

Copyright Protection and New Technologies

Technology Providers as New Old Actors in the Institutional Turn within Copyright Law in the Digital Environment

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Abstract

The history of copyright law is intertwined with the progress in technologies which can be used for reproduction and dissemination of copyrighted works for commercial or non-commercial purposes. The introduction of printing press led to the creation of copyright law in order to protect legitimate interests of authors, printers and binders against selling unauthorized editions of their protected manuscripts by third parties. Later, the commercial use of various recording and broadcasting technologies brought granting then traditional copyright holders—printing houses—with new types of exclusive rights, and creating a new group of right holders—record labels, studios and broadcasting companies granted with new types of neighboring rights. Since the middle of twentieth century, the advent of numerous analogue consumer electronics devices allowing their users to reproduce or distribute copyrighted works for their private non-commercial purposes has considerably changed the balance between the interests of conventional stakeholders in copyright protection. The new digital reproduction and dissemination technologies, however, allow re-striking the balance between the interests of concerned stakeholders in any direction—either in favor of strengthening the protection of copyright holders' interests or in favor of broadening the possibilities of using copyrighted works by their consumers for private non-commercial purposes without any need to obtain an authorization from the concerned copyright holders.

This Paper examines the role of technology providers as new old actors in the three recent institutional turns within copyright law and its enforcement in the digital environment. First, many international technical standards for reproduction or dissemination technologies, e.g. CD, DVD or Blu-Ray Disc technologies, have incorporated various proprietary technologies, including digital rights management technologies, on the expense of other creators, technology providers and consumers. Second, many countries the world around have adopted or are currently planning to adopt so-called three strike rules requiring the internet service providers to disconnect frequent copyright infringers from the internet upon three allegations made by affected copyright holders. In some countries, such as Belgium, the courts have gone even further and have already imposed on the internet service providers various duties to monitor their networks in order to prevent acts of copyright infringement committed by their internet users. Finally, some internet service providers, especially those from the U.K., have recently entered into agreements with major record labels to allow unrestricted use of copyrighted works by their premium internet users in exchange for vigilant monitoring of unauthorized sharing and distribution of copyrighted works by the internet service providers within and from their networks. This Paper enquires into the interaction between individual institutions and norms within all three institutional turns within copyright law and its enforcement in the digital environment, and their impacts on copyright law and behavior of individual stakeholders at the present and in the future.

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INTRODUCTION

From the viewpoint of copyright protection,¹ the last decade can be characterized by massive disregard of copyright law by millions of individual internet users on so-called peer-to-peer networks.² The severity of this lamentable situation is, as claimed by major copyright holders, especially record labels, evidenced by the steady decrease of their revenues over the last ten years due to peer-to-peer file sharing.³ Since various other enforcement strategies against organizers of peer-to-peer networks⁴ and individual internet users⁵ has, up to now, failed to bring their expected fruits to persuade millions of individual internet users to comply with the strict requirements of copyright laws, the main corporate copyright holders' tactics has been recently slightly modified. Their main attention has been switched to increasing the role of diverse reproduction and dissemination technology and service providers which they should play in copyright enforcement in the digital environment. In many countries, the major copyright holders' campaigns for strengthening copyright protection in fight against massive unauthorized sharing of copyrighted works on peer-to-peer networks have already led to the imposition of various duties on technology or service providers to induce them to play a more active role in copyright enforcement.⁶

¹ For the purposes of this Paper, the term "copyright" is used in a broad sense as used in common law countries, where it covers the economic rights of authors, performers, phonogram producers and broadcasting organizations. Accordingly, it covers the exclusive economic rights of author's rights and neighboring rights as classified in civil law countries. In places where the analysis exclusively deals with neighboring rights, the term "neighboring rights" is used to make clear that it concerns only neighboring rights.

² See, e.g., MailOnline, *Illegal File-Sharing Downloads 'Costs UK £12.5bn and Thousands of Jobs a Year'* (May 29, 2009), available at <http://www.dailymail.co.uk/sciencetech/article-1189509/Illegal-file-sharing-downloads-cost-thousands-British-jobs-year.html> (last visited Feb. 5, 2010); BBC News, *Seven Million 'Use Illegal Files'* (May 28, 2009), available at <http://news.bbc.co.uk/2/hi/technology/8073068.stm> (last visited Feb. 5, 2010); guardian.co.uk, *Illegal Filesharing: A Problem the Government Can't Solve?* (Nov. 25, 2009) (written by Charles Arthur), available at <http://www.guardian.co.uk/technology/2009/nov/25/illegal-filesharing-digital-economy-bill> (last visited Feb. 5, 2010).

³ See, e.g., RIAA, *2008 Year-End Shipment Statistics*, available at <http://76.74.24.142/D5664E44-B9F7-69E0-5ABD-B605F2EB6EF2.pdf> (last visited Feb. 5, 2010); IFPI, *IFPI Digital Music Report 2010: Music How, When, Where You Want It*, at 6 (2010), available at <http://www.ifpi.org/content/library/DMR2010.pdf> (last visited Feb. 5, 2010) ("Overall music sales fell around 30 per cent between 2004 and 2009."); IFPI, *The Impact of Illegal Downloading on Music Purchasing* (2009), available at <http://www.ifpi.org/content/library/The-Impact-of-Illegal-Downloading.pdf> (last visited Feb. 5, 2010) (outline of various surveys on the impact of illegal downloading on music sales). See also Martin Peitz and Patrick Waelbroeck, *The Effect of Internet Piracy on Music Sales: Cross-Section Evidence*, 1(2) REV. ECON. RES. COPYRIGHT ISSUES 71 (2004); Stephen E. Siwek, *The True Cost of Sound Recording Piracy to the U.S. Economy* (2007), available at [http://www.ipi.org/IPI/IPublications.nsf/PublicationLookupFullTextPDF/51CC65A1D4779E408625733E00529174/\\$File/SoundRecordingPiracy.pdf?OpenElement](http://www.ipi.org/IPI/IPublications.nsf/PublicationLookupFullTextPDF/51CC65A1D4779E408625733E00529174/$File/SoundRecordingPiracy.pdf?OpenElement) (last visited Feb. 5, 2010).

⁴ See, e.g., CNNMoney.com, *Hollywood Wins Internet Piracy Battle: The U.S. Supreme Court Rules against File-Sharing Service Grokster in a Closely Watched Piracy Case* (Jun. 27, 2005) (written by Krysten Crawford), available at <http://money.cnn.com/2005/06/27/technology/grokster/index.htm> (last visited Feb. 5, 2010); The New York Times, *Australian Court Rules Kazaa Has Violated Copyrights* (Sept. 6, 2005) (written by Wayne Arnold), available at <http://www.nytimes.com/2005/09/06/technology/06kazaa.html> (last visited Feb. 5, 2010).

⁵ See, e.g., wired.com, *File Sharing Lawsuits at a Crossroads, After 5 Years of RIAA Litigation* (Sept. 4, 2008) (written by David Kravets), available at <http://www.wired.com/threatlevel/2008/09/proving-file-sh/> (last visited Feb. 5, 2010) (by September 4, 2008 RIAA's massive litigation campaign included "more than 30,000 lawsuits targeting alleged copyright scofflaws on peer-to-peer networks"); CBS News.com, *File-Sharing Mom Fined \$1.9 Million* (Jun. 19, 2009), available at <http://www.cbsnews.com/blogs/2009/06/19/crimesider/entry5097090.shtml> (last visited Feb. 5, 2010); BBC News, *Lawyers Target Thousands of 'Illegal' File-Sharers* (Nov. 27, 2009) (written by Jonathan Fildes), available at <http://news.bbc.co.uk/2/hi/technology/8381097.stm> (last visited Feb. 5, 2010).

⁶ See, e.g., IFPI, *IFPI Digital Music Report 2010*, supra note 3, at 24-25 (outlining the adoptions of three-strike rules also called "graduated responses" in various countries the world around).

