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**Toward An Optimal DRM Regulatory Model in China:  
An Analysis of the U.S, Europe and China**

**Presentata da: Xu Cong**

**Coordinatore**

**Prof.ssa Monica Palmirani**

**Relatore**

**Prof. Midaugas Kiskis**

**Relatore**

**Prof. Marina Timoteo**

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Submitted by: Xu Cong

The PhD Programme Coordinator  
Prof. Monica Palmirani

*Monica Palmirani*

Supervisor(s)  
Prof. Mindaugas Kiskis

Prof. Marina Timoteo

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Cong Xu  
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# INTRODUCTION

## **Problem Statement**

Copyright laws emerged from the need to protect intellectual works from any form of unauthorized use and distribution. It was conceived on the basis of protecting the rights-holders' creation from illegitimate use by the public. Over the years, the importance and relevance of copyright laws has grown exponentially and has engendered commensurately significant attention from various governments and jurisdictions which has culminated into the standardization of national copyright laws to some extent through international and regional agreements such as the Berne Convention, the DMCA and EUCD, with very imperceptible differences in various countries' copyright laws.

However, with increasing technological advancement there has been an unprecedented change in the ways in which various digital works are accessed and disseminated. This has necessitated copyright regulatory systems to continuously revise their laws in ways that can adequately respond to the seemingly insurmountable challenge of combating the indiscriminate and illegitimate reproduction and distribution of owners' work that has been facilitated by new technology. Similarly, various copyright laws are also being modified to accommodate the requirements put forth by various copyright owners to protect their exclusive rights. Developed countries and regions that experience rapid technological development, such as the United States and the E.U, have amended and reformed their original copyright systems in the face of rising challenges.

The standardization of copyright laws became imperative as a result of the failure of domestic legal reforms to effectively tackle the problems and loopholes brought on by digital technologies. The advent of the internet coupled with other technological innovations had put a major strain on the efficacy of domestic copyright laws making it progressively impossible to check the diffusion and distribution of information and protected works beyond national borders. The internet has also hindered the curtailment of the distribution of protected work without approval from the copyright owners. Furthermore, a strong domestic copyright law in a foreign country is

completely inconsequential and cannot guarantee protection against infringement. Given the aforementioned, various jurisdictions called for the establishment of basic norms in international conventions for the incorporation of new provisions to deal with digital challenges. The results of the international conventions and treaties were then taken back to these jurisdictions as obligations for compliance. The obligatory implementation of international conventions by various jurisdictions thus led to the enactment of a series of domestic and regional digital copyright laws, such as the DMCA of the United States and the Information Society Directive in the European Union(EU Copyright Directive/EUCD).

In the scramble for an adjustable and effective copyright law mechanism that can successfully tackle the impediments created by the internet and other new technologies, China began exploring various legal reform models that are in alignment with international conventions and treaties and that is desirably relevant to the mounting demands of the developing Chinese socio cultural and economic setting. In the frantic search for an unassailable solution, China simply borrowed legislative approaches from developed societies, such as the United States and the European Union; China enacted a set of statutes, regulations, and judicial interpretations for the digital rights management (DRM) regulatory model mainly through the domestic implementation of international obligations and legal transplant.

The transplantation of the DRM model to advance the struggle of copyright protection in China seems somewhat futile owing to the daunting challenge of implementation which has been rather unsatisfactory. Consequentially, this has clandestinely contributed to the increase of copyright infringement accompanied with growing and unrestrained piracy. Given the indisputable antecedents, it is not out of place therefore to assert that the sole reliance on the transplant and application of foreign regulatory framework such as DRM in China has been a failure with very little accomplishments in the area of copyright protection. In addition to the interoperability challenge of the DRM regulatory model which is set by EUCD and DMCA, there are also legal and logical inconsistencies that these models are characterized by and criticized for. In this regard, the issues of DRM legal protection vis-à-vis traditional limitation on copyright and DRM and “fair compensation” has engendered heated debate and controversy.

