MP3 websites.[227] Finally, instead of organizing to create viable new ways to deliver digital music, SDMI members may be coming together to convince artists attracted to independent and Internet-only websites, that SDMI will continue to dominate recorded music in the digital environment.[228]

54. Balancing the pro-competitive and anti-competitive rationales, it appears that SDMI's rules of participation and its efforts to develop copy-protection standards for digital music delivery tilt in favor of pro-competitive benefits and should therefore be validated under the antitrust rule of reason. This balancing analysis weighs in favor of encouraging efforts to facilitate the development and rapid adoption of new technology. Moreover, each of the enumerated anti-competitive motives would be difficult to prove and could probably be explained in pro-competitive terms.

55. Independent and unsigned artists may further argue that SDMI should be compelled to accept their participation because the SDMI system will become an essential facility for Internet music distribution. After all, those that wish to participate in the future will have to purchase the necessary tools from SDMI and its member companies. Some have noted that network joint ventures, such as SDMI, should be required to open their membership on non-discriminatory terms,[229] since exclusions are harder to justify in networked markets where benefits flow from greater, rather than lesser participation in new standards.[230] Others have argued that an antitrust violation exists only when there are no other distribution alternatives, nor any beneficial purposes for creating the standard-setting body in the first place.[231]

56. It does not appear that the essential facilities argument will carry the day in the SDMI debate. There are clearly other avenues to deliver digital music, including MP3 and a variety of other compression formats developed by SDMI members, both inside and outside of SDMI. Since there are so many alternatives, it is hard to argue that those without a substantial technological or financial stake in the process must be allowed to participate. In addition, though the participation rules are financially prohibitive, they are non-discriminatory, allowing anyone that meets the criteria to participate on an equal basis.[232] SDMI could also argue that its rules foster efficiency by restricting participation to those who can move the process forward. If the group were expanded beyond significant financial and technological stakeholders, standards might never be developed and disseminated, and the purposes of SDMI would be undermined.

b. Responsiveness to the Needs of Those Not Present

57. SDMI's responsiveness to smaller industry participants, consumers, and other non-represented interests is impossible to gauge in the abstract. Instead, further study should be conducted once SDMI-compliant players are released to the market and after the Phase II protocols have been activated. However, efficiency arguments indicate that in order for any solution to be successful, it will need to address the concerns and interests of those not present, i.e. the market. To the extent that SDMI-compliant devices and music fail to do this, they will fail. SDMI's solutions will be successful largely due to the power of its content, though prior experiences indicate that content is not enough. Circuit City's launch of DIVX DVD players is an apt example of a technology that favored movie industry interests over consumer convenience and accessibility.[233] When these two interests conflict, the results can be disastrous, as when DIVX was pulled from the marketplace.[234] Perhaps SDMI's participants will have this example in mind as they move forward.

58. Though SDMI's restrictive participation rules do not violate antitrust law that encourage such combinations to spur innovation, they have caused artists and independent musicians to doubt their legitimacy. Some question the stated motive of SDMI to fight rampant piracy and argue that in fact piracy is not as bad as was supposed,[235] and that the piracy that does exist is easy to spot and stop.[236] Further, others claim that even if MP3 does enable piracy, it is also an important promotional tool that spurs record sales.[237] Still others believe that SDMI's true motive is to create a system that favors the Big Four major labels, ensuring their continued distribution dominance and their continued role as the middlemen between artists and their fans.[238] Above all, artists and independent musicians fear that their silence in the process will cause their interests to be ignored and that the resultant system will exclude them and be prohibitively expensive.[239]

59. Though SDMI may legally restrict participation to those intimately involved in the music and technology industries, and in particular, to those with a financial stake in the future of Internet music distribution, the perception of exclusion ultimately may harm SDMI's ability to spur adoption of its new standard in the future. Transparency is important in the development stage of new technologies, particularly when there is so much suspicion regarding motives.[240] Any secrecy during the development of standards with such important public impact could result in alienation of the very constituency the technology is designed to serve.[241]

4. Essential IP Rights Held by Members

60. SDMI's initial objective was to create a reference architecture that could be used by music and technology companies to design the future of electronic music distribution.[242] This approach has been characterized by economists as the most innovative, as it allows the market to decide which technology will prevail, rather than prematurely setting a standard that might discourage further development of more efficient standards.[243] However, SDMI veered away from this basic framework with its selection of an exclusive watermark provider (Verance).[244] The possibility that SDMI will move forward with other exclusive intellectual property grants troubles some observers who see the possibility for self-interests in such designations and resent the exclusion of other viable technologies.[245] Indeed, selection of exclusive technologies violated one of SDMI's core objectives of creating a voluntary standard into which its members could pour their own systems and default rules.[246]

61. Though SDMI was designed as a voluntary body, its terms of participation require members to license required technology to others on a non-discriminatory basis.[247] The rules also require that members disclose their ownership of essential rights and their policies regarding licensing of those rights before the essential technology is adopted.[248] These disclosure rules are based on an honor system and, as such, are subject to abuse. To prevent abuses, the FTC employs a higher level of scrutiny when standard-setting bodies adopt patented, proprietary technology owned by members.[249] However, generally standards derived and justified by attention to technical, rather than competitive motivations are not subject to antitrust problems even if they result in a disadvantage to one or several competitors.[250]

62. Designating an exclusive watermark provider may have been necessary to implement SDMI's plan, as it would have been unwieldy for each record company to adopt a different watermarking technology, thus requiring that music players be able to identify them all. An exclusive watermark may ultimately be beneficial for consumers because it leads to interoperability and standardization, which could ultimately enhance consumer

choice and lower prices.[251] However, this designation may thwart innovation in the watermarking area because further development of such technology by other providers may cease.[252] Regardless of whether an exclusive watermark provider was necessary for SDMI's implementation, the shift in SDMI's foundational premise of openness and voluntary participation certainly undermined its credibility.

63. In addition to raising doubts about SDMI's legitimacy, the exclusive designation of Verance as the watermark supplier appears to have slowed the pace of the SDMI effort. Following the June and July 1999, announcements of agreement on the basic framework for portable devices,[253] most technology providers were confident that they could deliver players to market by the 1999 holiday season.[254] However, after Verance was selected as the exclusive watermark provider in August of 1999,[255] this possibility began to dim. In order to make the holiday delivery date, technology providers would have had to license the watermark technology and complete internal tests quickly to ensure that the decoding technology would be effective.[256] The music providers would have had to license the technology quickly to ensure that there was content available for the players. Neither of these goals was met in time for holiday 1999 delivery. Rather, the technology license was finalized in December 1999,[257] and the music license was finalized in March 2000.[258] As this example clearly illustrates, intellectual property protection in horizontal standard-setting environments increases conflicting interests between the members and slows down the process, impeding innovation and development.[259] All such impediments erode the group's credibility with consumers because deadlines are missed and the market is prevented from determining the best technology when questionable decisions are made behind closed doors.

C. Uncertain Impact of AOL Time-Warner EMI Merger

64. In early January 2000, America Online (AOL) began the merger process with Time-Warner.[260] The merger process was finalized in part on December 15, 2000 with FTC approval of the deal with significant restrictions. FCC approval is expected to follow.[261] The new firm is estimated to have a combined value of $350 billion and more than 100 million paying subscribers.[262] Prior to this merger, AOL had been positioning itself to take advantage of the growth in broadband digital distribution by pushing AT&T to open access to its cable lines on non-discriminatory terms[263] and by forming alliances with content providers.[264] Though Warner Music gained an Internet distribution outlet from the merger, it was not initially clear how AOL would benefit from aligning itself with a music company responsible for only 17% of music sales in the United States.[265] On January 24, 2000, Time-Warner and EMI announced that they were merging to form Warner EMI Music.[266] The addition of EMI to the Time-Warner-AOL mix put approximately 35% of the American music market at AOL's disposal, and made it clear that such a conglomerate would have extensive influence on the direction of digital music.[267] For this very reason, the Time Warner-EMI merger was not approved by the European Community and was later shelved by the firms.[268] Even without EMI, commentators speculate that AOL-Time Warner will develop a more liberal attitude toward licensing music to the Internet, and thus speed availability of portable players and downloadable content, and ease consumer access to digital music files.[269]

D. Resistance from the Retail Community

65. Retailers have long had the upper hand over the major music companies as the direct providers of physical music to the public. Digital music distribution is changing all of this as music labels, just like artists, can now cut the retailer out of the deal and send music directly to consumers. However, while music labels are figuring out their online strategies, retail will continue to be the primary channel for music delivery. Straddling the line between necessary partner and outdated middleman, retailers have begun to think about how they will survive in the new digital economy.[270] Some have suggested that retailers become labels themselves or look for other ways to add value to the retail experience so that a trip to the store is for more than picking up the latest disk, which may now be more conveniently received at home.[271] Retailers have expressed dissatisfaction with the major labels efforts to create new distribution options without including the distribution experts, the retail community.[272] If SDMI's efforts are not aligned with the retail communities continuing efforts to remain relevant in the digital environment, the two could collide, with former partners becoming archrivals in competition for the same customers. This may be good for consumers since greater competition usually means increased choice and lower prices, but it could ultimately doom the SDMI effort before it can get out of the gate.

E. Consumer Privacy Concerns

66. For SDMI to be successful, it needs to be able to differentiate properly licensed music from pirated music. Making this distinction requires the creation of trusted systems.[273] Trusted systems have been described as hardware and software that follow usage rules by specifying the cost, terms and conditions under which digital files can be used.[274] Such systems are at the heart of technological solutions to restrict consumers' fair use and first sale privileges by providing copyright owners with perfect control over the use of their works.[275] Consumers might be willing to accept this trade-off if they were made aware of it.[276] Unfortunately, it appears that watermarks will be applied to music without consumer notification.[277] RealNetworks created a system to gather information about its users listening habits, purportedly to assist the company in better accommodating user preferences.[278] Once the usage tracking was revealed, consumers and privacy advocates condemned the practice.[279] The very next day, RealNetworks offered consumers a patch to disable the tracking device and hired a privacy officer to monitor the use of information that had already been gathered.[280] RealNetworks is part of SDMI.[281] We can only hope that the group learns from its experience before it is too late.

