Distinguished Lecture on Innovation & Communication Policy

CHALLENGES IN THE GLOBAL IT MARKET: TECHNOLOGY, CREATIVE CONTENT, AND INTELLECTUAL PROPERTY RIGHTS

Kevin J. Harrang*

I would like to begin by thanking Dean Massaro of the James E. Rogers College of Law at the University of Arizona and its faculty, especially professors Graeme Austin and Marc Miller, for the invitation and opportunity to present this lecture. Clearly, the Rogers College of Law, through its faculty and students, is setting a good example of leadership in legal education and scholarship, and it is a privilege to be a participant with all of you in this process.

Today, I am going to discuss an emerging set of legal and policy issues that will have a significant impact, I would argue, on the future of how digital content such as music and video is distributed and consumed in the future. I should say at the outset, however, that my purpose is not to argue for or against any particular point of view in the growing debate but rather to explain, if you will, how we got to where we are, what the stakes are for the current market participants and consumers generally, and what the arguments are for and against the various sides: I hope to impart greater understanding and appreciation of the implications that the debate will have for business models, legal rights, and our culture generally. Also, I should say up front that part of my mission here in Tucson is to promote the study of intellectual property law, and specifically the courses taught by Professor Austin and others, because this is an area that is going to require some of our best minds in the future.

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* This essay is adapted from a lecture delivered at the James E. Rogers College of Law at the University of Arizona on Oct. 10, 2006. Kevin Harrang has served in various capacities as in-house counsel for Microsoft Corporation since 1990. Currently, he is Associate General Counsel for the Platforms & Services Division of Microsoft, the division of the company that produces Windows and the MSN Network of online services. Mr. Harrang has also served as Deputy General Counsel for Operations, and Associate General Counsel for the Consumer Division. Mr. Harrang joined Microsoft in 1990 from the Seattle law firm of Preston Gates & Ellis. He is a graduate of the University of Chicago Law School and Pomona College and a frequent speaker at legal and industry events. Matthew Clark and Beau Roysden provided invaluable assistance with the preparation of this essay. All views expressed herein are strictly those of the author.

The starting point for this discussion is one of the more ubiquitous forms of consumer technology, not unfamiliar to this university community, namely the portable music player. It is almost impossible not to notice the proliferation of digital music players given the number of people walking around plugged into these devices. This category of electronics, along with the online music stores that supply them, have not only increased consumer convenience but also significantly changed the way music is distributed, marketed, and consumed.

Specifically, I will discuss what are called "Technical Protection Measures," or "TPMs" for short,[1] which are used to secure the digital content on these players, and how this technology does—or ought to—work. The discussion raises a diverse set of questions about business autonomy and freedom of contract, the proper role of government regulation, the nature of competitive markets, and the appropriate rights and powers accorded to the producers and providers of creative content.[2]

I. THE ESSENTIAL BACKGROUND

In order to understand the current TPM debate, it is useful to begin by briefly looking back at the history of musical recording devices. As we all learned in school, the first machine for recording sounds was the phonograph, invented by Thomas Edison in 1877.[3] Edison, who received 1,093 patents in his lifetime,[4] reflected at the end of his career that, of all these, the phonograph was his favorite.[5] Developed in connection with work Edison was doing to record telegraph messages in Morse code, the first phonograph recorded sounds onto tin foil cylinders. As with many inventions, its most useful or popular application was not initially apparent to its inventor. At the time of its development, Edison listed what he thought were the most useful applications of the phonograph, which

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1. The term "technical protection measures" ("TPMs") refers to the general class of technological tools used to restrict the use and/or access to digital works. "Digital Rights Management" ("DRM") refers to the specific class of TPMs employed by copyright owners and distributors to regulate the uses of their works, and in particular to restrict reproduction. To be precise, DRM is a subset of TPMs, although the two terms are commonly used interchangeably. The term "TPMs" is used throughout this essay for consistency, except when referring to a company's specific DRM technology, as in "Apple's FairPlay DRM."

2. The recent flurry of interest generated by statements critical of TPM technology from Apple CEO Steve Jobs underscores the importance of these issues. *See* Mike Musgrove, *Jobs Calls for Open Music Sales*, WASH. POST, Feb. 7, 2007, at D3; *see also* Steve Jobs, CEO, Apple Inc., Thoughts on Music (Feb. 6, 2007), http://apple.com/hotnews/thoughtsonmusic/. Responses critical of Jobs' statements have been numerous. *See, e.g.*, Fred Amoroso, CEO & President, Macrovision Corp., To Steve Jobs and the Digital Entertainment Industry, http://www.macrovision.com/company/news/drm/response_letter.shtml (last visited Mar. 1, 2007).

3. Improvement in Phonograph or Speaking Machs., U.S. Patent No. 200,521 (filed Dec. 24, 1877).

4. HOWARD B. ROCKMAN, INTELLECTUAL PROPERTY LAW FOR ENGINEERS AND SCIENTISTS 130 (2004).

5. MARK COLEMAN, PLAYBACK: FROM THE VICTROLA TO MP3, 100 YEARS OF MUSIC, MACHINES, AND MONEY 12 (2004).

included recording dictation for businesses and preserving family memories. Toward the bottom of Edison's list of useful applications, he noted that it could be used as a "musical instrument."