In general, three main recent institutional turns, which are directly or indirectly related to increasing the role of technology providers or internet service providers in copyright protection and enforcement in the digital environment, can be distinguished within copyright laws in several developed countries. The first institutional turn is represented by the deployment of technological protection measures and digital rights management systems. Although these technological solutions and their protection are available to the copyright holders already for some time, the last few years have brought new developments and tensions concerning their use, especially in cases where they form part of technical standards for consumer electronic devices controlled through essential patents by a few leading established manufacturers.⁷

The other two institutional turns in copyright protection and enforcement are phenomena which would be unacceptable by concerned stakeholders a couple of years ago, but which have emerged as response to the failure of enforcing copyrights directly against individual internet users or indirectly against the providers of necessary software applications for the operation of peer-to-peer file sharing in the last few years. They are more or less a reaction of one to the failure of another. The first is a so-called three-strike rule which has been or is to be adopted in several countries, such as New Zealand, France, Great Britain and United States.⁸ Under the three-strike rule, the internet service providers are expected to disconnect repetitious copyright infringers from the internet for a while after two warnings of alleged copyright infringements. As the trials of such regimes have caused huge outrages from the side of internet service providers or their customers,⁹ some leading internet service providers has lately struck deals with several major record labels under which the customers of their premium services are allowed to use copyrighted content controlled by those record labels with limited or even no restrictions.¹⁰

⁷ See, e.g., The Register, *China's DVD Format 'Ready by 2008': Blu-Ray Meets the Red Way* (Oct. 12, 2005) (written by Andrew Orłowski), available at http://www.theregister.co.uk/2005/10/12/china_homegrown_dvd/ (last visited Feb. 5, 2010) ("China produced about 70 percent to 80 percent of the world's DVD players. However, Chinese manufacturers need to pay licensing fees to overseas patent holders in the DVD industry."); The Australian, *China Challenges Sony-Led Consortium in Blu-Ray DVD Market*, available at <http://www.theaustralian.com.au/news/china-challenges-sony-led-consortium-in-blu-ray-dvd-market/story-0-1225756134111> (last visited Feb. 5, 2010) ("In just a couple of months since it was launched, the cheaper all-Chinese CBHD players are thought to be outselling Blu-ray players at a rate of about three to one.").

⁸ See, e.g., Office of the Minister of Commerce, *Cabinet Paper: Illegal Peer-To-Peer File Sharing* (Dec. 14, 2009), available at <http://www.med.govt.nz/upload/71039/S92A-Cabinet-Paper.PDF> (last visited Feb. 5, 2010) (New Zealand); The New York Times, *France Approves Wide Crackdown on Net Piracy* (Oct. 22, 2009), available at <http://www.nytimes.com/2009/10/23/technology/23net.html> (last visited Feb. 5, 2010) (France); guardian.co.uk, *Digital Economy Bill Promises Action on Piracy, Games and ITV Regional News* (Nov. 18, 2009), available at <http://www.guardian.co.uk/media/2009/nov/18/digital-economy-bill> (last visited Feb. 5, 2010) (the United Kingdom); cnet news, *A Year Out, Where's RIAA's Promised ISP Help?* (Dec. 23, 2009) (written by Greg Sandoval), available at http://news.cnet.com/8301-31001_3-10420803-261.html?part=rss&subj=news&tag=2547-1_3-0-20 (last visited Feb. 5, 2010) (the United States); guardian.co.uk, *EU Urges to Crack Down on Internet Piracy* (Jan. 10, 2010), available at <http://www.guardian.co.uk/technology/2010/jan/10/eu-illegal-internet-piracy-filesharing> (last visited Feb. 5, 2010) (the European Union).

⁹ See, e.g., The Register, *Kiwis Scrap 'Three Strikes' P2P Policy* (Mar. 24, 2009), available at http://www.theregister.co.uk/2009/03/24/new_zealand_delays_three_strikes_policy/ (last visited Feb. 5, 2010) ("controversial section 92a of the Copyright Act was shown the door by Prime Minister John Key on Monday following public and corporate protests and a well-organized internet 'blackout' campaign"); BBC News, *Anger at UK File-Sharing Policy* (Aug. 25, 2009), available at <http://news.bbc.co.uk/2/hi/technology/8219652.stm> (last visited Feb. 5, 2010); BBC News, *Warning Letters to 'File-Sharers'* (Jul. 3, 2008), available at <http://news.bbc.co.uk/2/hi/technology/7486743.stm> (last visited Feb. 5, 2010).

¹⁰ See, e.g., BBC News, *Anti-Piracy Music Deal for Virgin* (Jun. 15, 2009), available at <http://news.bbc.co.uk/2/hi/8100394.stm> (last visited Feb. 5, 2010); guardian.co.uk, *HP Deal Strengthens*

This paper enquires into the abovementioned institutional changes in copyright law protection and enforcement on digital networks, especially into the role played by the technology providers as new old actors under modern copyright laws. It also examines the role of various well-organized interest groups and broader social atmosphere in drafting new institutions for strengthening the protection of copyright holders' proprietary interests in the digital age.

Section I outlines the relationship between copyright protection and provision of new reproduction and dissemination technologies which can, in some way, endanger revenues of incumbent content providers from their copyrighted content. It examines the mutual interdependency between content and technology providers. At the same, it also points out the frictions and tensions between the interests of both stakeholders in designing new reproduction and dissemination technologies.

Section II introduces different ways of how human behavior can be regulated. It relies on the regulation modalities theory developed by Lawrence Lessig and shows the new insights this theory can provide us with regard to copyright protection and regulation of new reproduction and dissemination technologies. It also examines how the three recent institutional turns within copyright law and its enforcement in the digital environment uses different combination of individual modalities of regulation.

Section III scrutinizes the three recent institutional turns and possible ways of regulating new reproduction and dissemination by law with respective likely responses by other modalities of regulation, *i.e.* social norms, market and technology. It enquires into the role of legislation and courts in regulating new technologies. The analysis also focuses on the role of interest groups in copyright policy making by examining possible biases which can occur during copyright law making process or court proceedings.

The Paper concludes by urging for cautiousness with regard to imposing any broad duties on technology providers in order to induce them to play a more active role of gatekeepers in the protection of copyright holders' proprietary interests in the digital age. The reason is that such regimes can place a considerable burden on other stakeholders, especially consumers and those technology providers which wants to enter on the market with new technologies and business models.

1. COPYRIGHT PROTECTION AND NEW TECHNOLOGIES

The history of copyright protection is intertwined with the introduction of various reproduction and dissemination technologies which allowed then new ways of commercial or non-commercial use of copyrighted works, such as printing press, sound and video recording, radio and television broadcasting and internet communication. The technology providers thus historically played an important role in creating necessary technological and economic foundations for numerous types of copyright-based entertainment industries. Their emergence would have not been possible without availability of essential technologies allowing particular commercial exploitations of copyrighted works. At the same time, the provided technologies steadily reduced the costs of production or dissemination of copyright works so that their commercial exploitation became commercially viable for concerned content providers.