F. New Technologies Increasing Security Threat

67. Two services launched since SDMI's formation, Napster and MyMP3.com, are causing a great deal of concern for copyright owners who fear they are losing control of their exclusive rights. Napster's software, which can be downloaded for free from its website,[282] automates the processes of cataloging, indexing, and transferring music files, although its server holds no music files.[283] Napster gives its users access to all the MP3 files that other users have on their computers and are willing to share.[284] Importantly, Napster has made the MP3 compression format more popular and more widely adopted by consumers.[285] Prior to Napster, consumers' primary complaint about the MP3 compression format was that the files that could be found for free on the Internet, mostly contained the music of unknown bands.[286] Napster has made popular music available and easily searchable, and increased consumers appreciation of the open, consumer-friendly MP3 format. Napster argues that it is not in violation of the Digital Millennium Copyright Act, which requires Internet Service Providers to remove infringing files, because it does not host any files on its server.[287] Napster further argues that it simply facilitates consumers' exercise of their fair use privileges.[288] The Recording Industry Association of America believes that Napster is clearly facilitating piracy and filed suit to have it shut down.[289] Napster agreed in November, 2000, to charge a fee for its service and distribute part of the fee as royalties to record companies.[290] The plan is to be financed partly by German media giant Bertelsmann, one of the companies that had attempted to shut Napster down.[291]

68. The second service, MyMP3.com,[292] offers owners of popular CDs the equivalent of a digital storage locker that enables them to listen to their music from any device connected to the Internet.[293] MyMP3.com is able to do this because it has amassed a database of over 80,000 songs that are accessible by users once they have proven that they already own them.[294] Consumers are able to prove ownership by loading the physical copy to their CD-ROM drives for MP3.com to read or by purchasing the CD from a participating retail partner of MP3.com.[295] MyMP3.com argues that its unauthorized use of copyright-protected CDs is legal because it is free riding on the consumers fair use privilege.[296] The company insists that it is just helping consumers to listen to their music by providing a tool to shift music from one medium to another.[297] Some intellectual property lawyers disagree with the assertion that consumers' fair use privilege can be applied to the MyMP3.com service because of its commercial implications.[298] The courts have resolved this dispute by ruling in the Recording Industry Association of America's suit to stop the MyMP3.com service,[299] that MP3.com had willfully infringed the copyrights of the Universal Music Group (UMG).[300] A federal judge ordered MP3.com to pay potentially crippling damages to UMG.[301] Before the ruling, MP3.com had settled with other labels by agreeing to pay royalties on songs included in its database.[302]

69. Importantly, it is companies outside the SDMI organization that have been working on these projects as a way to ensure their continued relevance in the digital music environment. The longer SDMI takes to figure out its solution, the greater the likelihood that these industrious entrepreneurs will beat them to the punch with ingenious, consumer-focused solutions to the digital distribution conundrum.

VI. Conclusion

70. This analysis has demonstrated that the success of the SDMI effort is far from a foregone conclusion. There are both internal and external obstacles blocking the path to consumer adoption. While SDMI is in a position to use its marketing and consumer education efforts to mitigate the effects of both the lack of interoperability between standards and the cumbersomeness of its copyright control mechanisms, most of the obstacles to SDMI's success are out of its control. In this respect, SDMI is a market solution to a technological problem. Instead of dictating required standards and interfaces, SDMI has largely left standards implementation to individual companies and opted to stand aside while they fight it out in the marketplace. Time will tell whether this was the most efficient way to develop Internet music distribution, or if instead it was the beginning of the end of the established music industry.

71. At the date of publication of this article, SDMI-compliant players are available for purchase in a variety of formats. These players implement the approved and licensed Verance watermark identification system and are capable of upgrading to Phase II functionality once it has been developed. A flood of SDMI-approved content has been released to entice consumers to invest in the SDMI-compliant hardware that is hitting the market. Oddly though, consumers are finding out that new CD's carry watermarks, but they have not yet been informed about the security purpose of the watermarks, or the increased tracking capabilities that these watermarks provide. If SDMI's marketing efforts do not kick into gear soon, consumer backlash is likely.

72. Going forward, a few things are likely to occur. Internet trendsetters will continue to complain about the overly restrictive nature of copyright protection technology. These same trendsetters will continue to find way to circumvent technological safeguards that expand copyright holders' rights in extra legal ways. Importantly, even trendsetters could be encouraged to switch technologies if SDMI players and compression formats improve their audio experience. However, everyday consumers will readily relinquish their fair use and first sale privileges in return for their favorite content as long as it is reasonably priced, easily accessible, and has sound quality at least as good as CDs. While I believe that consumers will switch for content, the window of opportunity is rapidly narrowing. As broadband distribution capabilities increase and more consumers become comfortable with services such as MyMP3.com, Napster, MP3 file search, and downloading generally, they will be reluctant to switch to more restrictive formats. I believe that SDMI has a one-year window of opportunity before it loses consumers to enterprising Internet entrepreneurs. It is important that within this period of adoption consumers are not so confused and disillusioned by multiple formats that they decide that SDMI is more trouble than it is worth. Communication is the real challenge, and to date, SDMI has not met it.

[1] J.D., 2001, New York University School of Law; M.A., 1990, University of Chicago, Division of the Social Sciences; B.A., 1990, University of Chicago, Psychology. I will be joining Loeb & Loeb, LLP in New York September, 2001. In the interest of full disclosure, I should note that I worked for EMI-Capitol Music Group, North America from 1995-1996, though I was not involved in Internet music distribution efforts. I would like to thank Professors Jessica Litman and Rochelle Dreyfuss and the participants of the Innovation Policy Seminar at New York University School of Law, Spring 2000, for their interest in the intersection of law and technology and helpful comments on the initial draft of this Article. I am especially grateful to my Mother for her independence and persistence, my Brother for his creativity, and my Husband for his love and unwavering support.

[2] MP3 stands for MPEG 1 (Moving Picture Experts Group 1), audio layer 3, and is a technique designed to compress bulky files of digitized music to facilitate ease of download and storage. Michelle L. Spaulding, *Copyright Protection for Music on the Move*, *at* http://eon.law.harvard.edu/mp3 (Sep. 1999).

[3] *Id.*; Barak D. Jolish, *Scuttling the Music Pirate: Protecting Recordings in the Age of the Internet*, 17 ENT. & SPORTS LAW. 9 (1999).

[4] *See* Spaulding, *supra* note 2 (citing figures derived by Jupiter Communications). Note that this figure has increased exponentially due to the popularity of Napster and other file sharing applications.

[5] *See* JUSTIN FRANKEL et al., MP3 POWER! WITH WINAMP 8 (1999) (MP3 was created as an extension to the MPEG format, an openly developed standard for compressing and transmitting video and audio content over networks).

[6] *See id*. at 11 (Pearl Jam, Madonna, U2, and Alanis Morissette had unreleased songs leaked to the public on the Internet through MP3).

[7] Spaulding, *supra* note 2.

[8] *See* Barak, *supra* note 3 (overview of digital problems, interaction between traditional enforcement, legislation and SDMI).

[9] 17 U.S.C. 512 (2000).

[10] *See* Chris Oakes, *Stamping Out Pirated Tunes*, WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,33940,00.html (Jan. 29, 2000) (describing efforts to track down infringers on Web).

[11] *See* Robert M. Blunt, *Comment, Bootlegs and Imports: Seeking Effective International Enforcement of Copyright Protection for Unauthorized Musical Recordings*, 22 HOUS. J. INT'L L. 169 (1999) (exploring existing treaties under girding international copyright enforcement and their defects); Richard Covington, *Record Labels Find the Internet Is Now Calling the Tune*, INT'L HERALD TRIB., Jan. 31, 2000, at 13 (describing digital download problems/opportunities in international context).

[12] *Sizing Up the Web*, N.Y. TIMES, Dec. 11, 2000, at C4 (citing figures derived by Jupiter Media Metrix).

[13] *See* Christopher Jones, *Battling the Free Music Movement*, WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32919,00.html (Dec. 22, 1999) (RIAA urging universities to discipline students caught using MP3 files); Pamela Mendels, *University Cracks Down on MP3 Trade*, *N.Y. Times on the Web*, *at* http://www.nytimes.com/library/tech/99/11/cyber/education/10education.html (Nov. 10, 1999) (detailing RIAA and university enforcement efforts to thwart MP3 file sharing).

[14] Note that I use the term MP3 player throughout to refer to both SDMI-compliant and non-compliant portable devices.

[15] *See* Christopher Jones, *Chuck D: Gotta Share the Tunes*, WIRED NEWS, *at* http://www.wired.com/news/business/0,1367,31967,00.html (Oct. 8, 1999) (describing shift in industry brought about by digital distribution, happy about new found ability to reach consumers directly); Heidi Kriz, *The Online Artist is the Empowered Artist*, *EFFs Consortium for Audiovisual Free Expression*, *at* http://www.eff.org/cafe/cafe_kriz1.html (June 1999) (highlighting opportunities for artists in MP3 format); James Ledbetter, *Entertainers Use Web to Reach Audiences In New Ways*, CNN.COM, *at* http://www.cnn.com/TECH/computing/9903/02/rockweb.idg (Mar. 2, 1999) (Rod Stewart explaining web appeal, "Its kinda cool, though, for the fans because it makes what is basically a huge worldwide venue into an intimate one-on-one. I don't know of many concert halls that can do that."); *MP3 Summit: Ice-T, Others Discuss Illegal MP3s*, WEBNOIZE NEWS, at http://news.webnoize.com (June 16, 1999) (artists optimism over MP3); Julie Taraska, *Daily Music Update: Next Giants Set An MP3-Only Release*, BILLBOARD ONLINE, *at* http://www.billboard.com/daily/1999/0715_03.html (July 15, 1999) (artists releasing songs directly to web using MP3 standard).

[16] *See* Romesh Ratnesar, *Sex, Drugs, Rock 'n' Roll and a Good, Fast Modem,* TIME, Mar. 27, 2000, at 74 (discussing Fisher, a group overlooked by the labels that became a hit on MP3.com); Brett Atwood, *Sites + Sounds***,** BILLBOARD ONLINE, *at* http://www.billboard.com/sites/archive/99/0504.html (May 4, 1999) (Offspring trying to reach audience by plugging into their familiarity with MP3); *Nightline: Internet Revolutionizing Music Industry*, (ABC television broadcast, Jan. 7, 2000) (broad overview of current situation, industry attempts at security, artists optimism about disintermediation and increased opportunities); Julie Taraska, *Daily Music Update: Chuck D Invites All to Download Ball,* BILLBOARD ONLINE, at http://www.billboard.com/daily/1999/0720_05.html (July 20, 1999) (Chuck D embracing opportunity of label disintermediation).