The failure of DRM regulatory model in China indicates there is no single answer to the development of a successful policy response to the copyright challenges in the digital age, but a synergistic combination and articulation of ‘law, infrastructure, cultural change, institutional collaboration and better business model. For developing countries, legal transplant though unavoidable in most cases, could be carefully selected and tailored to the socio cultural and economic demands of the country.

The unanticipated technological expansion that is marked by the advent and growth of internet and other groundbreaking innovations caught the legal system largely unprepared and has had many unintended ramifications on copyright laws creating many complications that jeopardizes the efficacy of the most comprehensive international copyright regulatory model. The transplantation and implementation of international copyright regulatory framework by China has been rendered leading to escalating concerns about borrowed laws from other jurisdictions. More than ever, there is an overwhelming need for careful evaluation and scrutiny of foreign regulatory model against the extent of its applicability and relevance in local context.

With the progression of the network age and the incessant shrinkage of the world into a ‘global village’ which enhances, stimulates, and encourages a heightened participatory environment, developing nations like China would have to reevaluate and restructure their copyright regulatory model to reflect and accommodate local peculiarities in ways that are tailored and applicable to the Chinese context within the acceptable provisions of conventional international standards of the DRM regulatory model.

### **Background: *Why focuses on China?***

When the digital age moves toward the development of a participatory environment, it is time for developing countries, especially China, to ponder restructuring their copyright system to present cultural features and promote innovation.

The voice for establishing the regulatory model system with regards to DRM in digital world has been highly valued. In this regard, the other compelling factor incorporated is, yet in China, it seems stuck for the competent authorities, hoping to

change something, but not knowing how to start. Based on the findings from the literature review, I propose a focus on China, or rather Chinese context as guidance for future relevant research. The majority of prior studies on DRM in China did not involve much Chinese contextual variable.

Choosing China as the focus of my thesis research is subject to two factors. One factor related to China's complex socioeconomic situation. China's huge differences in economic and technological advance across the nation have made the intellectual property policies more intricate and challenging. More researches on China's intellectual property policies would remarkably enhance mutual understanding of China and its trade partners concerning the cooperation in all fields.

As renowned comparative legal researcher Alan Watson stated, "a time of transplant is often a moment when reforms can be introduced." Legal transplants in China on DRM provide a chance to reform its laws and make them more sophisticated. Intellectual property architecture in China, strictly speaking, is a hybrid of Civil Law System and Common Law Pattern. It is understandable that chaotic and rough law-making and enforcement on intellectual property aspect, especially DRM regulatory model, all along need to be changed.

China is selected as the research object because of its unique role. Although China is currently advancing rapidly economically, however, it is still the biggest developing country. China has been the subject of overwhelming pressure from the western countries as well, for example, U.S. Government, by virtue of severe copyright infringement issues. In addition, research on the regulatory model of Chinese copyright law in digital times would be used by other countries for reference of legal transplants. The option China has chosen will provide critical lessons for not only the developing countries which are constantly under intense pressure to introduce legal transplants, but also those countries that continue to advocate the transplant of intellectual property laws to foreign soil. In this regard, this specific study on China may be useful to those that are experiencing similar challenges or evaluating whether they should reform their domestic DRM regulatory model.

## Research Questions

Under the external pressure of being required to establish a copyright system in line with international standards, the formulation and revision of the Copyright Law and the DRM model in China rely on international treaties and the relevant overseas regulations for reference. In this regard, the progress of intellectual property law in China indicates the intellectual property infrastructure of China has been established promptly by transplanting the Western framework. However, this legislative framework regarding DRM regulatory model brings about some side effects, such as logical conflicts among articles, undesirable implementation and etc. Why DRM fails in China even China transplanted U.S and E.U's approaches ?