The labor, time and other limited resources saving feature of technology progress in reproduction and dissemination technologies has brought the recurring need to protect by law

Omnifone's Position in Digital Music Battle (Jan. 25, 2010), available at <http://www.guardian.co.uk/business/2010/jan/25/hp-bundles-omnifone-music-downloads> (Jan. 25, 2010).

the investors' interests in commercial exploitation of literary, artistic and scientific works against those who want to directly or indirectly benefit financially from various forms of their uses. For instance, the invention of copyright is response to the introduction of printing press technology and the need to set up legal framework for early market-oriented regulation of printing industry.¹¹ Similarly, the introductions of early sound and video recording technologies, as well as radio and television broadcasting technologies, led to economically significant broadening of the authors' and composers' exclusive rights, as well as to the grant of new exclusive rights to performers and entities involved in music, video and other related entertainment production and its dissemination through radio or television broadcasting.¹² As the threats to commercial exploitation of copyrighted works have significantly changed several times, especially during the last 150 years, the group of stakeholders in copyright policy making has also considerably changed over time.¹³

The conventional view on copyright policy is that there are two main groups of stakeholders: copyright holders and consumers of copyrighted works.¹⁴ The reality is, however, more complex than it may seem at the first glimpse. The group of copyright holders is not only composed from individual creators, such as authors, composers and other types of artists, but also from various kinds of commercial entities, such as record labels, studios, radio and television broadcasters, as well as video game developing and publishing companies, which arrange the delivery of numerous copyrighted works from their creators to consumers in diverse forms on a commercial basis. Over time, many of these content providers were once new types of content providers who struggled with then established content providers. For instance, studios and record labels struggled with publishing houses, authors and composers.¹⁵ Soon after, radio broadcasting companies struggled with record labels and collecting societies representing the interests of authors and composers.¹⁶ To go further, cable television operators struggled with broadcasting companies.¹⁷ And there are still many other examples of struggles between incumbent and new content providers.

Similarly, the group of consumers is not homogeneous. Individual consumers differ significantly in their preferences concerning individual forms of consumptions of copyrighted works. Some consumers like to download sound recordings to their iPods or other types of MP3 players. Others like to listen to their collections of CDs, while there is still another group of consumers who still think that nothing can be compared to the joy of listening old traditional vinyl LP records. Furthermore, there are people who prefer watching movies or playing video games to listening any sound recordings.

¹¹ See, e.g., AUGUSTINE BIRRELL, SEVEN LECTURERS ON THE LAW AND HISTORY OF COPYRIGHT IN BOOKS (Kessinger Publishing, 2008) (1899); L. RAY PATTERSON, COPYRIGHT IN HISTORICAL PERSPECTIVE 20-179 (Nashville, TN: Vanderbilt University Press, 1968); DAVID SAUNDERS, AUTHORSHIP AND COPYRIGHT 35-74 (London: Routledge, 1992); BRAND SHERMAN AND LIONEL BENTLY, THE MAKING OF MODERN INTELLECTUAL PROPERTY LAW: THE BRITISH EXPERIENCE, 1760-1911 11-42 (Cambridge: CUP, 1999); Ronan Deazley, On the Origin of the Right to Copy: Charting the Movement of Copyright Law in Eighteenth-Century Britain (1695-1775) (Oxford: Hart Publishing, 2004).

¹² See, e.g., PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX 49-61 (Stanford, CA: Stanford University Press, 2003); MAKEEN FOUAD MAKEEN, COPYRIGHT IN A GLOBAL INFORMATION SOCIETY: THE SCOPE OF COPYRIGHT PROTECTION UNDER INTERNATIONAL, US, UK AND FRENCH LAW 24-279 (The Hague: Kluwer Law International, 2000).

¹³ See, e.g., MAKEEN, *supra* note 12 (outlining individual institutional switches and concerned stakeholders in copyright protection from printing press to information communication technologies).

¹⁴ See, e.g., L. RAY PATTERSON AND STANLEY W. LINDBERG, THE NATURE OF COPYRIGHT: A LAW OF USERS' RIGHTS 163-241 (Athens, GA: The University of Georgia Press, 1991) (traditionally distinguishing between authors, publishers and users).

¹⁵ See, e.g., GOLDSTEIN, *supra* note 12, at 49-54.

¹⁶ See *id.* at 57-60; MAKEEN, *supra* note 12, at 33-83.

¹⁷ See, e.g., MAKEEN, *supra* note 12, at 227-79.

In addition to the abovementioned heterogeneous groups of traditional stakeholders in copyright law policy, it has recently become more obvious that providers of reproduction and dissemination technologies and services also have something to say in copyright policy making. Since the introduction of first tape recorders allowing the public to record radio broadcast,¹⁸ there has been regularly reappearing claims raised by diverse copyright holders or their collecting societies that the consumer electronics manufacturers should design their technologies in a more copyright friendly way.¹⁹ But only the last few years can be characterized by changing view on the role of technology and internet service providers in copyright enforcement in the digital environment towards their more active involvement.²⁰

The actual role of technology providers in copyright policy has changed from one reproduction or dissemination technology to another. This was also affected by the fact that the technology providers have often also been the content providers. For instance, the first copyright holders—printers and binders—were also technology providers. Gutenberg who is considered as an inventor of modern movable type printing technology was a printer of famous Gutenberg Bible, which was praised for its high quality and relative low price, comparing to previous types of printing. Similarly, first movie producers or radio broadcasters controlled essential patents for manufacturing movie cameras or respectively necessary radio broadcasting devices.

Although the technology providers and content providers can be the same persons, the split and reunion between the two different commercial activities occurs in many cases due to their sometimes conflicting, but also more or less mutually dependant interests. Tensions and mutual dependency between their interests are given by direct and indirect networks effects²¹ of adopting a particular technology for the purpose of reproducing or distributing individual copyrighted works. The more available for consumption the copyrighted content is by using a particular technology, the more entities have incentive to buy or use such technology. For instance, the more available the prerecorded DVDs or recently Blu-Ray Discs are on the market, the more customers decide to buy DVD or Blu-Ray Disc players. By increasing availability of complementary goods—in this case, of copyrighted works—by one unit, the value of each device held by consumers is increased. So far, we can see that the interests of content providers and technology providers are mutually supportive. This is also the reason why many technology providers started with providing necessary content which can be used by their technologies.²²

However, the experiences with success of new technologies on a market show that a technology must be partially or completely open to other competitors in order to be able to

¹⁸ The *Grundig Reporter* case, 1956 GRUR 492 (BGH, 18 May 1955). See also JAAP H.SPOOR, WILLIAM CORNISH AND PETER F. NOLAN, COPIES IN COPYRIGHT 24-26 (Alphen aan den Rijn: Sijthoff & Noordhoff, 1980); Dirk J.G. Visser, *Copyright Exemptions Old and New*, in THE FUTURE OF COPYRIGHT IN A DIGITAL ENVIRONMENT 49, 50 (P. Bernt Hugenholtz ed., The Hague: Kluwer Law International, 1996); ANDREAS DUSTMANN, DIE PRIVILEGIERTEN PROVIDER: HAFTUNGSEINSCHRÄNKUNGEN IM INTERNET AUS URHEBERRECHTLICHER SICHT 49-50 (Baden-Baden: Nomos Verlagsgesellschaft, 2001).

¹⁹ See, e.g., *CBS Songs Ltd. v. Amstrad Consumer Electronics Plc.* [1988] A.C. 1013, [1988] R.P.C. 567, [1988] 2 All E.R. 484 (a case dealing with the marketing of double-deck cassette recorder in the United Kingdom); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 78 L. Ed. 2d 574, 104 S. Ct. 774 (Jan. 17, 1984) (a case dealing with the marketing of Betamax video tape recorder in the United States).

²⁰ See, e.g., Pater S. Menell, *Indirect Copyright Liability and Technological Innovation*, 32 COLUM. J.L. & ARTS 375 (2009); Alfred C. Yen, *Torts and the Construction of Inducement and Contributory Liability in Amazon and Visa*, 32 COLUM. J.L. & ARTS 513 (2009); Alain Strowel, *Internet Piracy as a Wake-Up Call for Copyright Law Makers: Is the "Graduated Response" a Good Reply?*, 2009 WIPO J. 75 (2009).

²¹ See, e.g., OZ SHY, THE ECONOMICS OF NETWORK INDUSTRIES (Cambridge: CUP, 2001).