[17] *See* Brett Atwood, *Sites + Sounds,* BILLBOARD ONLINE, *at* http://www.billboard.com/sites/archive/99/0608.html (June 8, 1999) (expressing Chuck Ds disillusionment with major label process and his decision to pursue digital music distribution); Matt Welch, *Dolby Says Its Payback Time,* WIRED NEWS, *at* http://www.wired.com/news/culture/0,1284,21644,00.html (Sep. 9, 1999) (expressing opportunity disgruntled artists see for direct connection to fans).

[18] *See* Brett Atwood et al., *Web Raises New Contract Issues,* BILLBOARD, June 19, 1999, at 1 (noting actions by major labels to better control artists digital distribution rights).

[19] *See* Donna Freydin, *Public Enemy Downloads Challenge to Industry,* CNN INTERACTIVE, *at* http://cnn.com/SHOWBIZ/Music/9905/06/public.enemy/ (May 6, 1999) (more MP3 euphoria from Chuck D, discussing Atomic Pop Internet distribution deal); Joanna Pearistein, *Chuck D Fights the Power in Hollywood,* REDHERRING.COM, *at* http://www.redherring.com/insider/1999/0804/news-chuckd.html (Aug. 4, 1999) (discussing opportunities digital distribution provides to artists); Matt Richtel, *Some Free Music Sites Start Paying Artists,* N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/library/tech/99/11/cyber/articles/16music.html (Nov. 12, 1999) [hereinafter *Free Music Sites*] (noting that free MP3 sites are forging relationships with artists that allow them to be compensated); Michael Robertson, *Artists Use MP3 to Reach More Fans, Sell More CDs,* MP3.COM, *at* http://www.mp3.com/news/088.html (Sept. 14, 1998) (providing road map for artists to use MP3 to achieve exposure and increased profits). *See also* DONALD S. PASSMAN, ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS 109 (1994) (documenting the typical 11-13% royalty a typical new artist receives at the major labels).

[20] *See* Andrew Rice, DDMI: *Musics Words of War,* WIRED NEWS, *at* http://www.wired.com/news/business/0,1367,21662,00.html (Sep. 9. 1999) (independent v. major war playing out in download arena, majors trying to figure out how digital downloads could be positive engine); Matt Richtel, *Free Music Sites*, *supra* note 19 (noting that free MP3 sites forging relationships with artists that allow them to be compensated); Michael Robertson, *Top Tier Artists Do MP3,* MP3.COM, *at* http://www.mp3.com/news/139.html (Dec. 2, 1998) (heralding opportunities available on site while rest of industry continues to debate about how to proceed).

[21] *See* Catherine Applefeld Olson, *Sites + Sounds,* BILLBOARD ONLINE, *at* http://www.billboard.com/sites/archive/99/0223.html (Feb. 23, 1999) (describing entrepreneurs taking advantage of web opportunities, mentions Spinner.com moving into downloads); Michael Robertson, *Flurry of Artists Back MP3,* MP3.COM, at http://www.mp3.com/news/133.html (Nov. 24, 1999) (MP3.com announcement to spur adoption and further cement it as standard).

[22] For examples, *see* http://www.artistdirect.com/, http://www.emusic.com/, http://music.lycos.com/, and http://www.mp3.com/.

[23] *See infra* V.C. (discussing potential impact of mergers on SDMI).

[24] *See* Neil Strauss, *The Pop Life: Dont Worry? Yeah, Right,* N.Y. TIMES, Nov. 18, 1999, at E3 (increasing consolidation in radio leads to desire for Internet exposure, democratization).

[25] *See* http://www.mp3.com/ and http://www.popwire.com/, both have areas that attract such consumers.

[26] *See New Millennium Digital Gear Sees CES Expansion*, AUDIO WEEK, Jan. 3, 2000 (detailing copy protection problems across consumer electronics categories).

[27] *See* Joel Brinkley, *The Sound of One Foot Dragging, Again: Accord on Digital TV Technology Still Lacks Hollywoods Input,* N.Y. TIMES, Feb. 28, 2000, at C9 (agreement and progress on digital TV held up due to lack of copy protection standard).

[28] *See* Rick Lyman, *Digital Future is Knocking: When Will Firms Let It In?,* N.Y. TIMES, Mar. 11, 2000, at B1 (foreseeing digital security standards battle in film industry); Romesh Ratnesar & Joel Stein, *Everyonesastar.com,* TIME, Mar. 27, 2000, at 68 (describing success of Internet entrepreneurs making and distributing short films).

[29] *See* Andrea Sachs, *Boo! How He Startled the Book World,* TIME**,** Mar. 27, 2000, at 76 (describing Stephen Kings e-novel distribution test).

[30] *See* Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., 29 F. Supp. 2d 624 (1998) (holding that RIAA had not shown sufficient likelihood of success on the merits to warrant a preliminary injunction order).

[31] Secure Digital Music Initiative, *Frequently Asked Questions*, at 22, *at* http://www.sdmi.org/FAQ.htm (last visited Dec. 1, 2000) [*hereinafter* SDMI FAQ] ([t]he RIAA, along with its sister organizations IFPI and RIAJ and the major record companies, was the driving force behind the initial launch of SDMI.); Secure Digital Music Initiative, *Who We Are, at* http://www.sdmi.org/who_we_are.htm (last visited Dec. 1, 2000) (providing key SDMI dates).

[32] *See CNN: Digital Jam*, (CNN television broadcast, Jan. 24, 2000), (noting that SDMI was important because it signaled that the record industry was ready to start looking at the Internet as a serious distribution medium).

[33] Press Release, Secure Digital Music Initiative, *Worldwide Recording Industry and Technology Companies Kick-Off Work of Secure Digital Music Initiative*, (Feb. 26, 1999)*, available at* http://www.sdmi.org/pr/LA_Feb_26_1999_PR.htm (last visited Dec. 1, 2000) [hereinafter SDMI Kick-off] (announcing goals and membership of SDMI).

[34] *Id*. (emphasis added).

[35] Secure Digital Music Initiative, *Secure Digital Music Initiative Operating Principles*, *at* http://www.sdmi.org/terms_part_op.htm (Mar. 29, 1999) [hereinafter SDMI Principles] (General Principle 1.1).

[36] *Id*. (General Principle 1.2).

[37] SDMI Principles, *supra* note 35 (General Principle 1.3). *See also* SDMI FAQ, *supra* note 31, at 21 (SDMI is a forum for the development of voluntary, open specifications that all of these new ventures can use to protect the future of music.).

[38] SDMI Principles, *supra* note 35 (General Principle 1.1)

[39] *See* Ryan S. Henriquez, *Facing the Music on the Internet: Identifying Divergent Strategies for Different Segments of the Music Industry in Approaching Digital Music Distribution***,** 7 UCLA ENT. L. REV. 57, 89-97 (1999) (noting that volatile relationships among SDMI constituents may undermine initiative).

[40] *See* Richard A. Martin, *The Music Worlds WTO?,* SEATTLE WEEKLY, Jan. 20, 2000, at 19 (praising inclusiveness and haste of process).

[41] Press Release, Secure Digital Music Initiative, *SDMI Announces Standard for New Portable Devices: On-Time Specification Will Enable Creation of New Ways to Deliver Digital Music*, (June 28, 1999), *available at* http://www.sdmi.org/pr/LA_Jun_28_1999_PR.htm (last visited Dec. 1, 2000) [hereinafter SDMI Standard Announcement].

[42] The terms reference architecture and standard appear to be used interchangeably in the SDMI marketing materials. This is confusing, because standards tend to refer to singular technologies adopted by a large group. But in this context, standards are just guidelines and each technology and recording company is free to adopt the specific technology it chooses as long as it abides by the macro structural rules. *See* Matt Richtel, *Holiday Target for Music Sales Over Internet Won't Be Met,* N.Y. TIMES, Nov. 22, 1999, at C1 [hereinafter *Holiday Target*] (quoting Robert Kohn of emusic.com, "There's no document from which any of these companies can develop specifications. They've developed a framework, but not specifications.").

[43] Press Release, Secure Digital Music Initiative, *SDMI Publishes Open Standard for Portable Devices: Joint Industry Initiative Accelerates Access to Digital Music,* (July 13, 1999), *available at* http://www.sdmi.org/pr/LA_Jul_13_1999_PR.htm (last visited Dec. 1, 2000) (announcing the publication of the first specification that manufacturers can use to develop new portable devices, expected for the 1999 holiday season).

[44] Press Release, Secure Digital Music Initiative, *SDMI Update: Statement from the Executive Director and Portable Device Working Group Chair*, at http://www.sdmi.org/statement_May_25_1999.htm (May 25, 1999) [hereinafter SDMI Update] (clarifying that reports that SDMI compliant devices will reject MP3 and other open formats are completely false). *See also* SDMI FAQ, *supra* note 31, at 5 (SDMI-compliant devices will be able to play MP3 content.).

[45] *See* Linden deCarmo, *Safety in Numbers*, EMEDIA, (Nov. 1999) at 48-54 (providing an explanation of SDMI phased in approach).

[46] *Id*.

[47] Christopher Jones, *Creative Secures MP3 Player*, WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32491,00.html (Nov. 12, 1999).

[48] *Supra* note 37 and accompanying text.

[49] *ARIS Technologies, SDMI Phase I License Agreement*, MP3.COM, *at* http://www.mp3.com/news/322.html (Aug. 20, 1999) (Aris was selected by the SDMI plenary body as the approved technology to be used in the Phase I screen and agreed to grant licenses to SDMI members on a reasonable and nondiscriminatory basis).

[50] SDMI FAQ, *supra* note 31 at 17 ("[t]here are some components of the system that may require the designation of a particular technology. The Phase I screen technology is such a component.").

[51] *See* David Weekly, *SDMI: Aris Wins, World Loses, at* http://www.music4free.com/articles/aris.phtml (Aug. 13, 1999) (discussing how SDMI's selection of an exclusive technology security provider is counter to the proposed objective of providing a wrapping specification into which many technologies could fit).

[52] *See* Jones, *supra* note 47.

[53] *See* Richtel, *Holiday Target*, *supra* note 42.

[54] *See* David Katzmaier, *Labels License Watermark: Big Four Agree on SDMI-compliant Technology*, ETOWN.COM, *at* http://www.etown.com/news/article.jhtml?articleID=2284 (Mar. 20, 2000) (Verance Inc. announced that a broad group of music and technology companies licensed its Phase I SDMI-compliant watermark).

