

# Copyright, Technological Protection Measures and Their Acceptance by Consumers in Japan

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## *Abstract*

In the early days of digital reproduction and internet communication technologies, technological protection measures were deemed to prevent potential copying of copyrighted works by the users of such technologies. However, the most of technological protection measures used so far were quickly circumvented after their introduction. This led to the development and use of more and more advanced technological protection measures, which were also quickly circumvented after their introduction. Therefore, the conventional view on the efficiency of using technological protection measures is that their use leads to a vicious circle of their circumvention and upgrading.

To examine the efficiency of technological protection measures, we conducted an online survey in Japan. A random sample of 1,252 internet users was asked to respond to a series of multiple-choice questions on their consumption of copyrighted works and their acceptance of or objection to selected restrictions on various uses of copyrighted works. By analyzing collected data, we identified that an individual's decision on the acceptance or rejection of such technological and other restrictions on using copyrighted works is affected by factors such as gender, type of copyrighted works, perception of justified use, and actual use of copyright works. In addition, we observed considerable differences between the importance of individual types of copyrighted works and their uses for consumers. Some types of copyrighted works and their uses were more important for respondents than others. In many cases, the respondents' judgments were consistent with the current copyright law and practice in Japan. However, there are several significant issues where their judgment considerably differs, especially with regard to recent changes in Japanese copyright law aiming to strengthen copyright enforcement in the digital environment. This can considerably undermine the efficiency of those changes in copyright law.

Keywords: copyright, technological protection measures, DRMs, circumvention, fairness, legal consciousness, survey

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## INTRODUCTION

New strategies and techniques for exercising intellectual property rights frequently raise questions about their costs and efficiency. Although cost and efficiency can be affected by numerous factors, the response of entities targeted by individual strategies and techniques is one factor that plays an important role. The responses of targeted entities can range from compliance on one end to partial or full ignorance or even resistance on the other. The greater the number of targeted entities that comply with the right holders' demands voluntarily without the need to use any external incentives in the form of legal sanctions, the less costly and the more efficient the strategy or technique for exercising the rights is for right holders.

The compliance of targeted entities can be achieved in several ways. When the targeted entities recognize that the right holders' demands are consistent with social norms which they have internalized, they habitually comply with the demands without any need for external incentives, such as social or legal sanctions. When entities internalize a social norm, they comply with the norm, because they think that it is right to do so.<sup>4</sup> No external incentives are necessary for achieving compliance with an internalized social norm. On the other hand, the strategies and techniques for exercising exclusive rights, which lack any internalization on the part of the targeted entities, are often complied with only because the targeted entities are persuaded by a perceived high probability of being caught and severely sanctioned.<sup>5</sup> Finally, there are also entities which do not internalize the norms upon which the strategies or techniques are based and also do not respond to any external incentives. Those individuals either partially or fully disregard such strategies or techniques.

In order to provide advice on the conditions under which new strategies and techniques for exercising exclusive rights granted by copyright law can work efficiently with low social costs, this Article examines the responses of targeted entities, *i.e.* the consumers of copyrighted works, to several technological and other protection measures which have currently been adopted by different copyright holders. It scrutinizes whether the consumers' attitudes towards individual uses and types of copyrighted works can help us to explain why some protection measures have succeeded while others have failed.

The Article is divided into two Parts. Part One outlines the reasons why many copyright holders find the adoption of technological protection measures to be important and often even indispensable, and why they claim that there is a need for legal protection of technological protection measures against acts of circumvention. The Part then sketches the legal framework for the protection of technological protection measures in the international as well as selected national laws, and scrutinizes the current situation with the deployment of technological protection measures for several types of copyrighted works, such as music and movies on pre-recorded media, broadcasted television programs and videogames for videogame consoles.

Part Two enquires into the responses of consumers to selected types of technological and other protection measures which are currently employed by copyright holders. The analysis of consumers' responses is based on data collected in an online survey conducted in Japan. The analysis of collected data identifies the factors which have a major impact on the cost and efficiency of individual technological protection measures with regard to different types of copyrighted works. The Article then concludes with recommendations which should be taken into account by copyright holders and policy makers in designing new strategies and techniques for exercising and enforcing exclusive rights granted by the copyright law.

## I TECHNOLOGICAL PROTECTION MEASURES

### *1.1. Background of Technological Protection Measures*

Digital technologies have been described as both significant threats to the legitimate interests of copyright holders and also as very useful tools for their protection. Digital technologies have

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<sup>4</sup> Herbert LA Hart, *The Concept of Law* (2nd edn, Clarendon Press 1994) 56, 57, 88.

<sup>5</sup> Oliver W Holmes, 'The Path of the Law' (1897) 10 Harv L Rev 457.

completely changed the way of making reproductions of copyrighted works and of their distribution by the public. Analogue technologies which allowed the mass reproduction of copyrighted works, such as photocopiers, tape recorders and VCRs, had in an earlier time already been perceived by a large number of corporate copyright holders as an enormous threat to their legitimate interests.<sup>6</sup> It is therefore not surprising that the introduction of digital technologies and the internet with even more advanced reproduction and dissemination properties has been seen as a disaster by many of them.

Digital technologies enable anyone to inexpensively produce instant perfect copies of books, sound recordings, movies and other types of copyrighted works without any decrease in their quality. An individual has to only acquire a digital reproduction device, such as a CD, MiniDisc, DVD or Blu-ray Disc recorder, MP3 player or computer, and the necessary media upon which the data containing copies of copyrighted works can be saved. In the case of a computer with a large hard drive and the necessary software, there are no additional variable costs for copying just one or thousands of copies of copyrighted works.

Moreover, the internet facilitates millions of strangers in the circulation of, as well access to, plentiful copies of copyrighted works without any border restrictions. The dissemination of digital copies worldwide has become simple and inexpensive. Any internet user can technically distribute digital copies of copyrighted works around the world instantly with almost no cost. We can take, as examples, several cases of peer-to-peer networks, such as Napster,<sup>7</sup> Aimster,<sup>8</sup> Grokster,<sup>9</sup> KaZaA,<sup>10</sup> BitTorrent and Winny,<sup>11</sup> or online file storage services, such as Megaupload.com<sup>12</sup> and RapidShare.<sup>13</sup>

Nonetheless, digital technologies not only pose threats to the copyright holders' interests, but also provide the copyright holders with a possibility to prevent or restrict non-authorized access to copyrighted content and the diverse ways in which it might be exploited by users.<sup>14</sup> Digital technologies make it possible to better identify copies of copyrighted works and to provide information about the terms and conditions of their use in a way that is recognizable by reproduction devices.<sup>15</sup> These new options allow copyright holders to obtain a pervasive and omnipresent control over reproductions as well as other uses by the public of their copyrighted work in the digital environment.

Several types of technologies are currently available to copyright holders to do so. In general, we can distinguish between technological prevention measures and digital rights management systems. While the former permit copyright holders to restrict certain ways of using copyrighted works by users, the latter allow copyright holders to identify the copyrighted works and to set up rules for their consumption and usage. Although digital rights management systems can be employed without any actual restriction on the use of copies of copyrighted works, as is the case with watermarks used only for the identification of copyrighted works,<sup>16</sup> digital rights management systems often closely interact

<sup>6</sup> Leslie Hallewell, 'The Book Menaced by Underprinting and Overcopying' (1981) 83 *Libr Assoc Record* 376; Home Recording of Copyrighted Works: Hearing on H.R. 4783, H.R. 4794, H.R. 4808, H.R. 5250, H.R. 5488, and H.R. 5705 Before the Subcomm. on Courts, Civil Liberties and the Admin. of Justice of the H. Comm. on the Judiciary, 97th Cong. 8 (1982); Gilian Davies, *Private Copying of Sound and Audio-visual Recordings* (ESC Publishing 1984).

<sup>7</sup> *A&M Records, Inc. v. Napster, Inc.*, 114 F. Supp. 2d 896, 2000 U.S. Dist. LEXIS 11862 (N.D. Cal. 2000), aff'd, 239 F. 3d 1004, 2001 U.S. Dist. LEXIS 5446 (9th Cir. 2001).

<sup>8</sup> *In re Aimster Copyright Litigation*, 2002 U.S. Dist. LEXIS 17054 (N.D. Ill 2002), aff'd, 334 F.3d 643 (8th Cir. 2004).

<sup>9</sup> *MGM Studios v. Grokster, Ltd.*, 2005 U.S. LEXIS 5212 (2005).

<sup>10</sup> *Universal Music Australia Pty Ltd v Shaman License Holdings Ltd* [2005] FCA 1242.

<sup>11</sup> *In re Winny*, 65 Keishū 1380 (Sup. Ct. 2011).

<sup>12</sup> US Department of Justice, 'Justice Department Charges Leaders of Megaupload with Widespread Online Copyright Infringement' (2012) <<http://www.justice.gov/opa/pr/2012/January/12-crm-074.html>> accessed 15 September 2012.