²² For instance, the companies such as Sony, Nintendo or Philips market together with their consumer electronics devices also the copyrighted content which can be used at their devices. These platforms are often so unique that the prerecorded media can be played or used only on the devices provided by them.

acquire a sufficient market share to be adopted as technical standard for the entire industry, be it *de facto*, *de jure* or other formally adopted technical standard.²³ The closed proprietary technologies only rarely become widely-used industry standards. The reason is that due to lacking competition between different manufacturers of compatible devices, consumers cannot benefit from a variety of diverse compatible devices and their lower prices, which guarantee the success of technical standard on the market. The exceptions are those closed proprietary technologies, which benefitted from a sufficient variety of complementary goods and services provided by other competitors to such technologies.²⁴

In addition to the available sufficient variety of necessary copyrighted works to be used by the concerned technology, the utilities of particular technology also matter, especially when the consumers are required to bear the costs of switching from one technology to another, *e.g.* switching for VCRs to DVD and then Blue-Ray Disc technology. In this case, the higher the picture quality is or the more utilities the technology provides consumers with, the higher the chances are that more consumers will decide to invest their limited financial resources into the acquisition of such technology. For instance, the DVD and Blu-Ray Disc technologies offer their consumers with much higher media durability and picture quality than VCR technologies could ever do. The latter utility is even more significantly increased by Blu-Ray Disc technology in order to guarantee smooth transition from DVD to Blu-Ray Disc technology. These benefits to their consumers could thus overcome the negative fact that they considerably limit the consumers' ability to copy prerecorded DVDs and Blu-Ray Discs due to the use of digital rights management (DRM) technologies or to buy prerecorded media in low-cost countries for using them in high-cost countries due to the use of region codes. Accordingly, to persuade consumers to invest their limited financial resources into acquiring new technologies, each technology provider has an incentive to provide the consumers with the technologies possessing more utilities of higher quality than its competitors. To put just a simple example of case involving recording devices, there is always a competition between manufacturers to put on the market devices with higher recording speed and large data storage capacity than those offered by their competitors. This was the case of double-deck cassette recorders, and recently CD, DVD or Blu-Ray Disc burners.

To close the circle, the content providers are willing to place their copyrighted works only on media used by technologies, which guarantee them the highest level of protecting their interests. To avoid the situation that there will not be a sufficient amount of prerecorded media on the market, what would cause that the consumers would not be willing to buy the technology using such media, the established technology providers closely cooperate with major content providers when they design their new technologies. The members of Blu-Ray Disc Association, the industry consortium that has developed and licenses Blu-Ray Disc technology, are thus several major studios, such as 20th Century Fox, Walt Disney Motion Pictures Group, Warner Bros. Entertainment or Universal Studios Home Entertainment. A similar situation was in case of competing HD DVD format developed by the HD DVD Promotion Group.

Some of the technology providers have gone even further and have entered into the production of copyrighted content. In the past, it was quite often that the manufacturer of new technology used for the consumption of some copyright-based entertainment also produced the prerecorded media for such devices. For instance, the 1903 famous movie *The Great Train*

²³ See, *e.g.*, STANDARDS AND PUBLIC POLICY (Shane Greenstein & Victor Stango eds., Cambridge: CUP, 2007); JEFFREY H. ROHLFS, BANDWAGON EFFECTS IN HIGH-TECHNOLOGY INDUSTRIES (Cambridge, MA: MIT Press, 2001).

²⁴ See, *e.g.*, Neil Gandal, Shane Greenstein and David Salant, *Adoptions and Orphans in the Early Microcomputer Market*, 47 J. IND. ECON. 87 (1999) (explaining the adoption of MS-DOS standard by availability of complementary software).

Robbery was distributed by the Edison Manufacturing Company for its Kinetoscope technology. Later, several purely consumer electronics manufacturers also entered into entertainment business by acquiring already established record labels or studios. Over the last three decades, Sony Corporation as a leading consumer electronics manufacturer in the world has acquired several major record labels and studios under its subsidiaries Sony Music Entertainment Inc. and Sony Pictures Entertainment Inc.

On the other hand, many content providers also entered into developing the necessary technologies by themselves or in close cooperation with major consumer electronic manufactures. This allowed them to control their design in the way beneficial to the content providers. But combining the production of technologies with the production of copyright-based industries often brings tensions and frictions, since the interest of content providers is often to design technologies in the way to maximize the gains from the commercial exploitation of their copyrighted works. This frequently causes that such technologies restrict some types of using copyrighted works by their consumers even though their allowing is technically and economically feasible. One of most recent examples is the use of various DRM technologies restricting consumers in various ways of exploiting digital copyrighted works for their private non-commercial purposes.

To sum up, there is a close relationship between the technology users and content providers. Many forms of copyrighted works have been created by technology providers just to guarantee the commercial viability and amply adoption of their technologies by their consumers. At the same time, many content providers have invested a considerable amount of their funds in order to guarantee that new technologies are designed in the way most beneficial to their proprietary interests. Furthermore, both groups of stakeholders in copyright policy making are heterogeneous. Each of them is composed from various incumbent stakeholders and new stakeholders. Copyright policy is thus shaped by the tensions between incumbent and new content providers within the same, or from different, fields of cultural production, the frictions between content and technology providers, as well as the struggles between incumbent and new technology providers. The question therefore arises how new reproduction and dissemination technologies should then be regulated in order to maximize aggregate benefits within modern societies and to minimize social costs brought by such regulation.

2. REGULATION OF NEW TECHNOLOGIES AND ITS MODALITIES

Lawrence Lessig in his seminal work *Code and Other Laws of Cyberspace*,²⁵ which has been recently revised in its second extended edition *Code Version 2.0*,²⁶ distinguishes four so-called modalities of regulation: law, norms, market and architecture.²⁷ He distinguishes these modalities of regulation pursuant to the way how they constrain behavior of individuals. He puts it tersely: “Norms constrain through the stigma that a community imposes; market constrain through the price that they exact; architectures constrain through the physical burdens they impose; and law constrains through the punishment it threatens.”²⁸

Individual modalities of regulation should not be seen in vacuum and as completely independent. The opposite is true. To regulate a particular activity, several modalities of regulation in their combination are often used. The content providers can thus regulate the consumers’ activities by prices charged for the consumption of their copyrighted works. If

²⁵ LAWRENCE LESSIG, *CODE AND OTHER LAWS OF CYBERSPACE* (New York, NY: Basic Books, 1999).

²⁶ LAWRENCE LESSIG, *CODE VERSION 2.0* (New York, N.Y.: Basic Books, 2006).

²⁷ *See id.* at 123.

²⁸ *Id.* at 124.

they strike an agreement with technology providers, they can also restrict the way, how consumers can consume their copyrighted works, by technological constraints implemented into technologies which are essential for such consumption. Hence, the consumers can be asked to pay for copyrighted works with less restrictive technological prevention measures more than for the works which they can watch or listen to only for once. For instance, the digital television broadcasting system can contain so-called flags, which set up the ways how the audience can use the received television broadcast, *i.e.* whether they can record it for later watching or whether they can further stream it by devices such as LocationFree TV or Slingbox via the internet to any place where the users of such devices can access the internet.²⁹ Similarly, the digital recording devices can incorporate the Serial Copy Management System or any similar system which causes that quality of copies gradually deteriorates, *i.e.* each digital copy has lower quality than the copy from which it was made.³⁰

The level of regulation can become even stronger, if any technology which circumvents such technological protection measure is banned. This is the current state after the implementation of two *1996 WIPO Internet Treaties*³¹ into domestic laws worldwide. Law can even require the adoption of particular technological solutions. The U.S. copyright law thus requires the manufacturers of digital audio recording devices or digital audio interface device to conform to the Serial Copy Management System or any similar system.³² In mid-2000s, there were several attempts to incorporate into digital television broadcasting system various requirements to recognize flag systems by the manufacturers of necessary consumer electronics, such as TV sets and diverse types of recording devices allowing to record digital TV broadcast.³³

A further aspect of Lessig's regulation modalities theory is that the system composed from individual modalities of regulation is not static, but it is dynamic. Each modality of regulation is exposed to ongoing alteration, *e.g.* a new statutory or case law or changes in social norms, technologies and prices. Furthermore, none of modalities is immune to changes in other remaining modalities, but they interact between each other. A change in one modality of regulation can lead to counteractions in any other modalities. This thus causes further dynamism between individual modalities of regulation.³⁴ The change in law can lead to a response in form of alterations in prices or designs of technologies, and *vice versa*. These responsive changes can strengthen or undermine the effect of original legal change. Conversely, the modifications in law or social norms can cause success or complete failure of particular technology with the respective impacts on technology or content providers.