[55] Press Release, Secure Digital Music Initiative, *SDMI Publishes Technical Functionality for Future Screening Technology*, (Dec. 6, 1999), *at* http://www.sdmi.org/pr/HI_Dec_6_1999_PR.htm (last visited Dec. 1, 2000); Steve Traiman, *SDMI to Solicit Phase II Screening Proposals*, BILLBOARD, Dec. 18, 1999 at 80.

[56] Press Release, Secure Digital Music Initiative, *SDMI Issues Call for Proposals*, (Feb. 28, 2000) *available at* http://www.sdmi.org/pr/SD_Feb_28_2000_PR.htm (last visited Dec. 1, 2000).

[57] *Id*.

[58] *See* Dominic Pride, How SDMI-compliant Players Screen Out Pirated Files, BILLBOARD, Dec. 11, 1999 at 108 (describing functionality and purpose of Phase II default rules).

[59] *Id*.

[60] *Id*.

[61] *See id*.

[62] SDMI Update, *supra* note 44.

[63] *See* SDMI Standard Announcement, *supra* note 41.

[64] SDMI Update, *supra* note 44.

[65] *See id*.

[66] SDMI FAQ, *supra* note 31, at 7.

[67] SDMI Update, *supra* note 44.

[68] *See supra* III.

[69] *See* SDMI Kick-off, *supra* note 33.

[70] SDMI Standard Announcement, *supra* note 41 ("devices should respect the usage rules embedded in music by its creators."); SDMI FAQ, *supra* note 31 at 21 (SDMI is a forum for the development of voluntary, open specifications that all of these new ventures can use to protect the future of music.). *See also* Linden deCarmo, *Safety in Numbers*, EMEDIA (Nov. 1999) at 48-54 (noting SDMI's desire to be vendor neutral, adaptable to various formats).

[71] SDMI Kick-off, *supra* note 33 ("The ultimate goal of the initiative is to enable consumers to access and enjoy music in new ways, while ensuring interoperability among digital products and services so as to enhance the consumers listening experience."); Leonardo Chiariglione, *Letter to the Editor: SDMI Checks In*, MP3.COM, *at* http://www.mp3.com/news/422.html (Nov. 19, 1999) (responding to Eric Scheirer, The End of SDMI, noting that, "The short period of time to develop the specification did not allow SDMI to concentrate on specific aspects of interoperability."); Eric Scheirer, *The End of SDMI*, MP3.COM, at http://www.mp3.com/news/394.html (Oct. 15, 1999) (arguing that lack of progress, agreement, and interoperability will doom SDMI and it will be overcome by quickly developing market forces).

[72] SDMI FAQ, *supra* note 31, at 15 ("There are now a number of different music players and systems on the market that are not compatible with each other. And the initial SDMI offerings also will not offer widespread compatibility across devices at this time. Given the extremely short time frame for producing the portable device specification, it wasn't possible to achieve this goal now.").

[73] *See* Anonymous, *Music Companies Are Not Waiting for SDMI Phase II Specifications,* TWICE, Jan. 6, 2000 at 66-68 (labels are going ahead with varying rights management systems while SDMI deciphers Phase II standards, all are members of SDMI, issue of competing standards); Courtney Macavinta, *EMI Heads Toward Full Digital Distribution*, CNET NEWS.COM, *at* http://news.cnet.com/news/0-1005-202-1554177.html (Feb. 18, 2000) (discussing individual SDMI members efforts to become digital outside of SDMI); *Microsoft Tries to Secure Music,* WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32436,00.html (Nov. 10, 1999) (Microsoft announces its efforts); Susan Nunziata, *Rush to Get on the Web Brought Odd Alliances,* BILLBOARD, Dec. 25, 1999 at 62, 1999 WL 31679159 (noting that SDMI specification resulted in many players being released with approval but operating based on different codecs); Michael Stroud, *Music to Microsofts Ears,* WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32379,00.html (Nov. 15, 1999) (Microsoft announcing partnerships in digital music to make the Windows Media Player as pervasive as MP3).

[74] *See id*.

[75] *See Multi-Format Internet Portables Readied,* CONSUMER MULTIMEDIA REP., (Nov. 29, 1999) (noting flood to market of new players, some with multiformat compatibility); Matt Richtel, *New Economy: The Big Recording Companies Might Be Able to Embrace Internet Sales if They Could Just Find the Right Technology,* N.Y. TIMES, Apr.. 17, 2000 at C4, [hereinafter *New Economy*] (noting consumer confusion generated by competing technologies); Christopher Jones, *SDMI: Divide or Conquer?*, WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32513,00.html (Nov. 18, 1999) (noting proliferation of digital rights management systems, codecs for hardware and content, confusing for consumers due to lack of interoperability); Michel Marriott, *Digital Players Break New Ground,* N.Y. TIMES, *at* http://www.nytimes.com/library/tech/99/11/circuits/articles/18audi.html (Nov. 18, 1999) (reviewing new digital music players that work for MP3, not clear how they will adapt to new formats).

[76] *See* S. Besen & C. Johnson, *Compatibility Standards, Competition and Innovation in the Broadcasting Industry* 32-58 (1986) [hereinafter Besen & Johnson, *Compatibility Standards*] (discussing standards for AM radio broadcast where consumers adopted wait and see approach).

[77] *See generally* Joseph Farrell & Michael L. Katz*, The Effects of Antitrust and Intellectual Property Law on Compatibility and Innovation*, 43 ANTITRUST BULL. 609, (1998) [hereinafter Farrell & Katz, *Effects of Antitrust*] (arguing that the winner take all effect of incompatibility in networked markets tends to spur innovation); Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70, (1985) [hereinafter Farrell & Saloner, *Standardization*] (arguing that industry-wide compatibility standards can lead to inefficient inertia and inefficient innovation); Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 2, 93 (1994) (questioning benefits of standardization, noting that it can thwart innovation due to inertia, noting incentives for large and established firms to favor incompatibility); Michael L. Katz & Carl Shapiro, *Product Compatibility Choice in a Market with Technological Progress*, 38 OXFORD ECON. PAPERS 146 (1986) [hereinafter Katz & Shapiro, *Product Compatibility*] (arguing that compatibility may diminish competition in growing industry, this increases private profits but diminishes social welfare by impeded innovation).

[78] Farrell & Katz, *Effects of Antitrust*, *supra* note 77 (arguing that compatibility may enhance consumer benefit of second choices, better prices, but provides less economic rewards to producers, so less encouraging of innovation).

[79] Besen & Johnson, *Compatibility Standards*, *supra* note 76 (noting that user preferences are guided by expectations, knowledge of other users choices, want to avoid making the wrong choice, being stranded on obsolete technology and paying high switching costs).

[80] Farrell & Saloner, *Standardization*, *supra* note 77 (arguing that industry-wide compatibility standards can lead to no firm moving to the new standard or moving slowly).

[81] *Id*.

[82] Katz & Shapiro, *Product Compatibility*, *supra* note 77 (compatibility may diminish competition in growing industry, this increases private profits but diminishes social welfare by impeded innovation).

[83] Henry W. Chesbrough & David J. Teece, *When is Virtual Virtuous? Organizing for Innovation***,** HARV. BUS. REV. at 65, 69 (Jan. Feb. 1996) (offering the IBM PC as an example of how compatibility can cause a dominant agent to lose advantage and become obsolete).

[84] Stanley M. Besen & Joseph Farrell, *Choosing How to Compete: Strategies and Tactics in Standardization*, 8 J. ECON. PERSP. 117, 119-21 (1994) (noting that incompatibility has higher rewards, winner take all nature); Farrell & Katz, *Effects of Antitrust*, *supra* note 77 (arguing that winner take all nature of incompatibility in networked markets, tends to spur innovation).

[85] Farrell & Katz, *Effects of Antitrust*, *supra* note 77. Interestingly, large firms tend to favor incompatibility due to ability to reap the full rewards of innovation, while smaller firms tend to favor compatibility because of the potential to free ride on larger firms research and development investments. Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).

[86] Yale Braunstein & Lawrence White, *Setting Technical Compatibility Standards: An Economic Analysis*, 30 ANTITRUST BULL. 337 (1985) (arguing that compatibility may favor dominant firms at expense of new entrants, may lead to adoption of inferior technology).

[87] Joseph Farrell & Garth Saloner, *Coordination Through Committees and Markets*, 19 RAND J. ECON. 235, 237-40 (1988) (arguing that this 2-pronged approach is most effective as it provides two chances to achieve compatibility both in committee and in the marketplace).

[88] Richtel, *New Economy*, *supra* note 75 (noting consumers will benefit from increased competition resulting from secure standards battle).

[89] Michael Stroud, *MP3: Its Only Just Begun,* WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32588,00.html (Nov. 17, 1999) (questioning whether SDMI labels will accept less than perfect protection; if not, he believes the effort will be unsuccessful).

[90] *Id*.

[91] *See Interview: David Weekly,* MP3 IMPACT, *at* http://www.mp3impact..com (May 16, 1999) (criticizing SDMI's desire for perfect security). *But see* John Gartner*, Digital Music Will Cost You,* WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,32674,00.html (Dec. 8, 1999) (interview with Jeremy Silver of EMI, noting that the goal of SDMI to keep honest people honest, not perfect protection).

[92] Dominic Pride, *SDMI Efforts Moving Ahead,* BILLBOARD, at 1 (Dec. 11, 1999) (arguing that value in music must be reinforced in the web environment, so there is negative value in the fact that illegal MP3 files can be brought into SDMI environment); Megan Twohey, *Land of the Free and MP3,* NATL J., at 182 (Jan. 15, 2000) (noting that SDMI members initially wanted system to exclude MP3 altogether).

[93] *See infra* notes 139-46 and accompanying text.

[94] *See generally* William Sloan Coats, et al., *Streaming Into the Future: Music and Video on the Internet,* 547 PRACTICING LAW INSTITUTE, PATENTS, COPYRIGHTS, TRADEMARKS, AND LITERARY PROPERTY COURSE HANDBOOK SERIES 605, (Feb. Mar. 1999) (summarizing laws in place regulating, permitting legal constraints); Dickerson Downing & Kathleen McCarthy, *Copyright and the Digital Age***,** N.Y. L.J.**,** at T5 (Dec. 6, 1999) (detailing enforcement, legislative, and technological efforts to protect content); Anne K. Fujita, *The Great Internet Panic: How Digitization is Deforming Copyright Law*, 2 J. TECH. L. & POLY 1, *at* http://journal.law.ufl.edu/~techlaw/2/fujita.html (Fall 1996) (noting that digitization expands rights of users and opportunities for authors but publishers are finding ways to protect their economic rights with restrictive laws).