<sup>13</sup> *Perfect 10, Inc. v. Rapidshare*, No. 09-CV-2596 (S.D. Cal. 2010); *Atari Europe S.A.S.U. v. RapidShare AG*, I ZR 18/11 (BGH 2011).

<sup>14</sup> Kenneth W. Dam, 'Self-Help in the Digital Jungle' (1999) 28 *J Legal Stud* 393.

<sup>15</sup> Susanne Guth, 'Rights Expression Languages' in Eberhard Becker *et al* (eds), *Digital Rights Management: Technological, Economic, Legal and Political Aspects* (Springer 2003) 101-12; Susanne Guth, 'A Sample DRM System' in Becker (2003) at 150-61.

<sup>16</sup> Fabien AP Petitcolas, 'Digital Watermarking' in Becker (2003) at 81-92; Jürgen Herre, 'Content Based Identification (Fingerprinting)' in Becker (2003) at 93-100.

with respective technological protection measures. For instance, the online television-on-demand services provided by several Japanese television broadcasting companies<sup>17</sup> have time restrictions for watching purchased television programs. The television programs offered by those services can be watched only during several days or weeks from the moment access to them is acquired. After the expiry of the time period set by the right holders, the service users have to pay again for access to those copyrighted works, if it is even possible for them to do so. The technologies of this kind also permit restrictions on how many times the users can watch purchased movies or television programs. In the early days of authorized online music downloading services, some services permitted users to burn a limited number of music CDs with downloaded songs per month which could then be played on conventional music CD players.<sup>18</sup> There are several other possible variations for setting the rules for the uses of other digital copyrighted works, such as e-books, sound recordings, movies, videogames, television or radio streaming and the like, by their users.

Early technological protection measures and digital rights management systems first appeared in the late 1970s and the 1980s, when various copyright holders were experimenting with several types of technological protection measures. The television broadcasting companies employed a range of encryption technologies, such as VideoCipher in the US, Oak Orion in the US and UK, EuroCrypt in Scandinavia or Syster in France and Germany, in providing their subscription-based television channels via cable or satellite.<sup>19</sup> To watch such paid television programmes, their subscribers needed to acquire decoding boxes from the service providers. In the case of audiovisual recordings, content providers routinely used Macrovision's analog copy protection technology. Macrovision technology added extra pulses to the recorded or broadcasted signal so that the added pulses would not affect the quality of sound or image, but VCRs could detect them and could prevent the recording of protected movies or television programmes.<sup>20</sup> Various videogames required the users to have an original of their manuals always, when the videogames were executed, by asking for exact words from the manuals as passwords. Similarly, various professional computer programs employed a range of electronic keys in the form of additional hardware necessary for running the protected software.<sup>21</sup> Over time, several other technological protection measures and digital rights management systems have been deployed by diverse copyright holders.

Although technological protection measures and digital rights management systems have their potentials in protecting the interests of copyright holders, they have one great flaw, which is inherent to all of them. Each technological solution, regardless of its sophistication, will be circumvented sooner or later. There is always a high probability that some individuals will become interested in carrying out activities in order to remove or alter technological protection measures or digital rights management information, or to distribute in some way the content from which the protection measures or information have been removed without the copyright holders' authority. Some form of legal protection against circumvention of technological protection measures and digital rights management systems is thus deemed to be indispensable by a number of copyright holders.

In many cases of early technological protection measures, their legal protection was based either on contracts between the users and copyright holders or on patents to technologies employed in technological protection measures, since many of them were patented. However, copyright holders

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<sup>17</sup> NHK, 'NHK On-demand' <<http://www.nhk-ondemand.jp/>> accessed 15 September 2012; Fuji Television Network, 'Fuji TV On Demand' <<http://fod.fujitv.co.jp/s/>> accessed 15 September 2012; Tokyo Broadcasting System Television, 'TBS On Demand' <<http://tod.tbs.co.jp/>> accessed 15 September 2012; Nippon Television Network Corporation, 'Nittete On Demand' <<http://vod.ntv.co.jp/top/>> accessed 15 September 2012; TV Asahi, 'Tele-Asa Doga' <<http://www.tv-asahi.co.jp/douga/>> accessed 15 September 2012.

<sup>18</sup> John Borland, 'Pressplay to Offer Unlimited Downloads' (*CNET News* 31 July 2002) <<http://news.cnet.com/2100-1023-947507.html>> accessed 15 September 2012.

<sup>19</sup> Daan van Schooneveld, 'Standardization of Conditional Access Systems for Digital Pay Television' (1996) 50 *Philips J Res* 217, 220.

<sup>20</sup> Jacqui Walker and Andrew Sharpe, 'Digital Rights Management' (2002) 18 *Computer L & Security Rep* 259, 260; Paul Randle, 'When the Chips Are Down: Law and Technology Can Potentially Prevent the Circumvention of Copy Protection' (2002) 18 *Computer L & Security Rep* 314, 315.

<sup>21</sup> Nick Cook, 'Protection of Software' (1984) 26 *Data Processing* 40; Petar Djekic and Claudia Loebbecke, 'Preventing Application Software Piracy: An Empirical Investigation of Technological Copy Protections' (2007) 16 *J Strat Inform Sys* 173, 177.

faced numerous hurdles and complications in protecting their technological protection measures via contract or patent laws especially against third parties, who were not in any contractual relationship with them and circumvented the technological protection measures for their own private non-commercial purposes. This was also the reason why the US Information Infrastructure Task Force's report entitled *Intellectual Property and the National Information Infrastructure*<sup>22</sup> in 1995 and several other reports prepared by other governments<sup>23</sup> pointed out that the legal protection of technological protection measures and digital rights management systems is an important measure for building a safe digital environment for thriving online markets.<sup>24</sup>

### ***1.2. Legal Protection of Technological Protection Measures***

Since the beginning of the massive introduction and spread of digital reproduction and communication technologies in the early 1990s, major corporate copyright holders have been demanding international legal protection against the circumvention of technological measures and digital rights management systems. It was argued that international harmonization would encourage copyright holders to use new technologies for their protection and rights management, and would also avoid fragmentation between different legal approaches, which could potentially hinder the functioning of global markets. This led to the adoption of international minimal standard in the form of two so-called WIPO Internet Treaties in 1996, *WIPO Copyright Treaty*<sup>25</sup> and *WIPO Performances and Phonograms Treaty*.<sup>26</sup> Recently, similar provisions were also incorporated into the *Beijing Treaty on Audiovisual Performances* (2012).<sup>27</sup> All three treaties solve the problem by banning the circumvention of technological measures,<sup>28</sup> and the removal or alteration of any electronic rights management information.<sup>29</sup>

The treaties impose on contracting parties the obligation to provide 'adequate' legal protection and 'effective' legal remedies against the circumvention of technological protection measures, which must be 'effective'. In order to qualify for this protection, the technological measures must be used by copyright holders 'in connection with the exercise of their rights' under the respective treaties or the *Berne Convention for the Protection of Literary and Artistic Works* (1886),<sup>30</sup> and must restrict 'acts, in respect of their works, which are not authorized' by concerned copyright holders or permitted by law. The treaties impose on the contracting parties similar obligations with regard to the protection of digital rights management information against its removal or alteration and against the distribution of protected content after such removal or alteration.

The provisions of the WIPO Internet Treaties were implemented with certain modifications in individual countries by their respective national laws, such as in the United States by the *Digital Millennium Copyright Act 1998*,<sup>31</sup> in the *European Union by the Information Society Directive 2001*,<sup>32</sup>

<sup>22</sup> Information Infrastructure Task Force (IITF), 'Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights' (1995) <<http://www.uspto.gov/web/offices/com/doc/ipnii/ipnii.pdf>> accessed 15 September 2012.

<sup>23</sup> Commission of the European Communities, 'Green Paper on Copyright and the Challenge of Technology: Copyright Issues Requiring Immediate Action' COM(88) 172 final; Commission of the European Communities, 'Green Paper: Copyright and Related Rights in the Information Society' COM(95) 382 final.

<sup>24</sup> IITF (1995) at 177-200; Commission (1988) at 129-32, 136-37; Commission (1995) at 79-82.

<sup>25</sup> World Intellectual Property Organization Copyright Treaty [1996] 2186 UNTS 152, 36 ILM 65 (WCT).

<sup>26</sup> World Intellectual Property Organization Performances and Phonograms Treaty [1996] 2186 UNTS 245, 36 ILM 76 (WPPT).

<sup>27</sup> Beijing Treaty on Audiovisual Performances [2012] (BTAP).

<sup>28</sup> WCT, art 11; WPPT, art 18; BTAP, art 15.

<sup>29</sup> WCT, art 12; WPPT, art 19; BTAP, art 16.

<sup>30</sup> Berne Convention for the Protection of Literary and Artistic Works [1886] 1161 UNTS 31.