Applying Lessig's regulation modalities theories on the abovementioned three institutional turns with regard to the role of technology providers in copyright protection and enforcement in the digital environment, we can see the interactions between individual modalities of regulation and their mutual counteractions more clearly. Habitually, the recording devices are more expensive than only media playing devices, since they provide their consumers with more utilities and ways of using copyrighted works. As a reaction to the high level of private copying by analogue reproduction devices, the major copyright holders entered into the 1992 Athens Agreement and also into several consortia and alliances

²⁹ See, *e.g.*, Randal C. Picker, *From Edison to the Broadcast Flag: Mechanism of Consent and Refusal and the Propertization of Copyright*, 70 U. CHI. L. REV. 281 (2003).

³⁰ See, *e.g.*, Stephen W. Webb, *RIAA v. Diamond Multimedia Systems: The Recording Industry Attempts to Slow the MP3 Revolution – Taking Aim at the Jogger Riendly Diamond Rio*, 7 RICH. J.L. & TECH. 5 (2000).

³¹ The term of “WIPO Internet Treaties” is commonly used for the *WIPO Copyright Treaty* and *WIPO Performances and Phonograms Treaty* adopted in Geneva on 20 December 1996.

³² See, *e.g.*, 17 U.S.C. § 1002 (the U.S. Copyright Act).

³³ See, *e.g.*, Molly S. Van Houweling, *Communications' Copyright Policy*, 4 J. TELECOMM. & HIGH TECH. L. 97 (2005).

³⁴ See LESSIG, *supra* note 26, at 130.

developing various digital media storage technologies such as DVD or recently Blu-Ray Disc technologies. The digital technologies developed in this way have incorporated a variety of copy protection systems preventing technically to use them for copying prerecorded media with copyrighted audiovisual works. The reactions to many of technologically prevention measures was their quick circumvention. Although the law and technologies is employed to restrict certain types of using copyrighted works by their consumers, many users find these protective measures as too restricting and consumer-unfriendly. Therefore, the counteraction from social norms is that many members of concerned social groups find normal to disregard such law and to circumvent the technological prevention measures.

For this reason, the corporate copyright holders did not want to build any online service which would allow downloading authorized copies of sound recordings, movies or other copyrighted works before the effective technology was developed to sufficiently protect their proprietary interests. But the non-existence of any lawful online service led to the development of so-called peer-to-peer networks where their users can share digital file containing copies of copyrighted works without any restriction. Pursuant to Napster founder Shawn Fanning, a then student at the Northeastern University in Boston, the main reason for creating Napster was the lack of music files available on the internet for downloading. Although several years after the introduction of first peer-to-peer file sharing network the major record labels attempted to build their own paid downloading services to provide the consumers with lawful alternatives, their business models were unattractive and too expensive in the eyes of many consumers. The situation was finally changed when Apple launched its iTunes service, which allowed its users to download a track for less than US\$1. The iTunes' success thus only confirmed several studies which were conducted before its official launch and which showed that the consumers are willing to pay for lawful copies of copyrighted sound recordings, but not more than US\$1 per a track.

Although the emergence of new authorized downloading services in mid-2000s created a new significant source of revenues, the main corporate copyright holders saw the use of peer-to-peer network for sharing copyrighted works without obtaining any authorization from the concerned copyright holders as a huge threat to the their proprietary interests. They attempted to eradicate it by suing the commercial entities involved in organizing such networks, as well as individual file sharers. These attempts, however, failed due to the clash between the two modalities of regulation—law and social norms. The corporate copyright holders were therefore force to change their strategy. They started to campaign in many jurisdictions for amending the copyright laws in order to require the internet service providers to play a more active role in copyright enforcement against individual file-sharers under so-called three-strike rules which combine the regulation by law with the regulation by technology.

The first trial operations of three-strike rules have, however, brought a huge opposition by many internet users and also internet service users in many jurisdictions. As a solution, some internet service providers have struck an agreement with several major record labels to provide their premium internet users with an unlimited access to a broad array of music for a moderate monthly fee. This approach attempts to combine all four modalities of regulation in order to achieve sufficient level of compliance with law and to maximize benefits for all concerned stakeholders while minimizing social costs of such regulation.

3. NEW TECHNOLOGIES AND LAW

The contemporary markets with various kinds of entertainment, such as sound recordings, movies, television programs or video games, are dominated by a few companies controlling

together often above 80% of respective worldwide markets. To maximize their income streams from their intangible assets protected by copyrights, these main worldwide corporate copyright holders frequently try to control any form in which their copyrighted works can be exploited. They habitually challenge any new information or communication technology which can provide its users with a new way of how the users can exploit copyrighted works for private, non-commercial purposes without need to obtain any authorization from them—the holders of copyrights—to exploited sound recordings or audiovisual works. The question then arises how the legislators or courts should strike fair and just balance between the interests of all affected stakeholders in regulating new information and communication technologies, when they are asked to serve justice and to protect the interests of affected copyright holders.

3.1. Three Ways of Regulation by Legislation and the Role of Interest Groups in Policymaking

There are three possible ways of regulating the provision of dual-use technologies and online services by legislation. As the law often does not fit many new information and communication technologies very well, the first option is to keep *status quo* and not to broaden the scope of copyright law's application to cover new technologies which is capable of substantial copyright non-infringing uses. In this way, a safe harbor for providers of new technologies and services is created to avoid stifling of innovation and technological progress. In this way, the costs of innovative process due to potential copyright liability of technology provider can be significantly reduced. It is often too difficult to predict all possible consequences and implications of new technologies and online services with regard to their possible misuse for copyright infringements by their users, especially the extent of penetration and the size and severity of their misuses and harm caused to copyright holders. Any liability imposed on technology or online service providers will have a considerable negative impact on their incentives to innovate in new border areas which can be considered by copyright holders as clashing with their private interests in strong protection of their copyrighted works.

At the same time, the safe harbors for technology and service providers are often perceived by copyright holders as created and operated on their expenses. They argue that the provision of many new technologies and services would not be economically viable without their massive use for the exploitation of copyrighted works by their consumers without any authorization obtained, explicitly or implicitly, from the concerned copyright holders. They therefore claim that the solution is to grant them with broad exclusive rights which would allow them to control the design of technologies and online services.

Accordingly, the second option for the regulation of new technologies and online services is the grant of broad exclusive rights to the copyright holders in order to allow them to control the utilities of new technologies and services. Timothy Wu suggests that this model resembles a stewardship relationship.³⁵ The copyright holders are deemed to be stewards of new technologies and services. The problem with the stewardship model is that many main corporate copyright holders often stress their own private interests on the expense of other stakeholders' interests. As they have personal stakes in maximizing profits obtained from the exploitation of their copyrighted works, they frequently put aside business models which can be beneficial to the public and in the long run also to them, but which are on their expenses in the short run.

The copyright holders habitually lack the necessary innovative approach to conducting business which leads to new types of business models. One of the main reasons is that they

³⁵ See Timothy Wu, *Copyright's Communications Policy*, 103 MICH. L. REV. 278, 329-31 (2004).

have already invested a considerable amount of limited resources in the incumbent type of business model adopted by them and preserved for certain time period. Any more radical change from one business model to another would cause losing the already invested resources in the obsolete business model and would also bring additional costs necessary for introducing a new business model. It is then not surprising that the main corporate copyright holders are reluctant to adopt new business models, especially those which are considerably different from the prevailing ones, *i.e.* those business models which do not allow the continuation of prevailing ones and which bring the latter's destruction and substitutions.