Soon enough, however, Edison realized that in order to sell many phonographs, he needed pre-recorded music to play on them, which he offered through his National Phonograph Company. Edison also realized that the prices of phonographs had to be reduced dramatically. By 1899, a phonograph that only eight years earlier had cost $150 sold for under $8.[6]

Despite a significant head start and the decrease in price, Edison's phonographs soon had competition from other companies' products that played discs rather than cylinders. Discs had the advantage that they were cheaper to produce because they could be stamped out rather than engraved one at a time. More importantly, discs were superior because they could hold a whopping four minutes of music: twice the capacity of Edison's cylinders. Edison eventually figured out how to stamp out cylinders that held the same four minutes of music as rival discs, and he continued to believe that cylinders produced better sound. But consumers preferred the flat discs, and in October 1929 Edison's company forever ceased producing cylinders in favor of discs.[7]

I will come back to that history a little later, but now let us fast forward to the year 2001, the year Apple Computer introduced the iPod music player. By any measure, the iPod has been a stunning success: To date there have been nearly 89 million iPods sold[8] and over 2 billion songs downloaded from the iTunes music store.[9] Apple commanded seventy-two percent of the U.S. market for digital music players in December 2006[10] and eighty-five percent of the U.S. market for legal music downloads (i.e., songs sold and downloaded, excluding unauthorized or

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6. Edison: The History of the Edison Cylinder Phonograph, http://memory.loc.gov/ammem/edhtml/edcyldr.html (last visited Feb. 17, 2007). In 1899, the "Standard" model sold for $20, and the "Gem" model sold for $7.50. *Id.*

7. ANDRE J. MILLARD, AMERICA ON RECORD: A HISTORY OF RECORDED SOUND 135, 164 (2d ed. 2005).

8. *See* Apple Investor Relations, http://www.apple.com/investor/ (follow "Earnings Releases" tab; then follow hyperlinks to Apple quarterly reports; then follow "Data Summary" hyperlink from each report to access quarterly iPod unit sales, 2003–2007) (last visited Mar. 3, 2007).

9. Press Release, Apple Inc., iTunes Store Tops Two Billion Songs (Jan. 9, 2007), *available at* http://www.apple.com/pr/library/2007/01/09itunes.html. "[M]ore than two billion songs, 50 million television episodes and over 1.3 million feature-length films have been purchased and downloaded from the iTunes Store . . . , making it the world's most popular online music, TV and movie store." *Id.*

10. May Wong, *Analysts: Apple Luster Still Strong on iPod's Popularity*, SAN JOSE MERCURY NEWS, Jan. 18, 2007, *available at* http://www.mercurynews.com/mld/mercurynews/news/local/states/california/northern_california/16483427.htm.

"pirated" music).[11] And despite years of presence in the market, the latest iPod models remain popular and continue to get very favorable reviews.[12]

How has Apple achieved this notable success? There are a number of answers to this question, but I will focus on how Apple successfully employs new technology that controls access to digital content.

II. THE TECHNOLOGY: TECHNICAL PROTECTION MEASURES

The starting place to understanding the success of the iPod is with the underlying technology. As background, there are three main characteristics of TPMs that one should grasp to understand what is going on. First, it is an inherent characteristic of digital content that making perfect copies is generally easy and accessible to the end user. For example, if you send me a digital photo, I can forward it on to someone else and the other person gets a copy that is exactly as good as what you sent me in the first place. This seems commonplace now, but is truly a revolutionary development when it comes to content. The printing press was a great leap forward precisely because it allowed mass production of books that would have previously had to be hand copied by scribes. Imagine what Gutenberg would have thought if told that someday books would only need to be written once, and thereafter everyone in the world could have a copy essentially free of charge. One could observe that an amazing thing about the information revolution is that we are not more amazed.

As most people know, the convergence of three things in the 1990s allowed for essentially free copying and distribution of creative works by consumers: widely available, cheap digital content (e.g., music CDs); personal computers capable of effortless copying; and the greatest information distribution mechanism ever invented, namely the Internet. For copyright owners, this was the perfect storm. The result has been unprecedented piracy of content, especially music, which the music industry blames for significant monetary losses each year.[13]

This brings us to the second characteristic: TPMs are a set of technologies designed to prevent the use of digital content, such as music, by persons other than those who are authorized to do so.[14] One should think of TPMs as an electronic

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11. Albena Toncheva, Apple First Quarter Earnings Call (Jan. 22, 2007), http://www.123jump.com/earnings-calls/Apple-First-Quarter-Earnings-Call/20539/ (citing data from Nielsen SoundScan).

12. David Pogue of the New York Times, for one, recently proclaimed that iPods "come dazzlingly close to perfection." David Pogue, *New at Apple: Smaller iPods, Bigger Ideas*, N.Y. TIMES, Sept. 14, 2006, at C1.

13. Recording Industry Association of America, Anti-Piracy, http://www.riaa.com/issues/piracy/default.asp (last visited Feb. 18, 2007) ("Each sale by a pirate represents a lost legitimate sale . . . . Each year, *the industry loses about $4.2 billion to piracy worldwide*—'we estimate we lose millions of dollars a day to all forms [online and offline] of piracy.'") (quoting uncredited source). *But see* Alfred C. Yen, *Sony, Tort Doctrines, and the Puzzle of Peer-to-Peer*, 55 CASE W. RES. L. REV. 815, 833 n.94 (2005) ("Economists have differed on the effect of peer-to-peer file sharing.").