<sup>31</sup> Digital Millennium Copyright Act 1998 (Pub L No 105-304, 112 Stat 2860). See also Pamela Samuelson, 'Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised' (1999) 14 Berkeley Tech LJ 519; Mathias Lejeune, 'Protection under US Copyright Law' in Becker (2003) at 366-82; June M Besek, 'Anti-Circumvention Laws and Copyright: A Report from the Kernochan Center for Law, Media and the Arts' (2004) 27 Colum JL & Arts 385, 396-400 (2004); Stefan Bechtold, 'Digital Rights Management in the United States and Europe' (2004) 52 Am J Comp L 323, 332-35; Jane C Ginsburg, 'Legal Protection of Technological Measures Protecting Works of Authorship: International Obligations and the US

and in Japan by the 1999 and 2012 amendments to the *Japanese Copyright Act* and the *Unfair Competition Prevention Act*.<sup>33</sup>

### *1.3. Variety of Technological Protection Measures Used*

Once the legal protection of effective technological protection measures and digital rights management systems has been guaranteed by international law as well as numerous national laws, nothing bars the massive deployment of various technological protection measures and restrictions on the use of copyrighted works. Over time, the use of such technologies has considerably varied amongst individual types of copyrighted works.<sup>34</sup> Although in theory there are no limits on the variations of restrictions, it is quite striking that only a limited number of very similar restrictions are currently employed for a wide range of copyrighted works. Moreover, they are used only for some types of copyrighted works, but not for the others. The reason is that they work, with a few exceptions, quite well in the case of movies, digital television broadcasts and videogames for videogame consoles, but they have failed with regard to music CDs and authorized online music downloading services so far.

#### **(a) Movies**

Beginning in 1985 several companies experimented with Macrovision's technological protection measures for videocassettes and VCRs, and later for the CD technology used for audiovisual recordings.<sup>35</sup> With the development of the DVD format in the first half of the 1990s, the movie industry pushed, after its experience with VCRs and home recording, technology manufacturers for the incorporation of technology protection measures and digital rights management systems into the DVD format. If these measures had not been adopted by manufacturers of consumer electronics, the movie studios would not have agreed to release their extensive movie libraries on the DVD format. As an array of available pre-recorded media is a decisive factor for the commercial success of consumer audio or audio-visual recording devices on the market, the DVD standard adopted several types of restrictions on copying and the use of DVDs containing pre-recorded movies.

The Content Scramble System (CSS) built into the DVD format makes it possible to play only authorized pre-recorded movie DVDs on authorized DVD players. This allows for the prevention of the making of any unauthorized copies of such DVDs. In addition, the DVD format also employs technology permitting copyright holders to regionally divide the global market in authorized pre-recorded movie DVDs. Each individual DVD player can be set up for a particular region and can play only pre-recorded movie DVDs released for that region.<sup>36</sup> For instance, if a movie is released for the North American market, that movie DVD cannot be played on DVD players set up for different regions. This restriction prevents the export and import of movie DVDs between several geographical regions and thus enables the copyright holders to charge different prices in individual regional

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Experience' (2005) 29 Colum JL & Arts 11, 21-35; Zohar Efroni, *Access-Right: The Future of Digital Copyright Law* (OUP 2010) 348-53.

<sup>32</sup> Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ L 167/10. See also Jörg Reinbothe, 'European Copyright: Yesterday, Today, Tomorrow' in Becker (2003) at 403, 410-13; Séverine Dusollier, 'Tipping the Scale in Favor of the Right Holders: The European Anti-Circumvention Provisions' in Becker (2003) at 462-78; Besek (2004) a 426-29; Bechtold (2004) at 335-38; Efroni (2010) at 367-80.

<sup>33</sup> Law No 33 [1999]; Law No 77 [1999]; Law No 33 [2011], Law No 43 [2012]. See also Bunkachō Chosakukenhōreikenkyūkai and Tsūshōsangyōshō Chitekizaisanseisakushitsu (eds), *Chosakukenhō Fuseikyōsōbōshihhō Kaisei Kaisetsu: Dejitaru Kontentsu no Hōteki Hogo* (Amendments to the Copyright Act and the Unfair Competition Prevention Act: Legal Protection of Digital Contents) (Yūhikaku 1999); Besek (2004) at 431-36.

<sup>34</sup> Besek (2004) at 446-66.

<sup>35</sup> Walker and Sharpe (2002) at 260; Randle (2002) at 315.

<sup>36</sup> Rostam J Neuwirth, 'The Fragmentation of the Global Market: The Case of Digital Versatile Discs (DVDs)' (2009) 27 Cardozo Arts & Ent LJ 409; Peter K Yu, 'Region Codes and the Territorial Mess' (2012) 30 Cardozo Arts & Ent LJ 187.

markets.<sup>37</sup> Finally, the user operation prohibition technology incorporated into the DVD format prevents users from fast-forwarding or skipping certain parts of DVDs, *e.g.* copyright warnings or commercials.

Although the solution offered by CSS had seemed perfect at the time of its launch, it was circumvented within a few years. To prevent the circumvention of CSS by millions of DVD users, the copyright holders sued several entities around the world, including the developers of circumvention applications,<sup>38</sup> entities posting copies of those applications or even just links to places where they could be found for downloading.<sup>39</sup> So far, this has had no significant observable impact on the accessibility of such circumvention applications. At the time of writing, several circumvention applications are freely available on the internet. To reverse this negative situation, the Blu-ray Disc technology has upgraded its technological prevention measures and digital rights management system. However, even those measures have been quickly circumvented.<sup>40</sup> In response some content providers have started to employ a technology which was originally developed for VCRs and analogue television broadcasting.<sup>41</sup> This technology allows extra pulses to be inserted into the recorded data so that the quality of sound and image is not affected, but the DVD players can detect them. This technological protection measure is not, however, recognized by all DVD players available on the market.

### **(b) Digital Television Broadcasting**

Satellite and cable television providers have traditionally used a variety of encryption technologies, which allowed them to restrict those who could view their channels to viewers who had paid to do so. Analogue terrestrial television broadcasting on the other hand was conventionally accessible without any restriction. With the massive spread and use of VCRs in the late 1970s and the 1980s this came to be viewed as a problem. VCRs allowed television audiences to record broadcasted television programs for viewing at a later, perhaps more convenient, time. As the financing of free-to-air television had been conventionally based on revenues from advertising,<sup>42</sup> the time-shifting of broadcasted television programs by the audience was seen by many television broadcasting companies as a considerable problem for their long-established business models. The addition of extra pulses to the television signal which did not affect the quality of broadcasted sound or image, but could be detected by the VCRs, was hit upon as the solution to this problem.<sup>43</sup>

The introduction of digital television broadcasting technology has broadened the possibilities for television broadcasting companies to exercise control over the copying and use of broadcasted television programs. In the early days of digital television broadcasting technology, there were numerous discussions and attempts to introduce television broadcast flag systems.<sup>44</sup> At present, several technical standards for digital technology have been adopted around the world and individual

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<sup>37</sup> Michael J Meurer, 'Price Discrimination, Personal Use and Piracy: Copyright Protection of Digital Works' (1997) 45 Buff L Rev 845; William W Fisher III, 'Property and Contract on the Internet', (1998) 73 Chi-Kent L Rev 1203, 1234-40; Wendy J Gordon, 'Intellectual Property as Price Discrimination: Implications for Contract', (1998) 73 Chi-Kent L Rev 1367, 1388-89.

<sup>38</sup> Thomas Rieber-Mohn, 'Norway: Court of Appeal Decision in Norwegian DVD Case' (2004) <<http://merlin.obs.coe.int/iris/2004/3/article29.en.html>> accessed 15 September 2012; 321 Studios v. Metro Goldwyn Mayer Studios, Inc., 307 F. Supp. 2d 1085, 1096 (N.D. Cal. 2004).

<sup>39</sup> Universal City Studios, Inc. v. Reimerdes, 111 F. Supp. 2d 294, 310 (S.D.N.Y. 2000), *aff'd sub nom.* Universal City Studios, Inc. v. Corley, 273 F.3d 429 (2d Cir. 2001).

<sup>40</sup> Jonathan Fildes, 'A Digital Game of Cat and Mouse' (*BBC News* 27 August 2007) <<http://news.bbc.co.uk/2/hi/technology/6944887.stm>> accessed 15 September 2012.

<sup>41</sup> Rovi, 'RipGuard: Protecting DVD Content Owners from Consumer Piracy', <<http://www.rovicorp.com/products/distribution/content-protection/ripguard.htm>> accessed 15 September 2012.

<sup>42</sup> Amanda D Lotz, *The Television Will Be Revolutionized* (NYU Press 2007) 10, 156-60.

<sup>43</sup> Walker and Sharpe (2002) at 260; Randle (2002) at 315.

<sup>44</sup> Tarleton Gillespie, *Wired Shut: Copyright and the Shape of Digital Culture* (MIT Press 2007) 193-222; Randal C Picker, 'From Edison to the Broadcast Flag: Mechanism of Consent and Refusal and the Propertization of Copyright' (2003) U Chi L Rev 281, 292-93.

standards vary in the use of copy protection technology and television broadcast flag systems.<sup>45</sup> In addition to the technological protection measures incorporated into digital television broadcasting technologies, an array of online video-on-demand services employs their own restrictions, such as copy or time restrictions.