In the ideal world where transaction costs approach to zero, it does not matter from the overall perspective how the rights are originally distributed. Through the operation of market they are supposed to be transferred to the party who value them the most.³⁶ This leads to the wealth maximization. Hence, at least in theory, if the copyright holders have the right to control design of new technologies and online services and if the technology or service providers value the provision of concerned technologies or services in a consumer-friendly design with the utilities allowing their consumers to broadly exploit copyrighted works for various non-commercial purposes more than the content providers value their non-provision, the technology or service providers can pay content providers for allowing them to market such technologies or services. Conversely, if the technology or service provider is protected by a safe harbor and the content providers value to change such technologies or services in a copyright-friendly way more than the technology or service providers value their provision in original technological design, the latter can pay to the former for changing the design of such technologies or online services.

However, the real world is not the world without any transaction costs. The converse is the reality. There are several factors which even increase transaction costs in the way that reallocation of originally distributed wealth toward the person who value it the most is often impossible through the operation of market. The first factor is the lack of complete information by everyone. There is a difference in the amount and accuracy of information held by individual stakeholders. The irregular distribution of information considerably affects individual stakeholders in their negotiation on transferring individual rights.

Although the original allocation of wealth does not matter too much at least in theory from the viewpoint of maximizing the wealth of entire society, it matters a lot from the viewpoint of individual stakeholders. They can consider a particular distribution of rights and other limited resources as unfair to them and allowing others to parasite on the fruits of their investment, labor, time and other resources. As shown above, the corporate holders often perceive safe harbors as unfair to them and the same perception of unfairness can be found on the side of technology and service providers in cases where the broad liability for the copyright infringement committed by the users of their technologies and services is imposed on them. This gives them a sufficient incentive to lobby before legislatures in the legislative process in order to tilt copyright law's balance in favor of their private interests. If the power of both industries is equal, the copyright law more or less reflects the interests of both parties. But there might be some differences in power of individual stakeholders. For instance, the specialized authority responsible for drafting copyright bills can be captured by one industry, often by main corporate copyright holders. This is the case of Japan Agency for Cultural Affairs. Even if the agreement is struck between both main industries, it may be done on the expense of broader public—consumers of copyrighted works and respective technologies and online services at the same time.

A further factor increasing transaction costs is division of rights and powers between too many parties. For instance, if there are too many technology providers protected by safe

³⁶ See generally, Ronald H. Coase, *The Problem of Social Costs*, 3 J. L. & ECON. 1 (1960).

harbor, it will be too difficult for copyright holders to negotiate with all of them to restrain the provision of certain technology or online service. While the content providers can strike an agreement with many of them, there will always be a technology or service provider which will reject the deal. For instance, in the U.K. *Amstrad* case,³⁷ the British Recorded Music Industry (BPI) persuaded several manufacturers of double-deck recorders to modify their products in the content providers' favor by limiting the speed of copying from one cassette to another. Amstrad was the manufacturer who resisted and decided to market its double-deck recorder with higher recording speed than other competitors provided at that time. Similarly, when too many copyright holders can control the design of new technologies and online services, it is very difficult for technology or service providers to conclude an agreement with all of them. For instance, in the U.S. *Sony* case,³⁸ there were three main groups of copyright holders. The first group was composed of those who agreed with recording their television broadcast by Sony's Betamax video tape recorder. The second group represented those who were indifferent and did not mind with recording their copyrighted works by the Betamax users. The third group encompassed those who were against the marketing of Betamax and therefore decided to sue Sony for indirect copyright infringement. We can thus see that it is often very difficult to find agreement in a too dispersed group of right holders. This leads to a creation of gridlock which is hard to be overcome. In Napster case, the operator of Napster's centralized peer-to-peer network tried to obtain the licenses from the concerned record labels for the reasonable license fee, but they failed.

Consequently, the third option in regulating new technologies and services is a continuum between the two above-mentioned models. It attempts to strike a fair and just balance between interests of copyright holders, technology and service providers and the public—consumers. In this case, the provision of new technologies or services is allowed under certain conditions. The regulation of new technologies or services can be created by law or agreement between individual industries or representatives of all affected stakeholders. As the legislative process brings additional costs of establishing such system, any well-organized interest group attempts to campaign for changing the law only when the interests of other stakeholders are not sufficiently organized. The more the interests of other stakeholders are dispersed, the easier it is for the well-organized interest group to tilt the balance in a new law in their favor.

On the other hand, when the interests of other stakeholders are also sufficiently organized, the corporate interest groups attempt to switch to private ordering where two different branches of industries can come to an agreement beneficial to both sides on the expense of other unorganized stakeholders with dispersed interests—consumers. When the agreement is struck between the two industries—copyright-based entertainment industry on the one side, and consumer electronics manufacturers or Internet service providers on the other—it is much easier to approach the legislature with a proposal to change the law in the way reflecting the content of their agreement. This is also the main reason why the direct representatives of consumers' interests are often missing in case of private ordering schemes. It is habitually presented that their interests are already presented either by copyright holders or by technology or service providers. As a response to this negative situation, movements for the protection of users' rights with regard to private, non-commercial uses have recently

³⁷ *Amstrad Consumer Electronics Plc. v. British Phonographic Industry Ltd.* [1986] F.S.R. 159, [1986] 1 F.T.L.R. 73; *CBS Songs Ltd. v. Amstrad Consumer Electronics Plc.* [1988] 1 Ch. 61, [1987] 3 All E.R. 151, [1987] 3 W.L.R. 144, [1987] R.P.C. 429; *CBS Songs Ltd. v. Amstrad Consumer Electronics Plc.* [1988] A.C. 1013, [1988] R.P.C. 567, [1988] 2 All E.R. 484.

³⁸ *Universal City Studios, Inc. v. Sony Corp. of America*, 480 F. Supp. 429 (C.D. Cal. Oct. 2, 1979); *Universal City Studios, Inc. v. Sony Corp. of America*, 659 F.2d 963 (9th Cir. Oct. 19, 1981); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 78 L. Ed. 2d 574, 104 S. Ct. 774 (Jan. 17, 1984).

emerged in several jurisdictions worldwide. Well, we will see to what extent the current negative situation with regards to the representation of consumers' interests will change in the future.

A further problem with an agreement between the representative organizations of individual industries is that they primarily represent the main stakeholders within a particular industry. There are always small- and medium-size independent entities which are rarely the members of such elite clubs. Many of them are either new comers or do not agree with policies adopted by the main stakeholders within the industry. Accordingly, the agreements between representative organizations of individual industries can also be on the expense of independent companies and new entrants into the market.

3.2. Role of Courts in Regulating New Technologies

As mentioned above, the laws rarely address sufficiently new information and communication technologies which allow new ways of using copyrighted works by technology users for private, non-commercial purposes. The question arises what courts should do when a dispute arises and they are approached by one party to adjudicate it. Should they dismiss the case due to *lacuna* in law, or should they reinterpret the law in the way they think that the legislature would make such law if it foresaw the dispute? Due to the division of powers between legislature, administration and judiciary, the courts are supposed to interpret the law and not to create it. That is the task of legislature.