[95] *See generally* Jessica Litman, *Electronic Commerce and Free Speech*, 1 ETHICS & INFO. TECH. 213 (1999) (summarizing how the law has been melded to conform to commercial interests); Jessica Litman, *The Exclusive Right to Read*, 13 CARDOZO ARTS & ENT. L.J. 29 (1994) (noting that public's interest was not represented in the pre-DMCA negotiations, led to basic rights being ceded to commercial interests).

[96] 17 U.S.C. 1001 (1992).

[97] Spaulding, *supra* note 2 (explaining the Audio Home Recording Act).

[98] *Id*.

[99] 17 U.S.C. 1004 (providing that manufacturers and distributors of digital audio recording devices and blank digital tapes pay a percentage-based royalty to the copyright office to be pooled and shared among artists, music publishers, and record companies).

[100] 17 U.S.C. 1002.

[101] 17 U.S.C. 1008. *See also* Spaulding, *supra* note 2 (explaining the Audio Home Recording Act).

[102] *See generally* http://www.eklektix.com/dat-heads (website for DAT lovers to trade tapes and discuss latest technology).

[103] 18 U.S.C. 2311; 111 Stat. 2678, P.L. 105-147 (1997).

[104] 111 Stat. 2679 (c)(1) and (2) amending 17 U.S.C. 506(a)(2).

[105] *Id*.

[106] 111 Stat. 2678, sec. 2 amending 17 U.S.C. 101 definition of financial gain.

[107] 17 U.S.C. 1201 (1998).

[108] 17 U.S.C. 512.

[109] 17 U.S.C. 1201(a).

[110] *See Electronic Frontier Foundation, Comments on DMCA Anticircumvention Rulemaking*, *at* http://www.virtualrecordings.com/effcomment.htm (Feb. 17, 2000) (arguing on behalf of consumers right to fair use and against any rules designed to allow hardware that would infringe this right).

[111] Denise Caruso, *Control Over Content: The Case of an Internet TV Provider Illustrates the Entertainment Industry's Copyright Power,* N.Y. TIMES, DIGITAL COM., at C4 (Mar. 13, 2000) (quoting Professor Peter Jaszi, "[The DMCA] imposes a new kind of liability even in situations of fair use. [If the entertainment industries use] technology to lock up their content, the mere unlocking of it is an actionable offense. End of story.").

[112] *Id*.

[113] *See e.g. RIAA Continues Misinformation Campaign*, *at* http://www.cdpage.com/Compact_Disc_Consulting/Opinion/riaamisinfo..html (criticizing expansive RIAA statement of uses permitted and forbidden by the Copyright Act).

[114] Recording Indus. Assoc. of Am. v. Diamond Multimedia Sys., 180 F.3d 1072 (9th Cir. 1999).

[115] *Id*.

[116] Sara Robinson, *3 Copyright Lawsuits Test Limits of New Digital Media: Rights to Make Personal Copies at Issue,* N.Y. TIMES, (Jan. 24, 2000) (quoting copyright Professor Peter Jaszi, "There are things in some of the laws which may tilt the results in a direction that is too restrictive as far as consumer interests are concerned.").

[117] *Id*.

[118] *See* Evan Hansen, *Start-ups Lead Push to Manage Digital Rights,* CNET NEWS.COM, *at* http://news.cnet.com/news/0-1005-202-1552672.html (Feb. 17, 2000) (discussing objectives of digital rights management start up companies).

[119] *See* Johns Sullivan, *Cracking the Code Musically: A Dispute Shapes up Over Internet Piracy*, N.Y. TIMES, Nov. 5, 2000 at NJ6 (revealing Princeton Professors' success in cracking SDMI's code).

[120] *See* Doug Bedell, *MP3 Format Is Expected to Overwhelm Music Industrys Efforts to Cap It,* DALLAS MORNING NEWS, (Dec. 19, 1999) (noting that industry efforts to control copying may have gone beyond copyright); James C. Luh, *Please Deposit $1 for the Next 1,000 Frames,* INTERNET WORLD, (Dec. 15, 1999) (noting that technology gives content owners more control than traditional copy protection); Malcolm Maclachlan, *Technology Has Music Cos. Singing a New Tune,* TECHWEB, *at* http://www.techweb.com/wire/story/TWB19990909S0018 (Sep. 9, 1999) (noting copyright owners increasing ability to control total use of works beyond what is allowed in Copyright Act).

[121] *See* 17 U.S.C. 107 (1976) (enumerating the non-inclusive fair use factors). *See also* Sony Corp. of Am. v. Universal City Studios, 464 U.S. 417 (1983) (articulating fair use standard as applied to videocassette recorder market).

[122] 17 U.S.C. 109 (1976).

[123] U.S. Const. Art. I, 8, cl. 8.

[124] 17 U.S.C. 106 (1976). *See also* Jessica Litman, *Reforming Information Law in Copyrights Image*, 22 U. DAYTON L. REV. 587 (1997) (noting expansion of copyright owners rights into areas previously reserved for the public, expanding copyright owners rights beyond enumerated exclusive rights, public has right to fair use and right to dispose of as it likes after first sale).

[125] Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975) ("[T]he ultimate aim [of The Copyright Act] is to stimulate the creation of useful works for the general public good. When technological change has rendered its literal terms ambiguous, the Copyright Act must be construed in light of this basic purpose.").

[126] *See id*. (The immediate effect of our copyright law is to secure a fair return for an authors creative labor. But the ultimate aim is, by this incentive, to stimulate the creation of useful works for the general public good.).

[127] *See* Christopher Jones, *Chuck D: Gotta Share the Tunes,* WIRED NEWS, at http://www.wired.com/news/business/0,1367,31967,00.html (Oct. 18, 1999) (upset that industry trying to make technology conform to its rules).

[128] *See* David Morley, *Indie Artists Fight Back!!!,* at http://www.indiestore.com/editorial_Art_to_Heart.html (Aug. 6, 1999) (promoting an organization formed to ensure that copyright owners do not overstep their exclusive rights and to ensure consumers continued fair use and public domain rights).

[129] *See* Press Release, Electronic Frontier Foundation, *EFF Launches Online Campaign to Support Digital Audio Free Expression*, *at* http://www.eff.org/cafe/19990615_cafe_pressrel.html (June 15, 1999) (advocating respect for publics rights under the Copyright Act and fear of the rights holder's domain being expanded).

[130] *See* Morley, *supra* note 128.

[131] Press Release, Musicians United*, Grassroots Initiative of Artists and Fans Protests SDMI*, (July 21, 1999), *available at* http://www.nakedshadows.com/MU-press_release1.htm (last visited Dec. 1, 2000) (group concerned about SDMI circumventing law and constraining users rights with technology).

[132] *See e.g.* Electronic Frontier Foundation, *Digital Audio and Free Expression Policy Statement*, *at* http://www.eff.org/pub/Intellectual_property/Audio/eff_audio_statement.html (May 1999) (explaining objectives to protect consumers rights of fair use against encroachment by music industry); Robin D. Gross, *Understanding Your Rights: The Publics Right of Fair Use*, *at* http://www.eff.org/cafe/gross1.html; Robin D. Gross, *Understanding Your Rights: Copyright Protection on the Internet*, *at* http://www.eff.org/cafe/gross2.html.

[133] Sachs, *supra* note 29, at 76.

[134] *See* Amazon.com's promotional page for *Riding the Bullet*, *at* http://www.amazon.com/exec/obidos/subst/promotions/stephen-king/stephen-king.html.

[135] *Id*. These usage limitations are not expressly stated in any of the downloading instructions or in any of the materials promoting the e-book.

[136] *See* Sachs, *supra* note 29.

[137] *See* Amazon.com, *supra* note 134.

[138] *See* Sachs, *supra* note 29.

[139] *See* Jessica Litman, *Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 21 (1996) (arguing for recognition of consumer's right to fair use, fear that copyright owners will destroy it by overreaching and creating more restrictive code).

[140] Denise Caruso, *Control Over Content: The Case of an Internet TV Provider Illustrates the Entertainment Industry's Copyright Power,* N.Y. TIMES, DIGITAL COMMERCE, Mar. 13, 2000 at C4 (quoting Professor Jaszi, "[w]hat people want is choice, the ability to control the experience of cultural consumption.").

[141] Chris Oakes, *Pundits Ask: Who Owns Music?,* WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,34605,00.html (Feb. 26, 2000) (Harvard conference participants express difficulty of consumer use and lack of fair use inherent in the current SDMI scheme).

[142] *See generally* Lawrence Lessig, *Code and Other Laws of Cyberspace* (1999); Lawrence Lessig, *Open Code and Open Societies: Values of Internet Governance*, 74 CHICAGO-KENT L. REV. 1405 [hereinafter Lessig, *Governance*].

[143] Lessig, *Governance*, *supra* note 142.

[144] Lawrence Lessig, *Jefferson's Nature*, Draft 1, Univ. of Virginia, Mar. 27, 1999 (on file with the author).

[145] *See id*.

[146] Lessig, *Governance*, *supra* note 142, at 1408 (noting that "the design of code is something that people are doing. Engineers make the choices about how the world will be. Engineers in this sense are governors.").

[147] *See infra* V.A.

[148] *See infra* V.F.

[149] *See infra* note 162 and accompanying text.

[150] *See* Eileen Fitzpatrick, *MP3 Supporters Look to Future*, BILLBOARD, June 26, 1999 at 1.

[151] *See infra* V.B.1.

[152] *See infra* V.B.2.

[153] *See infra* V.B.3.a.

[154] *See infra* V.B.3.b.

[155] *See infra* V.B.4.

[156] *See infra* V.C.

[157] *See infra* V.D.

[158] *See infra* V.E.

[159] *See infra* V.F. (discussing MyMP3.com and Napster).

[160] *See supra* II.

[161] Kent D. Stuckey, *Battle Over Commercial Musics Future: MP3: How Recording Industry is Handling the Threat*, 5 No. 8 MULTIMEDIA STRATEGIST 1, May 1999 (questioning if SDMI is too little too late and MP3 is already the consumer accepted standard).