14. It is helpful to briefly mention that the U.S. copyright statute gives copyright holders certain exclusive rights: to make copies, to make derivative works (e.g., sequels,

lock that provides access to content only to authorized users—those with the key. Note that this is different from "copy protection," which describes technologies to prevent the actual copying of the digital works. With TPM, users can make as many copies as they want to and can give them to their friends, but, without the keys to unlock the content, those friends cannot access and play the digital content.

And finally, the third characteristic of TPMs is that they are highly customizable, so that certain very specific uses can be permitted and others prohibited. For example, TPMs can control things such as the number of computers or portable devices on which one user is permitted to play a song. A service might offer song downloads that allow the customer to play the music on five portable devices, but no more. The technology can also control the number of times a user may play a song, how often a user plays a song, and for how long the user has access to the song. These different uses may be priced differently—a phenomenon called "granulated pricing."[15]

Of course, TPMs are not just for music. The King County Library System of Seattle, Washington, for example, allows members to check out electronic and audio books using the "Overdrive" DRM system. Based on Windows Media Technology, members can download an e-book, but may only view or listen to the book for a preset number of days. After the check-out period expires, the file becomes unusable.

A. Closed Systems

The next step in understanding the present debate is to understand the two current business models for digital music players: closed and open. The closed-system model requires a proprietary hardware device to play music. Users download music to a computer and install the music on the player. When Apple Computer came out with the iPod, it had to create a new, convenient way to obtain the songs, which it did by creating its own online music store, "iTunes." iTunes broke new ground by allowing users to purchase individual songs (rather than

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movie versions of books, etc.), to distribute their works, to publicly perform their works, and to publicly display their works. Copyright Act of 1976 § 106, 17 U.S.C. § 106 (2006). Although control of a certain few uses were secured as exclusive rights (e.g., making copies beyond those permitted by the fair use defense), the principal mechanism for controlling access and usage with traditional media has come from contract and property law.

However, the Digital Millennium Copyright Act recently added a new chapter to the copyright statute containing legal protections and penalties for circumventing, or trafficking in tools that could circumvent, anti-access measures and for trafficking in tools that could circumvent anti-copying measures. 17 U.S.C. § 1201(a)–(b).

15. *Cf.* Lionel S. Sobel, *DRM as an Enabler of Business Models: ISPs as Digital Retailers*, 18 BERKELEY TECH. L.J. 667, 670 (2003); R. Anthony Reese, *The First Sale Doctrine in the Era of Digital Networks*, 44 B.C. L. REV. 677, 616 (2003) ("The expansion of digital technology might well increase the affordability and availability of copyrighted works. Indeed, this has been the promise of such technology: greater access to more works at a lower cost."). These capabilities obviously implicate the questions about the scope of copyright protections mentioned above. *See supra* note 14. Rights that in the past were defined by copyright law are increasingly subject to private ordering via specific provisions of sales contracts and lease agreements, which are themselves enforced through TPMs. This point is discussed again below. *See infra* note 41 and accompanying text.

entire albums) from a large commercial library at the attractive price of ninety-nine cents each. At least when Apple began the service, there was little or no profit in the music part of its business model. Apple made all its money selling the hardware.[16]

Why is this called a "closed" or "end-to-end" model? The system is "closed" in the sense that the iTunes online music store and the iPod hardware are locked together, as it were, by Apple's proprietary DRM called FairPlay. In order to play the music purchased on iTunes on a portable device, users must purchase an iPod device from Apple. It should be noted that this particular "closed" model is not completely closed in that there are in fact other ways to get music onto the device. For example, users can load certain types of unprotected files (such as MP3s sent from friends) on their devices, or users can load their own CD collection by first copying (or "ripping") CDs to their computers and then transferring them to their portable music devices.

Why did Apple pursue a closed system model for music distribution? Probably not because it is a big money maker—as we have seen, it is not. The real reason Apple chose a closed model was to create tight integration between the hardware and the software or service. Apple claims that its products generally work better because they all come from the same company, and the iPod/iTunes system is an example.

B. Open Systems

In contrast to end-to-end systems, there are open systems that allow users to get hardware and music from different suppliers. So instead of one hardware supplier, users have the choice of many suppliers, and the same goes for online music stores. This all works because none of these companies create its own incompatible TPM technology but, rather, each gets its TPMs from a common supplier. The best known example to date has been implemented by Microsoft, which calls its open music system "PlaysForSure." In the two years since its inception, Microsoft's PlaysForSure program has grown to include 159 different devices from twenty-nine partners.[17] With PlaysForSure, music is protected from unauthorized copying by TPM, but users have their choice of hardware and online music suppliers.

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16. Apple does not separately report earnings or profits on iTunes, so exact figures are unavailable. *See* Apple Inc., Quarterly Report (Form 10-Q) (Feb. 2, 2007). However, when Apple launched iTunes, Apple CEO Steve Jobs asserted that Apple made no revenue from iTunes. Peter Burrows, *Show Time!*, BUS. WK., Feb. 2, 2004, at 56, illus., *available at* http://www.businessweek.com/magazine/content/04_05/b3868003_mz001.htm; John Markoff, *Hardware v. Software: Apple in the Lead*, INT'L HERALD TRIB., Jan. 20, 2004. At least one research firm estimated that iTunes could start turning a profit beginning in 2005. *iTunes' Margins Seen Surging in 2006 and Beyond*, FORBES.COM, Mar. 2, 2005, http://www.forbes.com/business/services/2005/03/02/0302automarketscan13.html?partner=rss.