In Japan, the copy prevention technology used in the digital television broadcasting standard was originally designed to allow only a single copy of broadcasted television programs, but the system has been made less restrictive after an intervention from consumer organizations and with the support of the Ministry of Internal Affairs and Communications.<sup>46</sup> At the moment, the system allows the making of ten first-generation copies. There is an anecdote that has spread amongst television broadcasting companies and consumer electronics manufacturers about the justification for these ten copies. The average Japanese family has three members: a father, mother and child. It was perceived that each family member should be permitted to make a copy for their private uses on three different devices, such as a DVD player, computer and cell phone. This leaves us with nine copies. The final, tenth copy is allowed for the transfer of the original copy from the hard drive of the recording device to another medium.

### (c) Videogames

The producers of desktop as well as portable videogame consoles, such as Nintendo, Sony and Microsoft, have routinely incorporated diverse technological prevention measures which aimed to prevent the use of any unauthorized copies of videogames for their videogame consoles. Nonetheless, these protection measures have been frequently circumvented by using modchips or other means of circumvention.<sup>47</sup> To prevent the massive spread of such circumvention enabling devices, the videogame console manufacturers have sued the manufacturers, distributors or retailers of such devices in numerous jurisdictions.<sup>48</sup> An additional option for the videogame console manufacturers has always been to upgrade their technological protection measures in new models of videogame consoles, but these have tended to also be quickly circumvented. This has created a never-ending vicious circle between the upgrade of technological protection measures by the console manufacturers and their circumvention by certain groups specializing in the circumvention of technological protection measures for videogame consoles.

### (d) Music

There have been attempts to use a variety of technology protection measures and digital rights management systems in the music industry, but at the moment they are only being employed to a very limited extent. Various early digital audio recording devices based on the Digital Audio Tape (DAT), Digital Compact Cassette (DCC) or MiniDisc technologies incorporated the Serial Copy Management System which prevents the making of serial copies of copyrighted works.<sup>49</sup> In the late 1990s, the music industry planned under the Secure Digital Music Initiative to develop its own standard format for digital sound recordings, which would employ watermarking and would enable the incorporation of various restrictions on the copying and use of sound recordings by their users, but all of those

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<sup>45</sup> David Brennan, 'Flag Waving in the Digital Jungle' in Andrew T Kenyon (ed), *TV Futures: Digital Television Policy in Australia* (Melbourne University Press 2007) 214.

<sup>46</sup> Takeyoshi Yamada, 'Japan's Gov't to Tax Blu-ray Recorders for Copyright Holders' (*Tech-On*, 18 June 2008) <[http://techon.nikkeibp.co.jp/english/NEWS\\_EN/20080618/153415/](http://techon.nikkeibp.co.jp/english/NEWS_EN/20080618/153415/)> accessed 15 September 2012; Takeyoshi Yamada, 'Dubbing 10' to Start in Japan July 4' (*Tech-On*, 20 June 2008) <[http://techon.nikkeibp.co.jp/english/NEWS\\_EN/20080620/153568/](http://techon.nikkeibp.co.jp/english/NEWS_EN/20080620/153568/)> accessed 15 September 2012.

<sup>47</sup> Philip Wong, 'World's First Mod Chip for PS3' (*CNET News 2* October 2009) <[http://news.cnet.com/8301-17938\\_105-10366437-1.html](http://news.cnet.com/8301-17938_105-10366437-1.html)> accessed 15 September 2012.

<sup>48</sup> *Sony Computer Entertainment America, Inc. v. GameMasters, Inc.*, 87 F. Supp. 2d 976 (N.D. Cal. 1999); *Sony Computer Entertainment v Paul Owen and Others* [2002] EWHC 45 (Ch); *Kabushiki Kaisha Sony Computer Entertainment Inc & Others v Ball & Others* [2004] EWHC 1738 (Ch); *Stevens v Kabushiki Kaisha Sony Computer Entertainment* [2005] HCA 58, (2005) 221 ALR 448; (2005) 79 ALJR 1850.

<sup>49</sup> Audio Home Recording Act 1992 (Pub L No 102-563) s 1002.

efforts ended in failure.<sup>50</sup> Alternatively, several commercial companies, such as Microsoft or RealNetworks, have developed their proprietary formats for sound as well as audiovisual recordings, which enable the copyright holders to set up a range of restrictions on the copying and use of their copyrighted works.<sup>51</sup> None of these, however, has become the standard on the market. The real market standard for sound recordings is the MP3 format, which does not directly incorporate restrictions on the copying or use of MP3 files by users.

The early authorized online music downloading services, such as Pressplay or MusicNet, employed proprietary formats, which allowed them to design their services on a monthly subscription basis.<sup>52</sup> There was a great deal of divergence in terms of the conditions offered by those services. In general, their customers had to pay a monthly fee for downloading a certain number of music tracks to their computers per month. The downloaded files could be only listened to on the computer to which the music files were downloaded. They could not be copied to other computers or devices. Some of those services also permitted their users to burn a limited number of CDs per month from downloaded music tracks so that the burned music CDs could be played on conventional CD players. Finally, once the users terminated their subscription-based membership, they lost access to all previously downloaded music files. There were several variations of such early authorized online music downloading services, but none of them was commercially successful.

The situation in the online music market was completely changed when Apple's iTunes Store launched commercial operations in 2003.<sup>53</sup> Within one year it became the leading authorized online music downloading service on the market.<sup>54</sup> Before iTunes' appearance it was difficult to identify any commercially significant authorized online music downloading service. The iTunes service entirely transformed the market for online music. The iTunes service started by offering one track for 99 cents in the United States and permitted the use of downloaded music files on several devices owned by the same person. The users could download music from iTunes to their computers and then could transfer them to their iPods and later also to their iPhones and iPads. The downloaded tracks could also be used for burning music CDs for play on conventional CD players.

In its early days, iTunes used a proprietary digital rights management system which did not permit the making of copies for other persons. Since 2007, iTunes together with several other authorized online music downloading services, such as Amazon MP3, has started to offer songs without restrictions on the copying and use of downloaded music files.<sup>55</sup> To prevent the massive unauthorized dissemination of copies made from the files downloaded from the authorized online music downloading services, some record labels require online music downloading services to incorporate unique identifiers permitting the identification of persons who downloaded a particular track.<sup>56</sup> To sum up, we can see that the market for online music has slowly, but steadily, developed so

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<sup>50</sup> Gillespie (2007) at 137-65.

<sup>51</sup> Laura Gee and Lubomira Ivanova, 'Fragmentation versus Standardization in the Market for Digital Rights Management Solutions: A Case Study of the Online Market for Audio and Video Content' (2006) <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=920711](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=920711)> accessed 15 September 2012.

<sup>52</sup> Joseph Palenchar, 'MusicNet, Pressplay Mark Advances in Download Music Rules' (*Twice* 9 December 2002) <<http://www.twice.com/audio/audio/musicnet-pressplay-mark-advances-download-music-rules/26559>> accessed 15 September 2012.

<sup>53</sup> Apple, 'Apple Launches the iTunes Music Store' (*Apple Press Info* 28 April 2003) <<http://www.apple.com/pr/library/2003/04/28Apple-Launches-the-iTunes-Music-Store.html>> accessed 15 September 2012.

<sup>54</sup> John Markoff, 'Apple Sells 70 Million Songs in First Year of iTunes Service' *The New York Times* (New York, 29 April 2004) <<http://www.nytimes.com/2004/04/29/technology/29apple.html>> accessed 15 September 2012.

<sup>55</sup> Kristen Nicole, 'iTunes' DRM-free Music Now Available' (*Mashable* 30 May 2007) <<http://mashable.com/2007/05/30/itunes-upgrade/>> accessed 15 September 2012; Joshua Topolsky, 'Amazon Launches DRM-free "Amazon MP3" music downloads' (*engadget* 25 September 2007) <<http://www.engadget.com/2007/09/25/amazon-launches-drm-free-amazon-mp3-music-downloads/>> accessed 15 September 2012; Macworld, 'iTunes Store and DRM-Free Music: What You Need to Know' (7 January 2009) <[http://www.macworld.com/article/1138000/drm\\_faq.html](http://www.macworld.com/article/1138000/drm_faq.html)> accessed 15 September 2012.

<sup>56</sup> Amazon, 'Downloading Your Music' <[http://www.amazon.com/gp/help/customer/display.html/ref=hp\\_200143320\\_downloadmore?nodeId=200593990](http://www.amazon.com/gp/help/customer/display.html/ref=hp_200143320_downloadmore?nodeId=200593990)> accessed 15 September 2012.

that no restrictions are made on the copying and use of downloaded music files by users, but it is possible to track down the source of particular files to the individuals who acquired them originally.