[162] Eileen Fitzpatrick, *MP3 Supporters Look to Future,* BILLBOARD, June 26, 1999 at 1 (noting that MP3 supporters know that SDMI could displace MP3 as standard due to inferior quality of MP3); Paul Seredynski, *The MP3 Summit: The Next Day: Is the Party Over Before Its Really Begun?,* ETOWN.COM, *at* http://www.etown.com/news/articles/MP3summit2062399psa.html (June 23, 1999) (noting speakers belief that a superior standard will replace MP3).

[163] *See* Eric Scheirer, *The Real Digital Music Revolution,* MP3.COM at http://www.mp3.com/news/336.html (describing the ability of net music to enhance the "connection" among music lovers and ultimately to enhance the music itself).

[164] The power of content is affirmed by the recent competition between MP3.com and Rioport.com. Rioport.com, a popular new secure website, has been receiving support and content from the major labels, while MP3.com continues to focus on new and emerging artists. *See* Courtney Macavinta, *Six Months After IPO, What Is MP3.coms Game Plan?,* CNET NEWS.COM, *at* http://news.cnet.com/news/0-1005-202-1495459.html (Dec. 14, 1999). *See also* Matt Richtel, *Music Industry Faces A Digital Reckoning,* N.Y. TIMES, Jan. 3, 2000 at C3 (noting that major labels are gambling that their deliberate pace of putting music online will not erode their influence over the music business.).

[165] Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-in by Historical Events,* 99 ECON. J. 116 (1989) (early statement of lock-in effects in increasing returns (network) markets).

[166] *Id*.

[167] *Id.*, *See also* Michael L. Katz & Carl Shapiro, *Technology Adoption in the Presence of Network Externalities*, 94 J. POL. ECON. 822 (1986) [hereinafter *Technology Adoption*] (arguing that a technology with an initial advantage can become locked-in as the industry standard).

[168] Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Pre-announcements and Predation*, 76 AM. ECON. R. 940 (1986).

[169] Arthur, *supra* note 165; Katz & Shapiro, *Technology Adoption*, *supra* note 167 (arguing that a technology with an initial advantage can become locked-in as the industry standard).

[170] Stan J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, 8 J. ECON. PERSP. 133 (1994) (affirming belief in concept of network effects but debunking prior examples of network externalities).

[171] William J. Kolasky, *Network Effects: A Contrarian View*, 7 GEO. MASON L. REV. 577, (1999) (arguing the market is self-correcting and that previously reported inferior technologies were in fact efficient (citing Liebowitz), and that real world traditional market forces are more dominant than network effects); Stan J. Liebowitz & Stephen E. Margolis, *Should Technology Choice Be a Concern of Antitrust Policy?,* 9 HARV. J.L. & TECH. 283, 286 (1996) [hereinafter *Technology Choice*].

[172] Liebowitz & Margolis, *Technology* Choice, *supra* note 171 (debunking popular examples of network externalities (market failures) VHS, QWERTY, and Microsoft v. Apple.).

[173] *See* Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985) [hereinafter Katz & Shapiro, *Network Externalities*] (arguing that consumer expectations can determine success of new technology); Paul Krugman, *History versus Expectations*, 106 Q.J. ECON. 651 (1991) (arguing that expectation is much more a determinant of adoption in network markets than history).

[174] SDMI has not touted audio superiority as a goal. It is important to keep in mind that watermarks, encoding and encryption standards tend to degrade rather than enhance sound quality, so it is possible that SDMI will be hampered by the additional security component. *See generally*, *Web Reference, Digital Watermarking and Tracking*, *at* http://www.webreference.com/content/watermarks/tracking.html.

[175] *See supra* notes 58-61 and accompanying text.

[176] *See* Ryan S. Henriquez, *Facing the Music on the Internet: Identifying Divergent Strategies for Different Segments of the Music Industry in Approaching Digital Distribution,* 7 UCLA ENT. L. REV. 57, 1999 (noting that SDMI is attempting to displace a consumer friendly standard with a less consumer friendly standard).

[177] *See* Milo Mindbender, *Is SDMI a Consumers Nightmare?***,** SLASHDOT, *at* http://slashdot.org/askslashdot/00/02/02/1124200.shtml (Feb. 3, 2000) (complaining about cumbersomeness of SDMI compliant player).

[178] David Futrelle, *Can't Stop the Music*, UPSIDETODAY.COM, *at* http://www.upside.com/texis/mvm/david_futrelle?id=377eb1800 (July 5, 1999) (likening SDMI to DIVX which was despised by consumers and others and went down in flames due to overly restrictive nature). *See also* Chris Oakes, *Copy-Protected CDs Taken Back*, WIRED NEWS, *at* http://www.wired.com/news/print/0,1294,33921,00.html (Feb. 3, 2000) (detailing consumer complaints regarding restrictive CD copy protection as harbinger for SDMI problems).

[179] Doug Reece, *Open Music Format Petition*, MP3.COM, *at* http://www.mp3.com/news/301.html (July 23, 1999) (discussing the faction of Internet users that desire open formats, and fear that in later stages, SDMI will make MP3 inoperable, shutting down opportunities for indie artists that can't afford SDMI certification).

[180] Eileen Fitzpatrick, *MP3 Supporters Look to Future*, BILLBOARD, June 26, 1999 at 1 (noting MP3 supporters awareness that SDMI is hovering and could displace MP3 as standard).

[181] James Lardner, *The Record Industry Gives Peace a Chance*, U.S. NEWS ONLINE, *at* http://www.usnews.com/usnews/issue/990920/mp3.htm (Sep. 20, 1999) (paraphrasing Michael Robertson of MP3.com, "SDMI is not really about copyright protection at all. Serious music piracy on the Internet is easy to spot, he argues, and a warning letter is all it takes to scare the typical young pirate into compliance. The true aim of SDMI is to protect to the Big Five recording companies against a new business model in which listeners and musicians can find each other directly. The Big Five see control slipping through their hands.")

[182] RIAA's Application for Temporary Restraining Order and Order to Show Cause Re: Preliminary Injunction pursuant to the Copyright Act; Memorandum and Points of Authorities in Support Thereof at 10, Recording Indus. Assn of Am., Inc. v. Diamond Multimedia Sys., Inc., 29 F. Supp. 2d 624 (C.D. Cal. 1998) (No. 98-8247) (arguing MP3 technology is primarily used for piracy and proliferation of unauthorized MP3 files on the Internet and is against interests of member companies).

[183] *See* Megan Twohey, *Land of the Free and MP3*, NAT'L J., Jan. 15, 2000 at 182 (noting that SDMI members initially wanted system to exclude MP3 altogether). *See also* SDMI Update, *supra* note 44 (acknowledging early reports of MP3 exclusion).

reports of MP3 exclusion).

[184] *See* SDMI Update, *supra* note 44 (clarifying reports that SDMI compliant devices will reject MP3 and other open formats are completely false). *See also* SDMI FAQ, *supra* note 31, at 5 ("[SDMI] is not meant to provide an alternative format to, or compete with, MP3 or any other compression technique or audio technology. In fact, SDMI-compliant devices will be able to play MP3 content.").

[185] SDMI Fact Sheet, *supra* note 31.

[186] *Id*. *See also* SDMI FAQ, *supra* note 31, at 7 (SDMI-compliant devices will be able to play all existing digital formats; it is up to the manufacturer of each device to choose which particular formats to support.).

[187] Stephan M. Levy, *Should "Vaporware" Be an Antitrust Concern?*, 42 ANTITRUST BULL. 33, (1997). Microsoft is commonly cited as an example of a vaporware announcement abuser. *See* Kenneth C. Baseman et. al., *Microsoft Plays Hardball: The Use of Exclusionary Pricing and Technical Incompatibility to Maintain Monopoly Power in Markets for Operating System Software*, 40 ANTITRUST BULL. 265, 277 (1995) (noting allegations that Microsoft has taken advantage of this effect in operating systems market by using product pre-announcements (or vaporware) to deter customers from buying competitive products); JIM ERICKSON & JAMES WALLACE, HARD DRIVE: BILL GATES AND THE MAKING OF THE MICROSOFT EMPIRE 382, 392-93 (1992) (for some examples of Microsoft's purported vaporware campaign).

[188] *See supra* notes 53-54 and accompanying text.

[189] *See supra* III.A. (discussing lack of interoperability).

[190] Press Release, Secure Digital Music Initiative, *SDMI Announces Portable Device Technology Will Be Available*, (Sep. 24, 1999), *available at* http://www.sdmi.org/pr/NY_Sep_24_1999_PR.htm ("The Secure Digital Music Initiative announced today that technology and related licensing documents needed for first generation SDMI-compliant portable devices will *soon become available*. *It is anticipated* that technology will be made available under a license for shipping after Oct. 1, 1999. This schedule is intended to enable portable device manufacturers to be able to proceed with production of portable devices for the 1999 holiday season.").

[191] *See* Joseph Palenchar, *SDMI Ties Up Loose Ends*, TWICE, Dec. 6, 1999 at 42 (noting SDMI missed holiday target, and that non-compliant devices were shipped); Matt Richtel, *Holiday Target For Music Sales Over Internet Wont Be Met*, N.Y. TIMES, Nov. 22, 1999 at C1 [hereinafter *Holiday Target*] (noting perception by some that delay will hurt SDMI's credibility with consumers); Courtney Macavinta, *Net Music Waits for Its Cue*, CNET NEWS.COM, *at* http://news.cnet.com/news/0-1005-202-1511549.html (Jan. 4, 2000) (noting industry insiders disappointment with pace of SDMI).

[192] Richtel, *Holiday Target*, *supra* note 191 (noting final contract with Aris was not signed until December meeting in Maui).

[193] *Id*. (quoting Robert Kohn of emusic.com, "There's no document from which any of these companies can develop specifications. They've developed a framework, but not specifications."); Vaporware 99: The Winners, WIRED NEWS, Jan. 3, 2000 (visited Feb. 28, 2000), *at* http://www.wired.com/news/technology/0,1282,33142,00.html (highlighting SDMI as a vaporware that started as a software API, then a specification, then a guideline).

[194] Robert Prentice, *Vaporware: Imaginary High-Tech Products and Real Antitrust Liability in a Post-Chicago World*, 57 OHIO ST. L.J. 1163 (1996) (arguing that vaporware is prevalent and can have important pro-competitive effects, however its important to be able to distinguish good from bad faith announcements).