17. *See* Microsoft Corporation, PlaysForSure—More Music, More Choices, http://www.playsforsure.com (follow "Show All Devices" hyperlink) (last visited Feb. 19, 2007).

Note how this contest between closed and open music distribution is reminiscent of the contest between Apple and PC manufacturers for the computer market: One requires users to buy everything from one supplier, whereas the other model depends on multiple suppliers competing for consumers' business. These can be thought of as different models trying to meet consumer demand through different means—one optimizing for ease of use and reliability and another optimizing for consumer choice and affordability. Neither one may be inherently better than the other; both may coexist in the market, or one may eventually vanquish the other.

C. Defeating TPMs

Like any security system, it is possible for TPMs to be broken. Two examples of this are worth mentioning. First, and most often, TPM systems are broken or "hacked" by people or "hackers" who want to make unauthorized uses of the content (e.g., send it to their friends) or those who are just hostile to the whole idea of TPMs and may consider breaking such systems as doing a form of public service.[18] Recently in the news, for example, someone published a tool that could effectively remove the TPM protection from Windows Media files.[19] Microsoft has since taken steps to update its Windows Media player software so that this is no longer possible. The cat-and-mouse game is bound to continue, with people hacking TPMs and companies fixing the holes, on and on.

The second example of defeating TPMs involves competitors that want to interoperate. In July 2004, for example, a rival online music store run by Real Networks, called "Rhapsody," wanted to sell its music to owners of Apple iPods. This made sense for Rhapsody, of course, because that would mean more customers. To do this, real networks had to reverse engineer Apple's TPM, which it did—cleverly naming its product "Harmony." This worked for a while, although it was unclear whether Real Networks had the legal right to do it. In December 2004, Apple responded by updating the software on its iPods to prevent playback of music files from Rhapsody. RealNetworks in turn "reconfigured the system" so that its songs would again play on the iPod.[20] The point here is that market leaders

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18. *E.g.*, Patrick Gray, *DRM "Will Be Cracked" Says iTunes Hacker*, REGISTER, May 5, 2004, http://www.theregister.co.uk/2004/05/05/drm_will_be_cracked/ (asserting that the hacker who broke Apple's FairPlay DRM "believes the stand he's making is one of principle, and he claims he would persevere even if he knew his actions were illegal").

19. Ina Fried, *Hackers Crack Apple, Microsoft Music Codes*, CNET NEWS.COM, Sept. 1, 2006, http://news.com.com/2102-1027_3-6111530.html. A program called FairUse4WM, which appeared on August 19, "offer[ed] a rather straightforward means to remove the DRM technology used by music download and subscription sites that use Windows Media Player 10 and . . . 11 encoding." *Id.*

20. Antony Bruno, *Stores Hope to Unlock iPod System*, BILLBOARD, Dec. 17, 2005 (citing a RealNetworks "company representative" for proposition that "there has not been a problem since" April 2005); *see also* RealPlayer with Harmony Technology: Putting You In Control of Your Music, http://www.real.com/harmony (last visited Feb. 19, 2007) ("Harmony Technology lets you buy and transfer music to over 100 portable devices, including the iPod.").

seldom perceive it to be in their interests to allow their products to interoperate with the products of rivals who are seeking to take market share from them.[21]

III. THE ARGUMENT AGAINST TECHNICAL PROTECTION MEASURES

As we have seen, TPMs were a key enabler of the commercial marketplace for legitimate music downloads. With the success of iPod and iTunes and the appearance of open system rivals, one might conclude that all is well, but this would be premature: Not everyone has welcomed this development. In fact, opposition to TPMs has been vocal since the technology was first used.

There are two main sources of opposition to TPMs. First, there are those who are hostile in principle to the idea of strong copyright protection for authors and creators, such as the Free Software Foundation. These parties argue that TPMs are bad because they perpetuate the current system of ownership of intellectual property.[22] This is considered by most observers to be a fringe position, but nonetheless it has many adherents. The more moderate view is that TPMs have the potential to alter the traditional balance of interests between copyright holders and consumers.[23] Uses of music and other media to which consumers have become accustomed—based on the copyright doctrines of fair use and first sale—may be prevented as a practical matter by content providers through the use of TPMs. This is the copyright challenge. Second, technical protection measures are criticized by some as undesirable because they restrict downstream competition between vendors. TPMs are bad, critics argue, because they "lock in" consumers, thereby preventing them from switching providers. For example, iPod owners who have substantial investments in their music library of purchased songs are unlikely to purchase a different hardware device if it means that they cannot listen to their songs. In economic terminology, it is argued that TPMs increase switching costs and thereby decrease competition. This is the antitrust or consumer protection challenge.

Both these avenues of criticism of TPMs have recently surfaced with considerable force in Europe and elsewhere. A further examination of these developments is useful in analyzing the debate over TPMs.

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21. This brings to mind a common but often criticized theme in antitrust law: that market leaders (those with market power) should be forced to provide access to competitors. For a recent Supreme Court case critical of the proposition, see *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

22. *See generally*, The Free Software Foundation, http://www.fsf.org/ (last visited Feb. 22, 2007).

23. This more moderate critique compares what TPMs allow users to do with what users have historically been permitted to do under copyright law (e.g., fair use). Until recently, copyright was not very relevant to the average user because home reproduction was impractical. As home recording became possible, the law had to answer the question of whether and to what extent fair use permitted various activities. Thus far, only limited uses, such as time shifting, have been permitted.