## II. CONSUMERS' VIEWS ON TECHNOLOGICAL AND OTHER PROTECTION MEASURES

As described above, the use of technological protection measures and digital rights management systems has varied over time and between individual copyright industries. As a result of this historical development, we can observe variations in the use of technological protection measures and digital rights management systems between individual types of copyrighted works. Those variations can be caused by differences in competition on the markets with individual copyrighted works; by the ease of circumvention between adopted technologies; by the annoyance of individual measures and restrictions caused to the users; by the extent of unauthorized use with regard to individual types of copyrighted works; by bad publicity given to certain measures and restrictions employed; and by the level of cooperation between the copyright holders as content providers on the one side and consumer electronics manufacturers or online service providers as platform providers on the other.<sup>57</sup> Many of these suggested factors are closely related to how the consumers value individual uses of copyrighted works and how they respond to adopted ways of restrictions on those uses. The following analysis therefore examines the question of to what extent the abovementioned differences in the use of technological protection measures and digital rights management systems have been caused by divergences in consumers' positions towards various uses of copyrighted works and their restrictions.

### 2.1. Data Collection

For collecting data on consumers' positions towards individual technological or other protection measures currently employed by copyright holders, we used an online service provided by MyVoice Communications, Inc. for making public opinion polls. Through its system, we collected 1,252 fully or partially responded questionnaires between 3 and 8 October 2012. Our online survey targeted respondents between 15 and 59 years old from the entire territory of Japan. The respondents were territorially spread throughout the territory of entire Japan and their territorial distribution roughly mirrored the actual territorial distribution of Japanese population. As to the age composition, the respondents reflected the age composition of Japanese population between the age of 15 and 59 years with minor deviations with regard to a few particular age groups. For instance, the age group between 15 and 19 years old (107 respondents; 8.55%) was slightly underrepresented, while the age group between 40 and 44 years old (191 respondents; 15.26%) was overrepresented. Our online survey was responded by 603 female (48.16%) and 649 male (51.84%) respondents. As the female population presents 49.35% of the sampled Japanese population and the male population 50.65%, the male respondents in our online survey were overrepresented to some extent. The abovementioned problems with overrepresentation of certain age and gender groups were taken into consideration in a weighted model, which was weighted as to the respondents' gender and age in order to reflect the actual age and gender composition of sampled Japanese population.

We collected the consumers' view through questionnaires composed of multiple-choice questions which were combined in several cases with an open option allowing respondents to freely answer a question when previous, offered options were inapplicable or insufficient for them. The questions in questionnaires can be divided into several groups. The first group of questions asked respondents on their attitudes towards several forms of restrictions on using selected types of copyrighted works. Respondents were asked whether they have any problem with a particular type of restriction imposed on them by copyright holders, although such use of copyrighted works is allowed by the copyright law in Japan. As the most of restrictions are implemented by copyright holders through various technological protection measures and digital rights management systems, respondents were actually asked whether they accept selected technological and other protection measures or object to them.

The questions were prepared so that respondents could identify the degree of their acceptance or objection on a 5-grade Likert-type scale. The respondents were asked to identify what they think about

<sup>57</sup> John A Rothchild, 'Economic Analysis of Technological Protection Measures' (2005) 84 Or L Rev 553-57.

restrictions on individual uses of copyrighted works. They could select their responses from the following options: 1 – “I have no problem with it at all”; 2 – “I have almost no problem with it”; 3 – “Both ways are fine with me”; 4 – “Maybe, I have a problem”; and 5 – “I clearly have a problem”. In addition, the respondents were offered with an option “I don’t know”.

The questions dealt with restrictions on the following types of uses: making a copy of pre-recorded music CDs, movie DVDs or Blue-ray Discs, and videogames; shifting a sound recording from a music CD to an MP3 file (so-called format-shifting); recording a broadcasted TV program for watching latter in a convenient time (so-called time-shifting); retransmitting a TV broadcast via the internet by devices such as Sony LocationFree TV or Slingbox (so-called place-shifting); and sound recording of a live music performance at a popular music concert for private purposes. We selected these types of restrictions on uses of copyrighted works, since they are the most usual restrictions implemented by technological and other protection measures used on the current market and the respondents could face these restrictions in their everyday lives. The order of questions asking on individual restrictions was selected randomly for each respondent so that any potential bias which could be caused by the order of questions could be minimized.

The second group of questions targeted the respondents’ consumption habits related to various types of copyrighted works, such as listening to music, watching movies on DVDs or Blu-ray Discs, watching TV programs, playing games, attending live popular music concerts and using the internet. The respondents were also asked to inform us on how and how often they acquire copies of copyrighted works such as music CDs, movie DVDs or Blue-ray Discs, and videogames. We also asked respondents whether they download music files from authorized online downloading services such as iTunes or Amazon MP3. We have not explicitly asked on online downloading of movies or videogames, since these markets are still emerging and many respondents might not be familiar enough with these types of acquiring authorized copies of movies and videogames.

To measure the intensity of consumers’ consumption, the respondents were provided with a five grade Likert-type scale (*i.e.* 1 – “always/frequently”; 2 – “quite often”; 3 – “from time to time”; 4 – “almost not”; and 5 – “never”). The main aim of these questions was to identify the respondents’ interest in particular types of copyrighted works and their willingness to pay for acquiring authorized copies of those copyrighted works. The copyright holders often argue that renting of music, movies and videogames leads to hire piracy of their copyrighted works. Accordingly, the more the respondents are likely to rent copyrighted works, the more they should object various technological protection measures restricting them in copying those copyrighted works. Similarly, they should be less willing to purchase authorized copies of copyrighted works.

The third group of questions examined the respondents’ knowledge and recognition of copyright law in three different ways. First, we asked respondents to judge their knowledge of current copyright law. We provided them with the following multiple-choice options: (a) “no knowledge at all”, (b) “only knowledge obtained from mass media (*e.g.* news, newspapers, etc.)”, (c) “only what I have studied at a special compliance training organized by my university or company”, and (d) “I have taken a course specialized in copyright law/I routinely deal with copyright-related issues”. When none of previous, fixed options was applicable, the respondents could freely identify the level of their knowledge.

Second, the respondents were asked to identify to what extent they think that they should be allowed to use selected types of copyrighted works. The possible options ranged from no or single copy, through multiple copies for personal purposes and within a family circuit, to uploading copies of copyrighted works on websites with restricted or unrestricted access, and any non-commercial use.

Finally, the respondents were asked to confess whether and how often they copy selected types of copyrighted works. When they responded affirmatively, they were also requested to inform us on their reasons for doing so, *e.g.* making private collections, format-shifting, saving money, acquiring a rare copy of copyrighted work not available on the market, and time-shifting.

With regard to the questions on the justified extent of using copyrighted works and on the respondents’ copying habits, we have randomly divided respondents into three separate groups. Each group of respondents had to respond to questions dealing with different types of copyrighted works. For this purpose, we selected three most often used and copied types of protected works, *i.e.* a music CD (434 respondents; 34.66%), movie DVD or Blu-ray Disc (399 respondents; 31.87%), and broadcasted TV program (419 respondents; 33.47%). The reason for dividing respondents into several

groups was that in our opinion it might be too burdensome for respondents to be asked to answer three sets of questions dealing with the mentioned three types of copyrighted works. In addition, there might be a threat of bias caused by an order of questions dealing with individual types of copyrighted works.

The final group of questions was composed of demographic questions. Our questionnaires expressly asked for respondents' occupation so that we could examine whether their occupation affects in any way their decision making on the use of copyrighted works and on the acceptance of or objection to any restrictions on the use of copyrighted works imposed by their right holders. In addition, MyVoice Communications, Inc. provided us with a set of demographic data on respondents, such as age, gender, personal status, residence area, income, internet use, TV watching habits, and so on.

One of possible factors affecting the respondents' decision making on the use of copyrighted works can be their income and available free time. In theory, individuals who do not have sufficient source of income, but have enough free time have a higher propensity to indulge with copyright infringing activities than those who have enough money and not enough time. For example, the college or university students have a high interest in many types of copyrighted works, such as music, movies or videogames, but they rarely have enough money to sufficiently satisfy their actual demands. Besides, they have plenty of free time to search for copies of copyrighted works and to make their own copies in a copyright infringing or non-infringing way. Similarly, unemployed individuals and housewives can share some personal characteristics with the group of students. They can have enough time and interest in copyrighted works, but may not have their own income to satisfy their actual demands.

The largest group of respondents (718 respondents; 57.35%) was the group of full-time (567 respondents; 45.29%) and part-time (151 respondents; 12.06%) employed respondents. They were followed by the groups of housewives (204 respondents; 16.29%), students (181 respondents; 14.46%) and unemployed (64 respondents; 5.11%). In addition, a small percentage of respondents identified themselves as self-employed (74 respondents; 5.91%) or others (11 respondents; 0.88%). Although in reality overlaps can occur between certain groups of individuals, such as part-time employed and housewives on the one side, and between part-time employed and students on the other, we allowed our respondents to select only a single option. Therefore, we have to take into consideration that a considerable number of housewives could identify themselves as part-time employed and not as housewives, since they considered themselves more as part-time employed than housewives. We assume that there is a lower probability that students would prefer identifying themselves as part-time employed to identifying as students, unless the concerned respondents are older and do not consider their studies as their main occupation.