[195] *Id*. *See also* Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Pre-announcements and Predation*, 76 AM. ECON. R. 940, 942 (1986) [hereinafter *Installed Base*] (noting product pre-announcements may be pro-competitive, helping consumers to make a more informed choice).

[196] Farrell & Saloner, *Installed Base*, *supra* note 195.

[197] *Id*. (noting that dominant firms may seek to maintain their dominance by making anti-competitive product pre-announcements to stifle switching and early adoption).

[198] Levy, *supra* note 187.

[199] *Id.*; Prentice, *supra* note 194.

[200] Levy, *supra* note 187; Prentice, *supra* note 194.

[201] *See supra* II.B. (discussing SDMI accomplishments).

[202] SDMI FAQ, *supra* note 31, at 23. *See also* SDMI Principles *supra* note 35.

[203] *Secure Digital Music Initiative, Antitrust Statement of the SDMI Initiative*, *at* http://www.sdmi.org/antitrust.htm (last visited Dec. 1, 2000) [hereinafter SDMI Antitrust Statement] (noting that many companies participating in the process are competitors of other participants and that SDMI is not intended to be an agreement that limits competition).

[204] Witness the government's recent successful antitrust litigation against Microsoft. *See* United States v. Microsoft Corp., No. 98-1232 (TPJ) (D.D.C. Apr. 3, 2000).

[205] Joseph Bailey, et al., *The Economics of Advanced Services in an Open Communications Infrastructure: Transaction Costs, Production Costs, and Network Externalities*, 4 INFO. INFRASTRUCTURE & POL. 225, 264, 271-72 (1995) (there is some empirical evidence to suggest that open, group-set standards produce cost savings over proprietary standards); *see also* David J. Teece, *Information Sharing, Innovation and Antitrust*, 62 ANTITRUST L.J. 465, 475 (1994) (arguing that voluntary associations for benefit of standard-setting should be viewed positively because they further public good and generate efficiencies).

[206] Thomas M. Jorde & David J. Teece, *Rule of Reason Analysis of Horizontal Arrangements: Agreements Designed to Advance Innovation and Commercialize Technology*, 61 ANTITRUST L.J. 579, 600 (1993). [hereinafter *Rule of Reason*].

[207] Gerald W. Brock, *Dominant Firm Response to Competitive Challenge: Peripheral Equipment Manufacturers Suits Against IBM*, THE ANTITRUST REVOLUTION (John E. Kwoka Jr. & Lawrence J. White eds., 1989) (arguing that shifting standard of predatory pricing led to IBM being exonerated in antitrust cases and that dominant firms are free to take competitive actions and not forced to sit on their hands provided that their actions have some benefit for consumers).

[208] Jack E. Brown, *Technology Joint Ventures to Set Standards or Define Interfaces*, 61 ANTITRUST L.J. 921 (1993) (noting that courts tend to favor joint standard-setting consortia that further R&D and innovation goals; not likely to find antitrust violation under rule of reason analysis); Dennis W. Carlton et al., *Communication Among Competitors: Game Theory and Antitrust*, 5 GEO. MASON L. REV. 423, (1997) (arguing that rule of reason analysis is more appropriate where pro-competitive effects may be present); Katz & Shapiro, *Network Externalities*, *supra* note 173 (arguing that policy should favor industry standards to achieve compatibility by relaxing antitrust regulations); Mark A. Lemley, *Antitrust and the Internet Standardization Problem*, 28 CONN. L. REV. 1041 (1996) (in favor of relaxed approach to antitrust enforcement in Internet standard-setting process).

[209] Jorde & Teece, *Rule of Reason*, *supra* note 206 (proposing rule of reason analysis in high tech industries with horizontal cooperative arrangements; if pro-competitive effects outweigh anti-competitive effects then innovative cooperation should prevail; ultimate burden on P to prove that the balance is negative).

[210] *See id*. *See e.g.* Nat'l Ass'n of Rev. Appraisers & Mortgage Underwriters v. Appraisal Found., 64 F.3d 1130, 1137 (8th Cir. 1995) (holding that no per se antitrust violation results from groups exclusion from trade association because not essential facility and group had legitimate beneficial purpose of creating standards promoting efficiency and industry improvements).

[211] *See* James J. Anton & Dennis A. Yao, *Standard-Setting Consortia, Antitrust, and High-Technology Industries*, 64 ANTITRUST L.J. 247, 250 (1995) (advocating rule of reason analysis in analyzing antitrust concerns in industry standard-setting consortia; noting that the fast pace of the high tech area may counsel for hands off approach since most are not capable of evaluating the pro or anti-competitive nature of the acts).

[212] *See id*.

[213] Douglas D. Leeds, *Essay, Raising the Standard: Antitrust Scrutiny of Standard-Setting Consortia in High Technology Industries*, 7 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 641 (1997).

[214] *See* Thomas M. Jorde & David J. Teece, *Innovation, Cooperation, and Antitrust,* ANTITRUST, INNOVATION, AND COMPETITIVENESS 47 (Thomas M. Jorde & David J. Teece eds., 1992) (proposing significant changes to antitrust law to facilitate innovation); Stan J. Liebowitz & Stephen E. Margolis, *Should Technology Choice Be a Concern of Antitrust Policy?,* 9 HARV. J. L. & TECH. 283, 286 (1996) (advocating hands-off attitude for antitrust in high tech markets, believes market will make the most efficient choices).

[215] FED. TRADE COMMN, ANTICIPATING THE 21ST CENTURY: COMPETITION POLICY IN THE NEW, HIGH TECH GLOBAL MARKETPLACE, ch. 9, at 2-3 (1996) (advocating industry self-regulation, private initiatives, and technology based protections to protect consumers and businesses in cyberspace).

[216] 15 U.S.C. 4301-9306 (1994) (requires courts to analyze challenges to joint ventures designed research and development purposes under rule of reason, and specifically forbids per se treatment of such arrangements).

[217] Pub. L. 103-42 2(b) 107 Stat. (1993).

[218] U.S. DEPT OF JUSTICE, ANTITRUST GUIDE CONCERNING RESEARCH JOINT VENTURES 11-12 (1980) ("[W]here an industry-wide effort is clearly the most efficient means by which research can be carried out successfully, a joint effort without undue restrictions will likely be lawful subject to the possible requirements for access."). *See also* FED. TRADE COMMN & U.S. DEPT OF JUSTICE, ANTITRUST GUIDELINES FOR COLLABORATIONS AMONG COMPETITORS (Draft) (1999).

[219] FED. TRADE COMMN & U.S. DEPT OF JUSTICE, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY, *reprinted* in 4 TRADE REG. REP. (CCH) 22-23 (Apr. 6, 1995) (noting that absent extraordinary circumstances, the Agencies will not challenge a restraint in an intellectual property licensing arrangement if there are four or more independently controlled technologies in addition to the technologies controlled by the parties to the licensing arrangement that may be substitutable for the licensed technology at a comparable cost to the user).

[220] *Supra* III.A. (discussing SDMI objectives).

[221] *See* Beth Lipton Krigel, *Net Music Players Closer to Security,* CNET NEWS.COM, (June 17, 1999), *at* http://news.cnet.com/news/0-1005-200-343296.html?st.ne.lh..ni (noting that SDMI formed a marketing groups to create awareness programs).

[222] *But see supra* note 184 and accompanying text.

[223] *See supra* IV.B.2.

[224] *See supra* V.B.2.

[225] *See supra* note 102 and accompanying text.

[226] *See supra* notes 182-83 and accompanying text.

[227] *See supra* II.

[228] *Id*.

[229] Thomas A. Piraino, Jr., *The Antitrust Analysis of Network Joint Ventures*, 47 HASTINGS L.J. 5 (1995).

[230] William H. Pratt, et al., *Refusals to Deal in the Context of Network Joint Ventures*, 52 BUS. LAW. 531 (Feb. 1997).

[231] Nat'l Ass'n of Rev. Appraisers, 64 F.3d at 1137 (8th Cir. 1995) (holding that no per se antitrust violation results from groups exclusion from trade association because not an essential facility and group had legitimate beneficial purpose of creating standards promoting efficiency and industry improvements); *see also* Thomas A. Piraino, Jr., *An Antitrust Remedy or Monopoly Leveraging by Electronic Networks*, 93 NW. U. L. REV. 1, 1998 (arguing that courts and government should only intervene when a monopolist is extending its power by denying competitors access to relevant market).

[232] *See supra* note 202 and accompanying text.

[233] *See* Linden deCarmo, *Safety in Numbers*, EMEDIA, Nov. 1999 at 48 (noting consumer dissatisfaction with DIVX's security features and grassroots campaign to undermine adoption).

[234] *See id*.

[235] *See* Arik Hesseldahl, *Label to Artists: Weownyou.com*, WIRED NEWS, *at* http://www.wired.com/news/news/culture/story/21834.html (Sep. 20, 1999) (describing artists disillusionment, do not believe piracy as bad as SDMI says).

[236] James Lardner, *The Record Industry Gives Peace a Chance*, U.S. NEWS ONLINE, *at* http://www.usnews.com/usnews/issue/990920/mp3.htm (Sept. 20, 1999) (quoting Michael Robertson of MP3.com, "SDMI is not really about copyright protection at all. Serious music piracy on the Internet is easy to spot, and a warning letter is all it takes to scare the typical young pirate into compliance.").

[237] Hesseldahl, *supra* note 235 (noting artists belief that MP3 increases demand for CDs).

[238] Lardner, *supra* note 236 (quoting Michael Robertson of MP3.com, "The true aim of SDMI is to protect to the Big Five recording companies against a new business model in which listeners and musicians can find each other directly. The Big Five [now four] see control slipping through their hands.").

[239] *See* Richard Burgess, *What is Musicians United? at* http://www.musicians-united.org/what.htm (last visited Dec. 1, 2000) (artists and independent musicians voicing desire for open standard, fear SDMI will exclude them); *Playing the SDMI Blues*, MP3.COM BULLETIN BOARD, *at* http://bboard.mp3.com/mp3/ubb/Forum8/HTML/000038.html (June 30, 1999) (voicing resistance to SDMI, fear of artists and consumers that they will have no voice in the process).