A. Recent Developments

Last spring and summer there were headlines about efforts by lawmakers in France and elsewhere to prevent Apple from marketing iPods and iTunes in the usual manner. At first, it appeared that the French might effectively outlaw the iPod. There was talk that in response Apple might simply refuse to sell its audio player products in France. Then the press reported that the French government had adopted watered-down legislation that let Apple off the hook.[24] It is worth looking at what really happened more closely.

The history of French TPM regulation goes back well before the headlines of 2006. The first legal attack came in 2004, when Apple's competitors tried to gain access to Apple's FairPlay DRM through a competition challenge in France. The VirginMega music service asked the Competition Council, France's consumer watchdog, to force Apple to license its DRM technology. This action was denied, however. The French competition council specifically found that Apple had no obligation to license FairPlay because the DRM was not essential for the development of legal online music download platforms, as evidenced by the considerable number of competitors in the market.[25]

Unsuccessful in the legal system, opponents of TPMs in France next turned to the legislature. Although the original bill contained provisions that would have had farther-reaching effects on Apple and other companies, a softer bill was ultimately adopted by both the National Assembly and the Senate on June 30, 2006.[26] Some of the restrictions contained in this bill have since been limited by the French Constitutional Council because they violate content-providers' constitutional property rights.[27] Still, significant TPM restrictions remain.

1. The French Bill

The French bill could have at least four significant effects:

1. It prohibits TPMs from "impeding" lawful private copying. This means that TPMs must allow a level of private copying, which remains to be established.

2. It establishes a TPM regulatory authority to rule on requests for intervention. Any software publisher, technical system developer, or service operator may request interoperability information, which is broadly defined to include technical documentation and programming interfaces essential for a technical device to access a work protected by TPM and any attached information.

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24. *E.g.*, Thomas Crampton, *France Weighs Forcing iPods to Play Other Than iTunes*, N.Y. TIMES, Mar. 17, 2006, at C3; Mike Musgrove, *France Offers Apple a Loophole*, WASH. POST, July 4, 2006, at D1.

25. Katarzyna A. Czapracka, *Where Antitrust Ends and IP Begins—On the Roots of the Transatlantic Clashes*, 9 YALE J.L. & TECH. 44, 92 & n.248 (2007); *see also* Ian Betteridge, *Court Won't Force Apple to License DRM*, EWEEK, Nov. 12, 2004, http://www.eweek.com/article2/0,1895,1725750,00.asp.

26. Law No. 2006-961 of Aug. 1, 2006, Journal Officiel de la République Française [J.O.] [Official Gazette of France], Aug. 3, 2006, at 11,529.

27. Thomas Crampton, *Apple Gets French Support in Music Compatibility Case*, N.Y. TIMES, July 29, 2006, at C9.

3. It allows the TPM authority to order disclosure of TPM interoperability information, essentially by compulsory license, enforceable by injunctions and large fines. Negotiated solutions are permitted and encouraged, subject to the TPM authority's approval. Importantly, fair compensation is required. Disclosure and use can be ordered regardless of intellectual property rights in the TPM. Source-code distribution of the interoperable software is allowed absent a showing of inadequate security.

4. Finally, the bill appears to prohibit interference with a TPM if the TPM merely implements usage restrictions required by the rights owner of the content. This is not crystal clear, but interoperability only seems to be mandatory where the TPM restrictions are "additional and independent" to those required by the content rights holder. Even where interoperability is mandatory, it appears that an order can be avoided by making interoperability information available.[28]

2. Actions In Other European Countries

If this were a uniquely French aberration, it might be interesting but not terribly significant. However, we are starting to see similar actions in a number of other countries.

In Norway, the Consumer Ombudsman has agreed with a complaint filed by the Consumer Council raising issues of consumer lock-in and challenging terms of service that prevent consumers from changing or removing a DRM. The Ombudsman found that FairPlay is not just a TPM but part of the contract terms subject to the Norwegian Marketing Control Act. A spokesperson for the Ombudsman described the situation as requiring "balanced and fair rights [for] the consumer."[29] As of June 2006, "Norway's lead was likely to be followed in the other Scandinavian countries, since the legal systems are very similar."[30]

In Poland, the Ministry of Culture has announced that it will remove TPM rules from its proposed legislation implementing the European Union enforcement directive and introduce them in a later bill. The Polish competition authority had earlier considered regulation based upon the French model.[31]

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28. *Cf.* French iTunes Law Goes into Effect, USA TODAY, Aug. 3, 2006, *available at* http://www.usatoday.com/money/industries/technology/2006-08-03-iPod_x.htm.

29. Pinsent Masons, *Apple DRM Is Illegal in Norway, Says Ombudsman*, OUT-LAW NEWS, Jan. 24, 2007, http://www.out-law.com/default.aspx?page=7691; *see also* Christopher Sprigman, *The Digital Broadband Migration: Confronting the New Regulatory Frontiers*, 5 J. ON TELECOMM. & HIGH TECH. L. 87, 123 & n.58 (2006) (describing actions by Norway); Natali T. Del Conte & Mark Hachman, *Can Europe Force Apple to Rework iTunes?*, PC MAGAZINE, June 16, 2006, http://www.pcmag.com/article2/0,1895,1977644,00.asp.