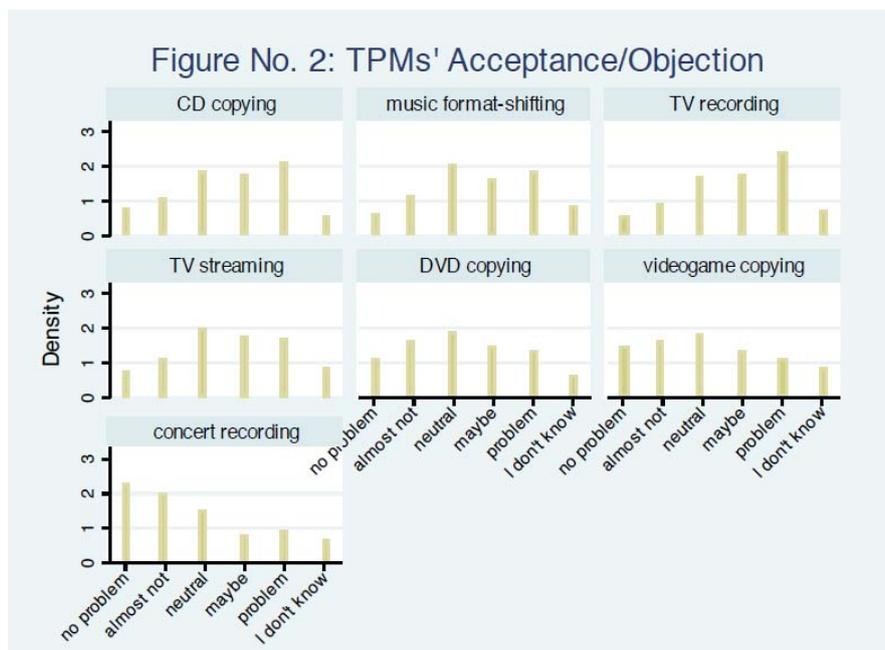
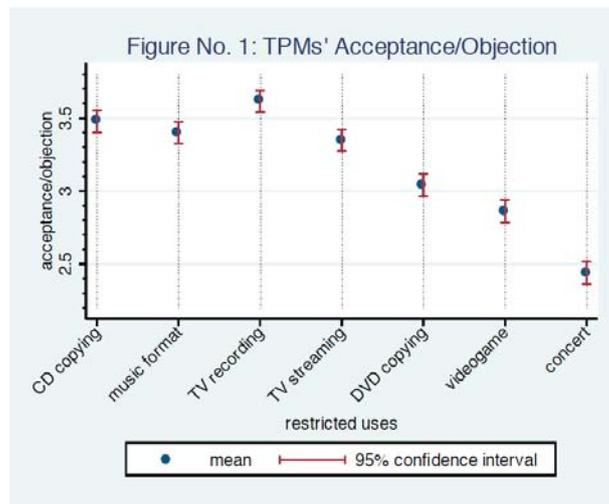
## ***2.2. Analysis of Collected Data***

The conventional view on technological protection measures and digital rights management is that the consumers find them too burdensome and attempt to circumvent them, whenever it is possible. In order to examine whether the conventional view really reflects the reality, we conducted an online survey amongst Japanese respondents, where we asked people on their use of copyrighted works and on their positions towards individual restrictions imposed on those uses by copyright holders. Many ways of using copyrighted works are restricted by various technological protection measures or digital right management systems at the present in Japan. It is the case of videogames, movies pre-recorded on DVDs and Blu-ray Discs, as well as digital TV broadcast containing a limited flag system. The results of our online survey challenge the conventional view and show that the individuals differently judge an importance of using various types of copyrighted works.

Before starting with the analysis of collected data, a note should be made that the respondents refrained from making their judgment (*i.e.* selecting an option "I don't know") in 8.73% cases on average. The actual number of responses making any judgment thus varies between individual restrictions. The respondents were less willing to refrain from making their judgment in cases of uses with which they were more familiar, such as copying music CDs (88 respondents; 7.03%) and pre-recorded movie DVDs or Blu-ray Discs (94 respondents; 7.51%), sound recording on live concerts (95 respondents; 7.59%), and recording broadcasted TV programs (106 respondents; 8.47%). But more respondents refrained from making their judgment in cases where the restricted use required advanced

technical skills such as in case of copying videogames (123 respondents; 9.82%), private TV streaming (128 respondents; 10.22%) and music format-shifting (131 respondents; 10.46%). An alternative explanation might be that they refrained to respond more in those cases, since it was difficult for them to make judgment on different uses of same or similar works, which can be paired as follows: (a) copying music CDs and format-shifting from a music CD to an MP3 file; (b) recording and streaming TV programs; and (c) copying movie DVDs or Blu-ray Discs and copying videogames. However, it should be pointed out, as mentioned above, that the order of restrictions on individual uses was random and thus varied between individual respondents in order to limit the bias which can be caused by the order of restrictions.

The results concerning the respondents' judgment on their acceptance of or objection to restrictions on using different copyrighted works by technological protection measures and digital right management regimes can be observed on Figure No. 1. The Figure depicts the means of judgments with 95% confidence intervals on the 5-grade Likert-type scale after eliminating the responses where the respondents refrained making their judgment. The actual distribution of responses made by all respondents is presented in Figure No. 2.



The results show that the most problematic restriction in the eyes of our online respondents was the restriction on so-called time-shifting of broadcasted TV programs, *i.e.* recording a broadcasted TV program for watching it later in a convenient time for an individual (mean=3.599±0.039, n=1,146).<sup>58</sup> The time-shifting of broadcasted TV programs is followed by restrictions on copying music CDs and other media (mean=3.465±0.040, n=1,164),<sup>59</sup> format-shifting from music CDs to MP3 files (mean=3.384±0.039, n=1,121)<sup>60</sup> and so-called place-shifting of broadcasted TV programs, *i.e.* streaming a TV broadcast by the public via the internet for private purposes (mean=3.334±0.039, n=1,124).<sup>61</sup> Means of responses to individual restrictions differ statistically significantly from each other in *t*-test, with the exception of the last two mentioned restrictions.

On the other side of spectrum was the restriction on sound recording on live popular music concerts, which were found as the less problematic of all studied restrictions (mean=2.455±0.41, n=1,157)<sup>62</sup> for respondents. The acceptance of bans on sound recording on live concerts was followed by the restriction on copying videogames (mean=2.861±0.041, n=1,129).<sup>63</sup> Somewhere in the middle was the respondents' position towards the restriction on copying movie DVDs and Blu-ray Discs (mean=3.030±0.040, n=1,158).<sup>64</sup>

The findings of our online survey thus show that there are considerable differences between the importance of individual types of copyrighted works and their uses for consumers. Some types of copyrighted works and their uses are more important for consumers than others. A possible explanation can be that the degree of acceptance or objection depends on the respondents' actual interest in a particular activity.

Accordingly, in addition to the descriptive analysis, we conducted regression analysis of collected data. As the collected data represent the degree of consumers' acceptance of or objection to restrictions on various uses of copyrighted works on a 5-degree Likert-type scale, we employed the ordered logistic regression analysis. The results can be found in Table No. 1. We also compared our results with the results obtained from generalized ordered logistic regression models and multinomial logistic regression models which also confirmed our findings of ordered logistic regression analysis.

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<sup>58</sup> The distribution of responses (n=1,146) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=87; 7.59%); 2 – almost not problematic (n2=144; 12.57%); 3 – neutral (n3=268; 23.39%), 4 – almost problematic (n4=272; 23.73%); and 5 – absolutely problematic (n5=375; 37.72%).

<sup>59</sup> The distribution of responses (n=1,164) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=116; 9.97%); 2 – almost not problematic (n2=157; 13.49%); 3 – neutral (n3=282; 24.23%), 4 – almost problematic (n4=272; 23.37%); and 5 – absolutely problematic (n5=337; 28.95%).

<sup>60</sup> The distribution of responses (n=1,121) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=99; 8.83%); 2 – almost not problematic (n2=171; 15.25%); 3 – neutral (n3=318; 28.37%), 4 – almost problematic (n4=249; 22.21%); and 5 – absolutely problematic (n5=284; 25.53%).

<sup>61</sup> The distribution of responses (n=1,124) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=113; 10.05%); 2 – almost not problematic (n2=171; 15.21%); 3 – neutral (n3=310; 27.58%), 4 – almost problematic (n4=272; 24.20%); and 5 – absolutely problematic (n5=258; 22.95%).

<sup>62</sup> The distribution of responses (n=1,157) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=363; 31.37%); 2 – almost not problematic (n2=312; 26.97%); 3 – neutral (n3=231; 19.97%), 4 – almost problematic (n4=114; 9.85%); and 5 – absolutely problematic (n5=137; 11.84%).

<sup>63</sup> The distribution of responses (n=1,129) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=227; 20.11%); 2 – almost not problematic (n2=246; 21.79%); 3 – neutral (n3=280; 24.80%), 4 – almost problematic (n4=209; 18.51%); and 5 – absolutely problematic (n5=167; 14.79%).