Nevertheless, it is often hard to say that there is no relationship between the provision of technologies which can be used for copyright infringing and non-infringing purposes, and the use of such dual-use technologies in committing acts of copyright infringement by their user. This is the main reason why the German federal courts have regularly found the causal nexus between the provision of dual-use consumer electronic equipments and their usage for copyright infringing purposes by customers.³⁹

As the nexus between providing dual-use technologies and their use for unlawful purposes can be hardly overlooked, the special tests have been designed by the courts in several jurisdictions to sort out good apples from bad ones. The tort laws in many jurisdictions thus require that a technology provider must do something more than to provide dual-use technologies to be found liable for its technology users' wrongdoings. A closer relationship needs to exist between the technology provider's activities and the technology users' wrongdoings. For this purpose, the German courts have developed a so-called adequate causation doctrine (*adäquater Kausalsammenhang*).⁴⁰ Accordingly, when the marketing of tape recorders allowing their users to record radio broadcast was examined by the German Federal Supreme Court (Bundesgerichtshof) in 1950s in the *Grundig* case⁴¹, the court had no other option than to conclude that there was an adequate causation between the technology provider's activities and copyright infringing activities made by the tape recorders' users. At the same time, the court thought that banning any new technology at early stages of its development could considerably stifle further technological progress which is so essential for development of modern societies. The solution was found by the court in creating a safe harbor for technology providers under certain conditions. A technology provider can qualify for this safe harbor protection only when it takes *technologically* and *economically feasible* precaution measures to restrict the possibility of using its technologies for copyright infringing purposes by their users.

³⁹ See, e.g., the *Grundig Reporter* case, 1956 GRUR 492 (BGH, 18 May 1955); the *Personalausweise* case, 1965 GRUR 104 (BGH, 29 May 1964). See also DUSTMANN, *supra* note 18, at 52.

⁴⁰ See, e.g., [...].

⁴¹ The *Grundig Reporter* case, 1956 GRUR 49.

Contrary to the German federal courts, the courts in common law jurisdictions have been habitually reluctant to impose any duty of care on technology providers in order to induce them to prevent the use of their technologies for copyright infringement by their customers. There are several reasons for the common law courts' stance and inactivity. The most obvious reason stems from the traditional distinction between common law torts and statutory law torts to which the copyright infringements belong. While the courts are quite active in common law tort cases, their interpretation of statutory torts is often very limited. It is quite literary and heavily dependent on the actual text of concerned statutory provisions and the legislative history of their adoptions.

While the courts in the U.K., Canada or Australia have developed the doctrine of authorization which stems from the copyright holders' exclusive right to authorize others to use their copyrighted works in the ways specifically identified by copyright laws, the U.S. federal courts several times expressly put forward that indirect copyright liability doctrines stem from the common law. But this is true only partially. Although the creation of indirect copyright liability doctrines by the federal courts were heavily inspired by the common law tort doctrines, the indirect copyright liability doctrines have over time developed into independent doctrines which live their own lives now. This can be seen on the courts' rejection to recognize any duty of care imposed on technology providers under the U.S. copyright law in cases dealing with several dual-use technologies, such as video tape recorders in *Sony* case⁴² and decentralized peer-to-peer networking technologies in *Grokster* case.⁴³ Similarly, the courts in the U.K., Canada and Australia reject any imposition of the duty of care on the dual-use technology providers without any closer relationships with their customers using such technologies for committing acts of copyright infringement, such as in case of double-deck tape recorders in *Amstrad* case⁴⁴ or recently reaffirmed in *KaZaA* case with regard to provider of decentralized peer-to-peer networking technology.

The traditional stance of courts in common law jurisdictions can also be supported by the public choice theory.⁴⁵ As the political deals are struck by adopting an individual legislation, the courts should accept them and should not considerably change the agreed solution by broad statutory interpretation. At the same time, it should be pointed out that the public choice theory also shows shortcomings of legislative process. The problem occurs when the groups of individual stakeholders differ considerably as to their size and organization. Well organized and small interest groups of private industries can often prevail in shaping legislation in their favor on the expense of dispersed and large groups of customers whose interests is rarely sufficiently represented in the legislative process. This feature of legislative process allows that the legislations which significantly affect the interests of a few powerful corporate players are exposed to the so-called minoritarian bias.

The recent trends in regulation of new technologies and online services under the copyright law have even augmented the possibility of occurring minoritarian biases in favor of extending the copyright holders' entitlements to various ways of using their copyrighted works for commercial, as well as non-commercial purposes. The legislatures in many countries are in favor of adopting as statutory law the previous private agreements between affected industries, *i.e.* between the representative organizations of corporate copyright

⁴² See, e.g. [...Sony...].

⁴³ See, e.g. [...Grokster...].

⁴⁴ See, e.g. [...Amstrad...].

⁴⁵ See, e.g., George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 359 (1971); JAMES M. BUCHANAN AND GORDON TULLOCK, *THE CALCULUS OF CONSENT: LOGICAL FOUNDATIONS OF CONSTITUTIONAL DEMOCRACY* (University of Michigan Press, 1962); *TOWARDS A THEORY OF THE RENT-SEEKING SOCIETY* (James M. Buchanan, Robert Tollison and Gordon Tullock eds., Texas A & M University Press, 1980).

holders on the one side and the technology or online service providers on the other. Although one may argue that the technology providers sufficiently protect the interests of customers, this is not always the case. The technology providers always push forward their own interests which can be sometimes consistent with their consumers' interests.

The result is that many new technologies considerably restrict the consumers' possibilities to use copyrighted works in various ways for their private non-commercial purposes without any need to pay remuneration to the concerned copyright holders. In this regard, the courts can play an important role in protecting the public interests against such restrictions due to their conservative element. As the courts are less open to any form of capture by a narrow opportunistic interest group, they can do so by minimal and very narrow interpretation of concerned statutory provisions or by striking down some of such restrictions. For instance, the French Constitutional Council struck down in June of last year the French law introducing the three-strike rule in France due to the presumption of guilt and lack of judicial supervision over revoking individual's internet access. Although at the end the three strike rule was adopted in France still in the same year, several important features have been implemented into the way of its implementation in order to guarantee the protection of internet users' fundamental rights and freedoms in France. As the law is still new, we need to wait and see how it will be implemented by the special institution and tribunal established by this law.

The threat of opening floodgates leading to flood of litigations is also one of hidden reasons behind the common law courts' unwillingness to recognize that technology providers should have any duty of care to prevent using their technologies for copyright infringing purposes. This goes in the line with the general abstention of the courts, especially those in jurisdictions closely akin to English common law traditions, from interfering with competition on the market in some way and thus creating any market entry barriers. Simultaneously, several courts have considered the broadening of negligence liability which occurred particularly in the second half of twentieth century in many common law jurisdictions as going too far and creating a too heavy burden for third parties to be held liable for the principals' wrongdoings.⁴⁶

The burden placed on technology and service providers by the imposition of any duty of care can be seen on the change brought by new digital technologies. Analogue technologies, such as audio or video cassette recorders, did not provide the technology providers with many technologically and economically feasible precaution measures at the advent of analogue reproduction technologies. Accordingly, the judgment of the German Federal Supreme Court in the *Grundig* case created *quasi*-safe harbor for technology provider at least for the meantime. The final result of the approaches adopted in civil and common law jurisdictions for technology and service providers was therefore almost the same with regard at least during analogue era.

Over time, the situation has, however, considerably changed. The digital technologies allowing various technological prevention measures and digital right management have tilted again the balance back in favor of copyright holders. The main problem with these new technological developments is that it is not clear who and how should adopt them. Should the copyright holders be those who should do something to protect their private interests, or should the technology providers be obliged to adopt them? Should the technology providers adopt the state-of-art technologies or should they do more? Where should the border line of what the technology providers should be obliged to do be drawn?

The early approach at the time of starting the commercial use of digital technologies in consumer electronics was that it was the task of copyright holders to adopt necessary

⁴⁶ See, e.g. [...Ames...].

technological protection measures. However, the problem of technological protection measures is that they do not work if the technological equipments used for reading media or receiving data containing copyrighted works (e.g., radio or TV broadcast or its streaming via the Internet) do not recognize them. In such case, they would become completely obsolete. It is thus generally acknowledged that the technology providers should have at least some duties to adopt technological protection measures and recognize digital rights management technologies. Similarly, the safe harbors were designed in many jurisdictions for those internet service providers who just passively arrange communication on digital networks or provide storage facilities for their users. Although these laws require from technology or internet service providers some degree of cooperation with copyright holders in the latter's fight against massive copyright infringements committed by individual customers, the imposition of any ongoing duty to monitor and filter on the technology or internet service providers was expressly or implicitly rejected by law at that time in many jurisdictions.