[240] Witness the recent struggle by the Internet Council for Assigned Names and Numbers (ICANN) board to move the process ahead efficiently with little public involvement. They found that though they might be acting in the public's best interest, the public may still want a voice in the process and a seat at the table. *See* Jeri Clausing, *Report Criticizes Viability of Internet Oversight Panel*, N.Y. TIMES, Mar. 6, 2000 at C6 (discussing objections to proposed representative voting system by Common Cause and other Internet interests groups); Jeri Clausing, *A Leader in Cyberspace, It Seems, Is No Politician*, N.Y. TIMES, Apr. 10, 2000, at C1 (discussing dismissive attitude of Esther Dyson, Chairperson of ICANN, during recent public meetings). *See also Call for Public Input at* http://www.icann.org/at-large/study-comments.htm (Nov. 27, 2000).

[241] *See id*.

[242] *See supra* III.A. (discussing SDMI objectives).

[243] *See supra* notes 77-87 and accompanying text (providing economist view that lack of interoperability spurs innovation).

[244] *See* SDMI FAQ, *supra* note 31 at 17A ("SDMI is an architectural framework, and is not intended to specify particular technological choices. But there are some components of the system that may require the designation of a particular technology. The Phase I screen technology is such a component."); ARIS Technologies, *SDMI Phase I License Agreement*, MP3.COM, *at* http://www.mp3.com/news/322.html (Aug. 20, 1999) (Aris was selected by the SDMI plenary body as the approved technology to be used in the Phase I Screen, and Aris agreed to grant licenses to SDMI members on a reasonable and nondiscriminatory basis).

[245] *See* David Weekly, *SDMI: Aris Wins, World Loses*, (Aug. 13, 1999), *at* http://david.weekly.org/writings/aris_sdmi.php3. (discussing SDMI selection of exclusive technology security provider counter to proposed objective of providing wrapping specification into which many technologies could fit).

[246] *See supra* III.A. (discussing SDMI objectives).

[247] SDMI Principles, *supra* note 35. *See also Digimarc Offers to License Patents Essential for Secure Digital Music Delivery to SDMI*, BUSINESS WIRE, Jan. 25, 2000 (SDMI participant announcing that it holds patents essential for implementation and that it has a willingness to license it on a non-discriminatory basis).

[248] *See* SDMI Principles, *supra* note 35.

[249] James J. Anton & Dennis A. Yao, *Standard-Setting Consortia, Antitrust, and High-Technology Industries*, 64 ANTITRUST L.J. 247, 254 (1995) (noting the FTC has shown concern when standards bodies adopted patented proprietary technology owned by a member).

[250] Raymond T. Nimmer, *Standards, Antitrust, and Intellectual Property*, INTELLECTUAL PROPERTY ANTITRUST 797 (1995).

[251] Joseph Farrell & Michael L. Katz, *The Effects of Antitrust and Intellectual Property Law on Compatibility and Innovation*, 43 ANTITRUST BULL. 609, 1998 (noting compatibility may enhance consumer benefit of second choices, better prices).

[252] *See id*. (arguing compatibility provides less economic rewards to producers, so less encouraging of innovation).

[253] *See supra* III.B. (discussing SDMI accomplishments).

[254] *See supra* note 190 and accompanying text.

[255] *See* SDMI Phase I License Agreement, *supra* note 244.

[256] *See* Richtel, *Holiday Target*, *supra* note 191.

[257] *See supra* note 53 and accompanying text.

[258] *See supra* note 54 and accompanying text.

[259] *See* Joseph Farrell, *Standardization and Intellectual Property*, 30 JURIMETRICS J. 35, 36, 40-42 (1989) (arguing that IP protection hinders standard-setting in de jure or formal environment due to increased conflicting vested interests; all agree that compatibility is important but want the group to select its standard; leads to a slower process that impedes innovation, development, and standard selection).

[260] *See* Jim Hu & Sandeep Junnarkar, *AOL Buys Time Warner in Historic Merger*, CNET NEWS.COM, (Jan. 10, 2000), *at* http://news.cnet.com/news/0-1005-202-1518888.html [hereinafter, *Historic Merger*] (basic details of merger). *See also* Saul Hansell, *Dissecting the Deal: If AOL and Time Warner Do Merger, Regulators, Competitors and Analyst Wonder How the Pieced will Add Up*, N.Y. TIMES, Nov. 13, 2000 at C1 [hereinafter *Dissecting the Deal*].

261 *See* Saul Hansell, *Media Megadeal: The New Company: Two Become One, and then What?* N.Y. TIMES, Dec. 15, 2000 at C1 (discussing deal's approval and FTC imposed restrictions).

[262] Hu & Junnarkar, *Historic Merger*, *supra* note 260 (includes Internet, cable, and magazine subscriptions).

[263] *See id*.

[264] Jim Hu, *Can AOL Time Warner Be Net Music Titan?*, CNET NEWS.COM, (Jan. 12, 2000), *at* http://news.cnet.com/news/0-1005-202-1521425.html (noting AOL acquisition of Spinner.com and Nullsoft).

[265] *See id*.

[266] Sandeep Junnarkar, *Time Warner, EMI Team to Create Music Powerhouse*, CNET NEWS..COM, (Jan. 24, 2000), *at* http://news.cnet.com/news/0-1005-202-1529624.html (proffering that Time Warner and EMI will have more liberal stance regarding digital mussic distribution after AOL merger).

[267] *See id*.

[268] *See* John Tagliabie, *Time Warner and EMI Halt Venture Plan*, N.Y. TIMES Oct. 6, 2000 at C1.

[269] *See* Andrew Pollack, *Online Music Gets a Lift in AOL Deal With Warner*, N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/library/tech/00/01/biztech/articles/18music.html (Jan. 18, 2000) (speculating AOL-Warner may take a more aggressive tact to speed availability and ease consumer access); Neil Strauss, *Music Mergers Herald a Shift to the Internet*, N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/library/tech/00/01biztech/articles/26time-emi.html (Jan. 26, 2000) (speculating on impact of recent mergers on digital music distribution).

[270] *See* Marilyn A. Gillen, *The Year in Business*, BILLBOARD, Dec. 25, 1999 at 24, 1999 WL 31679108 (noting retailer efforts to gird for the online onslaught); Matt Richtel, *Internet Strains the Ties of Record Companies and Stores*, N.Y. TIMES, Feb. 29, 2000 at C8 (describing tension between labels and retailers over retailers' future role in digital world).

[271] *See id*.

[272] James Lardner, *The Record Industry Gives Peace a Chance*, U.S. NEWS ONLINE, *at* http://www.usnews.com/usnews/issue/990920/mp3.htm (Sep. 20, 1999) (noting retailer alienation).

[273] *See* Mark Stefik, *The Internet: Bringing Order from Chaos, Trusted Systems*, SCIENTIFIC AMERICAN, Mar. 1997, *available at* http://www.sciam.com/0397/issue/0397stefik.html.

[274] *See id*.

[275] *See* Jonathan Weinberg, *Hardware-Based ID, Rights Management, and Trusted Systems*, 52 STANFORD L. REV.1251 (2000) (arguing that establishment of trusted systems to facilitate internet distribution will limit consumer ability to use copyrighted works and raise significant privacy issues); Sara Robinson, *Enforcer for the Electronic Marketplace*, N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/1999/12/06/technology/06trus.html (Dec. 6, 1999) (noting that security technology has also raised privacy concerns due to potential for tracking).

[276] *See supra* notes 139-146 and accompanying text.

[277] *See supra* note 44 and accompanying text.

[278] Sara Robinson, *CD Software Is Said to Monitor Users Listening Habits*, N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/library/tech/99/11/biztech/articles/01real..html (Nov. 1, 1999) (highlighting RealNetworks information gathering activities).

[279] Sara Robinson, *RealNetworks to Stop Collecting User Data: Music Software Will No Longer Transmit Personal Information*, N.Y. TIMES ON THE WEB, *at* http://www.nytimes.com/library/tech/99/11/biztech/articles/02real..html (Nov. 2, 1999) (RealNetworks mea culpa and promise to hire privacy officers to monitor already gathered information and future use).

[280] *See id*.

[281] Press Release, The Secure Digital Music Initiative, *SDMI Publishes Open Standard for Portable Devices*, (July 13, 1999), *available at* http://www.sdmi.org/pr/LA_Jul_13_1999_PR.htm (providing SDMI member company roster) (last visited Dec. 22, 2000).

[282] *See* Johnathan Earp, *Napster Copyright Terms*, *at* http://www.napster.com/terms/ (last visited Dec. 1, 2000).

[283] Amy Harmon, *Potent Software Escalates Music Industry's Jitters*, N.Y. TIMES, Mar. 7, 2000 at A1 (discussing popularity and illegality of Napster).

[284] *See id*.

[285] *See id*.

[286] *See id*.

[287] *See id*.

[288] *See id*.

[289] Press Release, Recording Indus. Assn of Am., *Recording Industry Sues Napster for Copyright Infringement*, (Dec. 7, 1999), *available at* http://www.riaa.com/News_Story.cfm?id=70 (last visited Dec. 1, 2000).

[290] Matt Richtel & David Kirkpatrick, *In a Shift, Internet Service Will Pay for Music Rights: Napster to Charge Fee in Effort to Settle Lawsuit*, N.Y. TIMES, Nov. 1, 2000 at A1 (providing details of Napster-BMG settlement agreement).

291 *See Id.*

[292] http://ecom99.mp3.com/ (last visited Dec. 1, 2000).

[293] Don Clark & Martin Peers, *MP3 Chief Rocks and Roils Music: Record Companies, Artists Oppose His New Service for Tunes on the Web*, WALL ST. J., Mar. 1, 2000 (describing MyMP3.com service, noting that service enables consumers to access music as long as they have a validly purchased CD).

[294] *See id.*

[295] Courtney Macavinta, *MP3.coms Move to Copy CDs Stirs Debate*, CNET NEWS.COM, *at* http://news.cnet.com/news/0-1005-202-1535035.html (Jan. 28, 2000) (explaining consumer proof methods).

[296] *Id.*

[297] *Id.*

[298] *Id.*

[299] UMG Recording, Inc. v. MP3.com, Inc., No. 00 Civ. 0472 (JSR), (S.D.N.Y., filed Jan. 21, 2000), *available at* http://www.mp3.com/news/533.html (last visited Dec, 1, 2000).

300 *See*Amy Harmon, *Judge Rules Against MP3 on CD Copying*, N.Y. TIMES, Sept. 7, 2000 at C1.

301 *See id.* (detailing penalties assessed to MP3.com).

[302] *See id.* (detailing previous settlement agreements between MP3.com and other labels).