<sup>64</sup> The distribution of responses (n=1,158) between individual options on the 5-point likert-type scale was as follows: 1 – absolutely not problematic (n1=173; 14.94%); 2 – almost not problematic (n2=255; 22.02%); 3 – neutral (n3=291; 25.13%), 4 – almost problematic (n4=229; 19.78%); and 5 – absolutely problematic (n5=210; 18.13%).

TABLE NO. 1: ORDER LOGISTIC REGRESSION MODELS OF OBJECTIONS TO TPMS AND DRMS  
 Dependent variable, coded on a scale of 1 to 5, is the degree to which respondents find individual TPMS and DRMs as problematic for them (1 = no problem at all; 5 = clearly problem).

	I.	II.	III.	IV.	V. (weighted by age and gender)
male	0.468*** (0.075)	0.471*** (0.075)	0.460*** (0.075)	0.430*** (0.074)	0.430*** (0.074)
age	-0.002 (0.003)	-0.001 (0.003)	0.002 (0.003)	0.000 (0.003)	0.000 (0.003)
internet use	0.053*** (0.020)	0.053*** (0.020)	0.055** (0.021)	0.044** (0.021)	0.046** (0.021)
CD copying	1.485*** (0.069)	1.437*** (0.073)	1.416*** (0.072)	1.450*** (0.075)	1.450*** (0.075)
format-shifting	1.351*** (0.066)	1.303*** (0.071)	1.280*** (0.070)	1.318*** (0.072)	1.317*** (0.072)
TV recording	1.665*** (0.071)	1.582*** (0.087)	1.502*** (0.083)	1.546*** (0.085)	1.545*** (0.085)
TV streaming	1.282*** (0.063)	1.200*** (0.082)	1.120*** (0.077)	1.159*** (0.078)	1.162*** (0.078)
DVD copying	0.875*** (0.060)	0.845*** (0.063)	0.839*** (0.062)	0.863*** (0.065)	0.864*** (0.065)
videogame	0.629*** (0.059)	0.610*** (0.059)	0.600*** (0.059)	0.620*** (0.061)	0.621*** (0.060)
interest		0.035 (0.023)	0.043** (0.022)	0.040* (0.022)	0.039* (0.022)
competing interest			-0.079** (0.031)	-0.073** (0.032)	-0.075** (0.032)
justified use				0.220*** (0.027)	0.218*** (0.027)
practice of copying				0.093** (0.032)	0.098** (0.032)
questionnaire I (music CDs)				0.130 (0.093)	0.145 (0.093)
questionnaire II (movie DVDs)				0.269** (0.107)	0.285** (0.106)
/cut1	-0.413 (0.160)	-0.559 (0.190)	-0.462 (0.204)	0.310 (0.252)	0.322 (0.252)
/cut2	0.710 (0.156)	0.563 (0.186)	0.662 (0.201)	1.457 (0.249)	1.472 (0.250)
/cut3	1.820 (0.158)	1.674 (0.186)	1.774 (0.201)	2.600 (0.251)	2.615 (0.251)
/cut4	2.831 (0.162)	2.687 (0.189)	2.786 (0.204)	3.638 (0.256)	3.659 (0.256)
N	7999	7999	7999	7999	7999
Wald chi2	767.08 (9)	768.04 (10)	770.18 (11)	837.59 (15)	
P	<0.001	<0.001	<0.001	<0.001	<0.001
Pseudo R2	0.033	0.034	0.034	0.046	

Reference category for respondents' judgment is their position towards the ban on sound recording on a live popular music concert in questionnaires focusing on the use of broadcasted TV programs. Standard errors in parentheses; \*\*\*  $p < 0.001$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Dependent variable consist of all judgments on acceptance of or objection to individual restrictions, regardless the types of restricted use. As a small number of respondents refrained from

making any judgment on restricting selected uses of copyrighted works, dependent variable has 7,999 observations on various restrictions. Our explanatory variables were composed from consumers' interests in restricted use and competing type of entertainment, degree of actual copying and view on justified use of concerned copyrighted works. As control variables, we used the types of restricted uses and used questionnaires, and respondents' gender, age and extent of internet use.

Variables for gender and types of restricted uses and used questionnaires are dummies variables. Variables for internet use, interest in restricted use, interest in competing type of entertainment, justified use and copying habits are ordinal variables. The variable for age is an interval variable for the respondent's actual age.

With regard to the impact of gender on respondents' judgment, the results of our ordered logistic regression analysis are in line with previous studies from other jurisdictions, which discovered that males have a higher propensity to indulge in copyright infringing activities than females. In our survey, the male respondents were more likely to object the studied restrictions on using selected copyrighted works more strongly than female respondents except for the restrictions on TV program recording, where female respondents were more sensitive. In overall, the ordered logit for male respondents objecting the studied restrictions on a higher level is 0.430 ( $p < 0.001$ ) higher than female respondents when the other variables in the model are held constant.

Dummies variables for restrictions on individual uses of copyrighted works yield the results confirming our previous analysis on the importance given to individual types of using copyrighted works. The results validate that the most important type of using copyrighted works is recording of broadcasted TV program for watching them later in a convenient time. The strength and severity of objections to restrictions on TV time-shifting are followed by objections to restrictions on copying music CD, format-shifting from music CDs to MP3 files and private streaming of TV broadcast via the internet. The less objected was the restriction on sound recording on live concerts of popular music, which was used as a baseline in our regression models. The ban on live concert sound recording was followed by objections to the restrictions on videogame copying. Somewhere between the two extremes were the objections to the restrictions on copying pre-recorded movie DVDs and Blu-ray Discs.

As pointed above, a possible explanation of these findings might be that the respondents were more interested in watching and recording TV programs or listening to and copying music CDs than in attending and recording live concerts or playing and copying videogames. For this purpose, we asked our respondents on the degree of their interests in individual types of copyrighted works and uses, *i.e.* whether they listen to music, watch movies or TV programs, play videogame or attend concerts. In addition, we asked them whether and how often they purchase or rent music CDs, movie DVDs or Blu-ray Discs and videogames. The analysis shows that the extent of respondents' interest in particular types of copyrighted works affects their judgment. However, the impact of consumers' interest is much lower than the impact of dummies variables for restrictions on individual types of copyrighted works. A one unit increase in the interest test score would result only in a 0.039 unit increase ( $p < 0.1$ ) in the ordered log-odds of being in a higher level of objecting the restriction on such use while the other variables in the model are held constant.

The result can be explained in the way that even when an individual does not have any interest in a particular type of using copyrighted works, she can have general views on the importance of individual uses. Alternatively, the respondents could take into consideration whether they had or might have any expectation of using copyrighted works in such a way at that time or in the future.

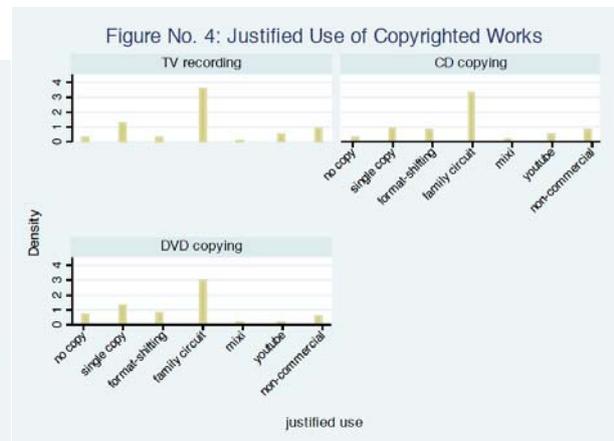
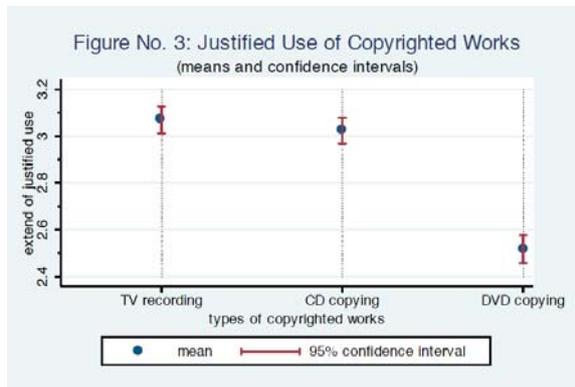
In addition, we have to consider that the increasing degree of interest in competing types of entertainment decreases the level of objection against the restriction on a particular use of copyrighted works. If a respondent increases his score on competing interest by one point, his ordered log-odds of objecting in a lower level against the restriction on a particular use of copyrighted work increases by 0.075 ( $p < 0.05$ ) while the other variables in the model are held constant.

Finally, we examined the impact of respondents' copying habits and views on justified use of copyrighted works on their acceptance of or objection to restrictions on individual uses of copyrighted works. We asked respondents to identify the extent of using copyrighted works, to which they think that they should be allowed to use a particular type of copyrighted works. In overall, the ordered log-odds of a one-grade increase on the justified use score increases by 0.218 ( $p < 0.001$ ) when the other

variables in the model are held constant. A note should be made that this ordered log-odds is quite conservative.