But this approach has been recently attacked on several levels and has even been partially changed with regard to the duties of internet service providers by courts' decisions in several jurisdictions. Although there are minor nuanced differences between individual concerned jurisdictions, in general the courts in those jurisdictions require the internet service providers to adopt some precaution measures available to the internet service providers. For instance, the Australian courts require for imposing such duty on the internet service provider a more active involvement of internet service provider in copyright infringing activities of its users than the mere provision of standard internet services. The U.S. Ninth Circuit also found that "a computer system operator can be held contributorily liable if it 'has *actual* knowledge that *specific* infringing material is available using its system,' ... and can 'take simple measures to prevent further damage' to copyrighted works, ... yet continues to provide access to infringing works."⁴⁷ Likewise, the French courts in several cases found the internet service providers liable when they were several times notified on infringements of particular copyrighted work and did not adopted any measure to prevent other occurrences of copyright infringement with regard to same copyrighted works. In Belgium, the courts have gone a bit further and have imposed an ongoing monitoring and filtering duty on the internet service providers despite the fact that Article 15 of E-Commerce Directive⁴⁸ explicitly bans the imposition of such duty on internet service providers.

This change in the position of internet service providers can considerably affect the position of entities manufacturing various consumer electronic devices. The question arises to what extent any duty of care should be imposed on such technology providers. Is there any limit of such duty? What should be the relationship between technology providers and copyright holders in the field of consumer electronic industry?

As pointed out by Lord Templeman in *Amstrad* case in the analogue era and as also explained in Section I above, there is a mutually beneficial relationship between consumer electronics manufacturers and copyright holders in case of marketing consumer electronics allowing their consumers to exploit copyrighted works for various private non-commercial purposes. Both parties considerably mutually benefit from the network effects caused by a broad penetration of particular technology within society. To put it more bluntly, the more pre-recorded media are available on the market, the more devices capable to play them the consumers will buy. Conversely, the more consumers have such devices, the more they will buy pre-recorded media. To achieve this stage, the devices' utilities play a crucial role to persuade consumers to buy them. The more utilities they have, the easier they can be

⁴⁷ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1172 [references omitted].

⁴⁸ Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ("Directive on electronic commerce").

marketed to their final users. The mutual dependence between marketing of consumer electronics devices and prerecorded media was also one of main reasons why several main consumer electronics manufacturers habitually approached main corporate copyright holders with their devices on the development of which they were working at that time.

At the same time, the copyright holders have conventionally attempted to influence the design of final consumer electronic devices so that their interest in maximal protection of their copyrighted works is reflected in the final product as much as possible. This has worked, but only to some degree. For instance, when the first video tape recorders were designed, various consumer electronics manufacturers approached main studios and other important corporate copyright holders affected by these technologies. The response from the side of copyright holders often was that the presented device did not sufficiently protect their interests in limiting the users of such devices in using their copyrighted works, especially making copies of their copyrighted works. The objections of this kind forced some manufacturers to rethink and redesign their technologies. With regard to others, they did not work. In such cases, some of main corporate copyright holders often decided to protect their interests before courts. This was also the case of Betamax video tape recorder marketed by Sony at the end of 1970s and early 1980s.

But the market organization and structure have already significantly changed since early 1980s. Some important consumer electronics manufacturers, such as Sony and Technicolor (former Thomson Multimedia), have their considerable stakes in music, movie and other entertainment industries. This involvement extensively affects their stance in designing new consumer electronics devices in a more copyright-friendly way. To avoid the doom faced by the Betamax technology, the main consumer electronics manufacturers often attempt to create new industry standards from the scratch in an agreement with other main manufacturers and corporate copyright holders. This was the case of CD or DVD technologies, and more recently Blu-ray Disc technology. The private agreements of this kind between main technology providers and corporate copyright holders have become quite frequent and have often been even supported by some national governments as best solutions of problems brought by new technologies and innovations to the protection of copyright holders' interests in the digital environment.

As showed above, the problem is that these agreements are frequently made on the expense of consumers and newcomers. On the one side, the consumers are habitually considerably restricted in possibilities to use such technologies for making private copies of prerecorded media. On the other, the newcomers can be significantly restricted by the established technology providers which often control a huge number of essential patents for implementing such technical standards. The newcomers have only two options: either to pay a considerable amount of royalties to the holders of essential patents or to attempt to develop their own technical standards which can be almost impossible due to the network effects of technical standards in the field of consumer electronics. Accordingly, while the production of newcomers is extensively levied by the payment of royalties for essential patents,⁴⁹ the established technology providers rarely have to pay anything to other holders of essential patents, since they often enter into cross-licensing agreements. This situation led China to threaten development of their own format as a response to the demand on paying huge amounts of royalties by their manufacturers to the foreign companies controlling essential patents for the implementation of DVD format. The solution was found in reducing the royalties demanded by the consortium controlling the DVD format. A similar situation with Blu-Ray Disc technology has led China to develop its own competing standard which is based

⁴⁹ See, e.g., The Register, *supra* note 7 (“The licensing fee accounts for 40 percent of the rough cost of each DVD player.”).

on Toshiba's HD-DVD format. Due to the large size of Chinese market and the lack of using any regional restriction in Chinese standard, this initiative is seen as a threat to the interests of main studios in protection of their audio-visual works, although it uses a copy-protection system similar to the Blu-Ray Disc technology. At the same time, disregarding this standard would mean to abandon a considerable part of huge Chinese market, where the local technology becomes the leading standard. The Blu-Ray Disc technology has started to loose in this format war on the Chinese market due to its much higher price without comparably higher quality of video image. This might affect also other markets, especially when we take that China is currently the largest producer of DVD players in the world.

CONCLUSION

In the history of copyright protection, the technology providers have played an important role in creating new types of entertainment industries based on various forms of commercial exploitation of copyrighted works. They have significantly affected many key institutional turns within copyright law especially within the last 100 years. Although the legislators and courts habitually rejected the direct or indirect imposition of any duties on the technology providers who have not directly commercially used copyrighted works in the past, the situation has drastically changed in the last two decades. This Paper enquired into several such institutional turns in copyright law, the tensions between concerned stakeholders and respective policymaking processes. It pointed out several flaws and shortcoming in these institutional turns. Although the copyrights play an important role in protecting certain results of human creative intellectual labor, they can raise considerable barriers to designing new multimedia communication technologies or can even completely stifle the progress of some information and communication technologies for several years.

This problem is even more amplified by the fact that there are several minefields which are created by several types of proliferated intellectual property rights. Each company who wants to introduce its innovative product into the market must successfully pass through all these minefields. On the one side, the patents essential for the implementation of technical standards are powerful tools in the hands of their holders allowing their holders to shape the structure of entire market with affected technologies. On the other side, there is a minefield created by copyrights to works which can be exploited by using the concerned multimedia technology by its users for their private non-commercial purposes without any authorization obtained from affected copyright holders. The main problem is that any of these powerful holders of intellectual property rights can completely doom a new technology in its advent, especially when the technology can affect the intellectual property right holder's private interests to maximize its income streams from the use of its intellectual property rights.

As the analysis in this Paper showed, the cases occurring when innovators attempt to get through these minefields are often hard cases. They frequently becomes battlefields where contravening public and private interests of various stakeholders clash. Therefore, the legislators and courts should be careful in broadening the scopes of individual types of intellectual property rights and strengthening the level of their protection in order to settle these disputes and to serve justice within modern societies. In each case, the policy makers should carefully balance interests of all affected stakeholders to promote creativity and technological progress not only in one economic area but throughout the entire economy.