30. Pinsent Masons, *Apple Requests Secrecy in Bid to Keep iTunes Legal in Scandanavia*, OUT-LAW NEWS, Aug. 2, 2006, http://www.out-law.com/page-7161; *accord* Pinsent Masons, *Norway, Sweden, Denmark May Fine Apple over iTunes*, OUT-LAW NEWS, June 8, 2006, http://www.out-law.com/page-6990.

31. *See* Sprigman, *supra* note 29, at 123 (noting that Poland has discussed proposals similar to those implemented in France).

There have also been related developments in Switzerland, Finland, Spain, Belgium, Germany, the Netherlands, and the United Kingdom.[32]

3. Actions in the United States

Although there are numerous differences between systems and traditions that might explain why these developments began in Europe, there have been some related actions in the United States. For example, in January 2005, Thomas Slattery filed a class action suit against Apple in the U.S. District Court for the Northern District of California, alleging that the company violates federal antitrust laws and California's unfair competition law by requiring customers to use an iPod in order to listen to music purchased from its industry-leading iTunes music store on a portable device.[33] In a nine-page ruling dated September 9, 2005, Judge James Ware sided with Apple in dismissing a few individual claims.[34] Specifically, Judge Ware threw out a claim arguing that Apple has been unjustly enriched from sales of iTunes and iPods. The judge also dismissed two claims of attempted monopolization against the iPod maker, granting Slattery a month to amend the two arguments. However, the Judge denied Apple's overall motion for a dismissal of the case,[35] and two new plaintiffs have proceeded with seven of Slattery's ten original claims, including allegations that Apple possesses monopoly power and has coerced customers into purchasing both iPods and iTunes files.[36] It is unclear what the prospects are for this case, but it shows that there is opposition to TPMs even here in the United States, where users seem to be accustomed to them.[37]

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32. *See, e.g.*, Eric Pfanner, *Europe Cool to Apple's Suggestions on Music*, N.Y. TIMES, Feb. 8, 2007, at C11 (noting that consumer organizations in some European countries are unhappy with Apple's iPod/iTunes model and citing specific complaints in Germany and the Netherlands); *France's "iPod Law" Having Unintended Consequences*, ONLINE REPORTER, Aug. 12, 2006, http://www.onlinereporter.com/article.php?article_id=7465 ("Legislation and regulations similar to France's await Apple in Britain . . . .").

33. Slattery v. Apple Computer, Inc., No. C-05-00037-JW, 2005 WL 2204981, at *1 (N.D. Cal. Sept. 9, 2005) ("[T]he crux of Plaintiff's complaint is that if he wishes to directly play the downloaded music from iTunes on a portable hard drive digital music player, an iPod is the only product that can play the purchased songs.").

34. *Id.* at *4 , *5 (dismissing attempted monopolization and leveraging claims with leave to amend and dismissing unjust enrichment claim with prejudice).

35. *Id.* at *4, *6.

36. Second Amended Class Action Complaint at 19–24, Charoensak v. Apple Computer, Inc., No. C05-00037 JW, 2006 WL 2702737, at ¶¶ 63–94 (N.D. Cal. Aug. 28, 2006).

37. There has also been an attempt to organize opposition to TPMs and other restrictions in the United States. Launched in October 2006 under the name "Digital Freedom Campaign," the group seeks to champion consumer rights in the area of digital media. The group states the issue as follows:

> Digital technologies allow everyone the freedom to be artists, innovators, producers and creators; to listen, watch and participate wherever, whenever and however they choose. But that freedom is in jeopardy today. The big labels and studios have launched an assault on your technology freedom, because they fear their antiquated business models are being threatened. They're lobbying for government controls over

IV. WHAT ARE THE BATTLE LINES, AND WHAT IS AT STAKE?

There are a number of arguments against TPMs and in favor of active government regulation in this area. First, opponents of TPMs argue that they are bad for consumers because they restrict consumers' ability to use content in ways that have historically been possible. Second, TPMs may lock consumers into proprietary formats with potentially undesirable results (e.g., people who purchase songs may find later that they have lost their licenses or their provider ceases operations, which results in their songs being unplayable). Third, TPMs may restrict consumers' ability to switch providers (because of technological or economic lock-in). How, opponents ask, can consumers buy a new music device if their entire music library is in a format that cannot be played on it? And fourth, non-interoperable TPMs limit competition for consumers, especially when a popular vendor has high market share. The solution, opponents argue, is to require interoperability so that consumers can play the music they have purchased however and whenever they desire.

Proponents of TPMs offer a number of responses as to why such technology is good for all involved. First, they argue, TPMs have supported the growth of more and more consumer choices. If consumer choices significantly increase, the system must not be broken. Second, more administrative bodies create problems for security: The more people who have the keys to the vault, the easier it is for those keys to fall into the wrong hands. Third, if interoperability is made mandatory, what will happen to the intellectual property rights of the providers? Will providers' valuable patents and other intellectual property rights be disregarded when allowing others to interoperate?[38] Should others be given free interoperability to intellectual property in which proprietors have invested large amounts of capital? Fourth, proponents question whether governments are equipped to evaluate the complex and technically challenging decisions that would need to be made in deciding what TPMs should be allowed and who should have access to them. Finally, TPM proponents argue that highly competitive free markets for consumer goods like music systems and other intellectual property are

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> new technology and filing lawsuits to do the same. Their goal is to outlaw new digital technology and devices that allow individuals to enjoy digital music and videos at a convenient time and place. They want to severely limit—if not eliminate altogether—the technology-provided freedom to innovate, create, listen and see.