In addition to the respondents' perceptions of justified use, we examined the impact of actual copying habits on the consumers' acceptance of or objection to restrictions on using copyrighted works. A one-unit increase in the copying activity test score results in a 0.098 unit increase ( $p < 0.05$ ) in the ordered log-odds of being in a higher level of objecting the restriction on such use while the other variables in the model are held constant. Accordingly, the more the consumers of copyrighted works are involved in a particular activity, the more they object its restriction by copyright holders through various technological protection measures and digital rights management systems. In this regard, a note should be made that the log-odds of our models are quite conservative and the ordered log-odds are much higher for certain specific types of uses, such as in case of copying pre-recorded music CDs or movie DVDs and Blu-ray Discs.

A further possible objection against the findings of our study might be that our respondents have been biased, since they are internet users and can have a higher propensity to get involved in copyright infringing activities than the rest of population. The results of our online survey, however, show that our respondents were not biased towards copyright infringing activities. Although an outstanding majority of respondents (1,086 respondents; 86.74%) had no knowledge (156 respondents; 12.46%) or very limited knowledge from mass media (930 respondents; 74.28) on the current copyright law in Japan, more than three fourths of respondents (from 78.52% respondents in case of using broadcasted TV programs to 86.72% in case of using movies on pre-recorded DVDs and Blu-ray Discs) thought that they should not be allowed to use copyrighted works in a broader way than within their family circuits. This scope of private copying is also currently permitted by the Japanese copyright law. The results of means and actual distribution of responses can be found in Figures Nos. 3 and 4, respectively. They show that between a third and an half of respondents thought that they should be allowed to use selected copyrighted works in a more restrictive way than currently allowed by law in Japan. There were even respondents (from 3.34% respondents in case of using broadcasted TV programs to 10.28% in case of using movies on pre-recorded DVDs and Blu-ray Discs) who thought that they should not be allowed to make any copies of copyrighted works.



Finally, a possible objection might also be raised that our respondents do not represent the actual sampled Japanese population. However, the results of this online survey are in line with findings of our previous study, which was based on a street survey conducted in Sapporo city.<sup>65</sup> Although this study differs in several aspects concerning the used method of collecting data from our previous study, the results of both studies are comparable. The methodologies of both studies diverge in the two main regards. First, the previous study was based on a street survey conducted in the fifth most populous city in Japan, and this study employs online survey research method and its respondents are

<sup>65</sup> Branislav Hazucha, Hsiao-Chien Liu and Toshihide Watabe, 'Copyright, Protection Measures and Their Acceptance by Consumers' in Katja Weckström (ed.), *Governing Innovation and Expression: New Regimes, Strategies and Techniques* (University of Turku Press 2013) 271-302.

territorially dispersed throughout the entire Japan. Second, the previous study used the fixed order of questions on the level of accepting or objecting restrictions on individual uses of studied copyrighted works. In order to reduce possible bias which can be caused by the order of individual restrictions, the current study employs the random order of individual restrictions. Nonetheless, it seems that the order of individual restrictions does not have any significant impact on the survey participants' responses. In addition, this study confirms that our previous findings do not apply only to the residents of one major city in Japan, but for the entire Japanese population.

### ***2.3. Consumers' Demands and Copyright Holders' Response***

Our findings are even more striking when we take into consideration the current actual use of technological and other protection measures by copyright holders. In case of the most sensitive uses of copyrighted works for consumers, *i.e.* TV program recording and music copying, no or very relaxed technological protection measures are used. For instance, the digital TV broadcasting system in Japan incorporates the flag system allowing the TV broadcasters to restrict uses of digital TV broadcast, but the free-to-air digital television broadcasters allow their audience to make up to 10 first-generation copies of their broadcasted television programs. Sometimes this number can be reduced to a single copy, but it is more an exception than the rule. The more severe restrictions occurs in case of pre-paid television channels, which can restrict their viewers so that they can make a single copy or even no copy of their broadcasted TV programs at all.

The TV flag system in Japan allows 4 types of regulation on recording digital TV broadcast, *i.e.* no copying, single copy, 10 copies and no restriction. Originally, the digital TV broadcasting system was supposed to contain only 3 types of uses, *i.e.* no copying, single copy and no restriction, but it was found as too restrictive by several important stakeholders. Due to the pressure from the Japanese government and due to the objections from representatives of consumers' interests, especially the Japan Housewives Association, which is an influential association representing the consumers' interests in law making in Japan, one more option was added to the design of digital TV broadcasting system in Japan. The option allowing to make up to 10 first-generation copies allegedly reflects the current Japanese copyright law, which allows making private copies within the family circuit. On average, the Japanese family has 3 members, who can use three types of devices, such as a DVD player, mobile phone and computer. Accordingly, a user should be allowed to make 9 copies plus a backup copy.

Similarly, the marketed pre-recorded music CDs and authorized music downloading services do not employ any restrictions on copying music content. In the past, there have been several attempts to introduce any restrictions on copying music, but all of them have failed so far. Likewise, the iTunes and other similar authorized online music downloading services previously used several copy restriction measures, but they have decided not to implement them anymore due to the consumers' demands and preferences. The only measure currently employed by the music industry allows to trace the source of infringing copies massively shared on the internet. Several record labels insert unique identifiers of each transaction into the downloaded music files. This allows the record labels to trace a person who allowed others to make unlimited copies of music files originally purchased from the authorized music downloading services.

As mentioned above, on the other side of spectrum are the restrictions on recording on live concerts of popular music. The respondents consider and accept the restrictions on recording and making photos during the concerts of popular music singers and groups as quite normal. A possible explanation is that they have got used to such restrictions. A warning on the ban of making any photos and sound or audiovisual recording during the concert is regularly printed on the reverse side of concert tickets. Before and during concerts, several strict measures for implementing those severe restrictions are adopted by concert organizers. Before entering into a venue, the bags of entrants are checked and all objects which can be used for making photos or recordings concert, such as cameras, camcorders, MP3 recorders and the like, are taken by organizers and returned back at leaving the venue after the concert. The warning notices on those restrictions are usually placed around entire venues, and the public announcements on that policy are made several times before and during the concerts. As it is quite difficult to make any photo or recording during concerts, many people take these restrictions for granted. Although some of them complain that the restrictions are too strict and

severe, most of respondents to our survey agreed that the concert organizers should be allowed to restrict the recording of live concerts, even when this use of copyrighted works is allowed by the Japanese copyright law.

With regard to videogame consoles, their manufacturers regularly update the technological protection measures incorporated into their consoles with each new generation. The adopted measures become more and more advanced and difficult to circumvent. Their circumvention thus often requires advance technological knowledge and skills. The majority of consumers, however, accept these measures. We also have to take into consideration that when an individual decides to invest in buying a videogame console, he takes into consideration whether he has enough money for buying necessary videogames for that console.

Somewhere in the middle of our 5-grade Likert-type scale was the respondents' position towards restrictions on copying pre-recorded movie DVDs and Blu-ray Discs. The DVD technology contains the Content Scramble System (CSS), which allows the copyright holders to restrict copying of pre-recorded movies on DVDs as well as to divide the trade with pre-recorded movie DVDs regionally to several zones. A similar system, the Advanced Access Content System (AACS), has been incorporated into the Blu-ray Disc technology. Although both technologies provide the copyright holders with three possible options of copying restrictions (*i.e.* no copy, single copy and unlimited copying), the marketed pre-recorded movie DVDs and Blu-ray Discs do not allow their users to make any copies of them. Nevertheless, the CSS and AACS technologies were quickly circumvented in 1999 and the late 2000s, respectively. The ample availability of software for circumventing both technologies can explain why so many respondents (291 respondents; 25.13%) do not care whether the copyright holders restrict any copying of pre-recorded movie DVDs and Blu-ray Discs. Those who are interested in copying pre-recorded movie DVDs or Blu-ray Discs can easily find the necessary software online. Although the copyright holders have tried to restrict the availability of such software online by suing the software providers and entities linking to servers where such software can be downloaded, it seems that they have not achieved their goal yet and many individuals have experience with copying pre-recorded movie DVDs or Blu-ray Discs. In our online survey, 27.82% of respondents have admitted that they have made any copies of pre-recorded movie DVDs or Blu-ray Discs even when the marketed movie DVDs and Blu-ray Discs do not allow making any copies of them.

### III. CONCLUSION

Our online survey in Japan showed that there are several factors affecting consumers' attitudes towards restrictions on various uses of copyrighted works implemented through technological and other protection measures used by copyright holders. The overall findings show that some uses are more important for the consumers than the others. The differences in the importance of individual types of copyrighted works and their uses can explain why similar technological and other protection measures works with some types of copyrighted works and fails with the others. Our study also observed the importance of social norms and concepts of justice in the acceptance of restrictions on using individual types of copyrighted works. If an individual consider the restriction as justified, there is a higher likelihood that she will confirm with such restriction and will not try to circumvent it in any way.