Bill of Sights and Sounds: The Problem, www.digitalfreedom.org/the_issue/index.html (last visited Feb. 18, 2007).

38. TPMs are the subject of numerous patents, and other intellectual property rights may apply to these technologies, such as trade secret, copyright, and others. Any legally imposed interoperability system would, at a minimum, need to allow for the rights holders to receive reasonable royalties. Administering such a system could be complex in a single country, let alone across regions and internationally.

the best hope for maximizing consumer welfare—that is, getting consumers the best products at the lowest prices.[39]

On this last point, it is worth considering the history of what has been called "disruptive innovation," or sometimes "destructive innovation." Recall that Edison's cylinders were out-competed by vinyl records because they were cheaper to mass produce, despite the fact that users needed different hardware to play them and the formats were incompatible. Although records had a long and successful run, they first began to lose market share to magnetic tape because of better portability (initially, in car stereos) and user flexibility (users could make their own recordings in a convenient format). The death knell for records, of course, came in the form of compact discs, which brought vastly better audio fidelity because of digital audio technology. And again, this occurred despite incompatible hardware and content formats. So, the proponents argue, with each wave of innovation that disrupts the established market, consumers appear to prefer functionality over compatibility every time.

Detractors counter by questioning what happens to consumers who buy music only to find that the sellers have taken away their fair use "rights." Isn't this a bad development for consumers who have little practical leverage against the large corporations that control the distribution of music and other creative content? The first question raised is whether the creators of music, including the artists and publishers, should be able to use TPMs to restrict how consumers use their works. Creators argue yes, citing several justifications. For one, creators argue, fair use is not a "right" but rather a defense to a claim of infringement. This is a subtle but important point: Consumers do not have an affirmative right to make a copy of a television show to watch at a later time, even though the Supreme Court in *Sony Corp. of America v. Universal City Studios, Inc.*[40] held that making a copy for private, time-shifting use is not copyright infringement. Television networks could, at least in theory, scramble their signals to prevent home recording without violating any rights of viewers.

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39. For those familiar with antitrust case law, these arguments strongly evoke the Supreme Court's much-criticized decision in *Eastman Kodak Co. v. Image Technical Servs. (Kodak Copiers)*, 504 U.S. 451 (1991). *Kodak Copiers* held that a tied sale between a product and its aftermarket *could* be a per se violation of the antitrust laws under certain circumstances. From a strictly economic standpoint, many have questioned the Court's analysis, and procedurally its holding is limited to a denial of summary judgment. Nonetheless, a few courts have similarly held that unsophisticated consumers with high switching costs should be able to recover in the event of such a tied sale. *See, e.g.*, Red Lion Med. Safety, Inc. v. Ohmeda, Inc., 63 F. Supp. 2d 1218 (E.D. Cal. 1999).

40. 464 U.S. 417, 454–55 (1984) ("[H]ome time-shifting is fair use."). Universal City was "unable to prove that the practice [of time-shifting] ha[d] impaired the commercial value of their copyrights or has created any likelihood of future harm." *Id.* at 421. Sony was not liable for contributory infringement predicated entirely on its sale of the Betamax, an article of commerce, because the Betamax was capable of commercially significant noninfringing uses. *Id.* at 442. *Sony's* heavy reliance on the first factor—commercial versus non-commercial use—was modified in *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 583–84 (1994).

One way to illustrate this is with an analogy. Say, for example, that a patron were to go to a concert that has two showings in one evening. After attending the first showing, what would happen if the patron were to tell the promoter that he enjoyed the concert and would like to stay for the second show? Undoubtedly, the promoter would ask for a second ticket. If the patron were to reply, "Well, I already paid for this, and by staying for the second show I'm just exercising my fair use rights to hear it again—for which you should not charge me," this would be a creative argument, but one that would be unlikely to be very convincing to the promoters. It would seem clear that the patron in this case has no rights to the concerts in question other than those contract rights bargained for with the promoters. Though enforcement problems arise, creators of music argue that it is the same with their digital content. As long as they are clear about their terms up front, they argue, they should be able to set the conditions for the usage of their content.[41]

A second point here is about business models. Apple pioneered the ninety-nine cent song download, which results in the consumer owning a copy, much like with physical copies of music on CDs, etc. This model causes concern, however, when combined with TPMs because consumers are either locked in, or worse, risk losing their music investments. But is the downloaded copy the only business model? Looking at the marketplace, the answer is clearly "no," and here are a couple interesting alternatives. First, in response to Apple's iTunes, competing online music stores have sprung up such as Rhapsody, Yahoo, and Urge that offer a "rent" versus "purchase" option. For a fixed fee per month (e.g., Rhapsody is $14.95/month), users may download songs to a music player and listen to any of the millions of titles in the provider's catalog. As with cable television, however, if the users stop paying the monthly bill, service is discontinued and the music licenses expire. The music files become unplayable because TPM's disable them after a pre-set period of time if they are not synchronized with a valid account.

In some very limited market research on this topic, I posed this choice to my two children, ages fourteen and twelve. I asked them which they would rather have: seven new songs per month, or access to two million songs knowing that they could not keep them? They both opted for the rental model, in part because I suspect they remember buying the "Backstreet Boys" CDs with their allowances, which seem like bad investments in hindsight. As a lifelong collector of music, the rental model did not at first seem attractive to me, but after some actual experience, it seems obvious that collecting music may become an anachronism when universal availability at a reasonable subscription rate becomes available.

Music rental services are not the only new business model being tested in the marketplace. Another possible business model for music may be supported by

41. The law that prohibits sitting in on the second concert is rooted in contract and property rather than copyright. The conclusion, however, stands, in that content providers, through TPMs, are behaving no differently than concert promoters traditionally have in the live performance context. Contractual limitations prevent recording ("bootlegging") concerts and limit listening to a single performance. *See generally* Frank H. Easterbrook, *Contract and Copyright*, 42 HOUS. L. REV. 953 (2005).

advertising. For example, a newly formed company called "Spiralfrog"—owned by Universal Music, whose parent is the French company Vivendi—has announced that it intends to launch an ad-supported music download service. Users will be able to download music for free, but the music will come with advertisements. Similarly, the EMI Music Group announced in September 2006 that it is partnering with several other companies to offer an ad-supported free music video service for mobile devices like cell phones. Users will have access to free videos on the condition that they first watch a short advertisement. Although it is too early to tell whether any of the new business models being tested will displace the iTunes model, there are many who believe that anything that can be made free for consumers has at least a chance of succeeding if the economics of advertising can support it.[42]

Finally, in addition to business models for content, TPMs may also facilitate the development of additional consumer choices for hardware. One such market entrant is the personal music player from Microsoft called "Zune."[43] Zune gives consumers additional options by introducing wireless, device-to-device song sharing. This feature allows users to wirelessly connect with one another to transfer songs. For example, if I have a song I want you to hear, I can wirelessly send it to your Zune device. When you receive the song, you can listen to it for "three plays or three days," whichever comes first, without payment, after which time you will have a convenient way to buy it if you so choose. (If you happen to be a Zune Pass owner, you may download it and listen to it based on your monthly subscription—just like all the rest of the songs in the store.) Microsoft hopes that Zune will appeal to consumers by changing music from a solitary, tuned-out experience to a shared social network for users and their friends. Like the iPod, Zune is an end-to-end device, meaning that the hardware and the music are tightly integrated. In this way, Microsoft is offering both the fully open model, PlaysForSure, and the end-to-end model, Zune, and it will be up to consumers to choose what best fits their needs.

V. CONCLUSION

What does this all show? Most importantly, it demonstrates that this is a rapidly evolving market, with an increasing array of choices for consumers. That alone should give would-be regulators pause when trying to fix any particular business model that may be relatively short-lived in the marketplace. This is not to

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42. Of course, traditional business models still exist. CDs are still as easy and no more expensive (adjusted for inflation) to purchase than they were prior to digital music. Consumers who prefer greater flexibility than TPMs allow can always buy a CD and get music in unprotected form. Between traditional media, download stores, Internet streaming services, satellite radio, cellular phone based systems, and others, it should be abundantly clear that consumers have more music choices now than ever before.

43. Zune is a device with a 30-gigabyte hard disk, a large color screen that works in both portrait and landscape mode, a built-in FM tuner, and music from traditional downloads or a "Zune pass" (rental) from an online music store with up to two million songs. Microsoft Corp., Welcome to the Social, http://www.zune.net/en-us/meetzune/overviewdevice.htm (last visited Feb. 22, 2007); Microsoft Corp., Software—Zune Marketplace, http://www.zune.net/en-us/meetzune/zunemarketplace.htm (last visited Feb. 22, 2007).

say, of course, that governments and competition authorities do not have an important role to play—they clearly do. But it is interesting to compare the progression of new technologies, in, say, the computer industry. Mainframe computers came to dominate in their day, and this spawned various legal actions against companies such as IBM. What ultimately changed the competitive landscape, however, was not additional mainframe competitors, but rather a different form of competition from the personal computer. In turn, successful companies in the personal computer industry such as Microsoft have been the subject of similar legal actions. Likewise, what has changed the dynamics of the PC industry is another novel development, namely the Internet, and we see the rise of companies such as Google based on an entirely different—ad-supported—model. The conclusion, I would argue, is that the giant leaps forward in consumer welfare from disruptive technologies tend to dwarf everything else, including even the most effective regulatory actions.

If this pattern of innovation holds in the marketplace for digital content, balancing the rights of content creators and sellers with the interests of consumers will undoubtedly take some time. Depending on one's point of view, solutions should come from free markets or government regulation, or both. Proponents can justifiably point out that TPMs have spawned a wealth of popular new consumer options that would not exist but for the protections available for content. Opponents and consumer advocates also seem justified, however, in pointing out that to the extent that there is demand for ease of use and interoperability across formats, devices, and suppliers, this demand has not yet been fully met.[44] In any event, it seems safe to predict that resolution of these issues will be important for the future of electronic commerce, particularly in the entertainment industries. Whether this resolution will be more market- or regulation- driven is already beginning to be played out in the legislatures and consumer markets around the world. It promises to be one of the most interesting such debates since the development of the phonograph some 130 years ago.

44. Microsoft Chairman Bill Gates has commented that DRM for music has not, in his view, achieved sufficient functionality and ease of use for consumers. *Gates: Digital Locks Too Complex*, BBC NEWS, Dec. 15, 2006, http://news.bbc.co.uk/1/hi/technology/6182657.stm.