In order to understand the reason for pervasive failure of DRM regulatory model in China. The first question examines the possibilities for its ineffectiveness and its overall incompatibility with the Chinese socio-cultural and economic makeup. The question seeks to estimate the extent of applicability and relevance of the DRM regulatory model in the Chinese context. It is put forward in hopes of eliciting an incisive response that adequately demystifies the underlying peculiarities of the Chinese socio-cultural environment as well as its various historical antecedents that may have influenced and shaped its domestic copyright laws and practices. In similar fashion, the first question aims at identifying various traditional factors that may have contributed largely to the ineffective transplantation, adoption, and implementation of foreign regulatory copyright model in China. This research question intends to understand why the DRM model has failed in China and why the transplantation of various foreign models such as the EUCD and DMCA have not been able to assuage the unremitting escalation of copyright infringement in China.

The second question in regard to “the problems of the existing DRM regulatory model in China” was succinctly enumerated in the main concerns attempts to comprehend the challenges that are presently faced by DRM regulatory model in China. It tries to unravel the various impediments to the efficacy of the DRM regulatory model which when uncovered could be remarkably instrumental in proffering revolutionary groundbreaking solutions that can dramatically transform the copyright regulatory system in China, with an unprecedented improvement that guarantees the protection

of exclusive rights of content creators. Given that developing countries like China would have to depend inevitably on foreign copyright legislation, this inquisition strives to provide possible means through which major improvements and modifications could be made to various foreign copyright models with the view of combining or employing them independently with the ultimate goal of achieving startling results. With an assortment of socio-cultural, economic and technological challenges to the proper implementation of various regulatory copyright models. The aforementioned question seeks to pinpoint the specific irregularities with the DRM model and the extent of its adaptability to China context.

Finally, the last research question which is geared toward proffering meaningful solutions to the current precarious legislative imbroglio that has characterized the copyright system of many developing countries such as China. How to reshape/restructure China's DRM model for solving the issues above-mentioned, based on current local background is a solution oriented question which seeks to take an informed decision that can conclusively resolve the various challenges that have been itemized in the preceding chapters. The purpose of this thought provoking question is to engender the conceptualization of incontrovertible solutions to China's copyright regulatory reform. With an acute awareness of the reasons for the failure of DRM regulatory system in China as well as the reasons for the inadequacies of other foreign regulatory models, this research question is positioned to present an improved, far-reaching solution to the various hindrances that were extensive discussed in earlier chapters with the view of repositioning copyright laws and practices in china for the better.

## **Research Methodology and Expected Value**

*The academic research ought to be more than simply staying within the workshop. Any academic research should focus on providing viable and tangible solutions to the problems in practice. The choice of study approach depends on the nature of the research problem. It appears to return to the cliché of 'selecting appropriate methods for specific research'.*

This research fundamentally covers literature review, doctrinal, interdisciplinary, and

comparative study methodologies. My paper tries to explore three specific objectives (U.S, Europe and China) in achieving the general purpose to ‘make an original contribution to the knowledge of DRM regulatory model in China’. This can be approached through sets of research routes (see research questions above). With regards to the legal methodological core idea, in Gerber’s mind, it was concluded he expressed like that:

[e]ssentially speaking...prescription for the comparatists was not that difficult: “look at how a problem is solved in two or more legal systems and explore the differences and similarities in the respective treatments of the problem.”<sup>1</sup>

Comparative legal studies are currently large areas with various academic orientations, inner debates and even schools of thought with very diverse academic directions. Scholars across the globe have begun their research on the comparison between China’s regulatory model and the western regulatory pattern. In particular, some scholars (like Desai and Yang)<sup>2</sup> from Europe and America have made some preliminary achievements, which have laid out a significant foundation to further their research in this area. However, it is also worth mentioning that the more systematic research has become pressing, and there is a gap between the workshop research and the implementation of that research in practice, especially in these digital times.

Pierre Legrand<sup>3</sup> was considered as one of the scholars who typically insisted that, ‘there must be certain sorts of epistemological assumptions behind the understanding of rule in a certain manner<sup>4</sup>, since every rule can not be self-explanatory and those epistemological assumptions are historically and culturally conditioned’.<sup>5</sup> For

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<sup>1</sup> Jaakko Husa, ‘About the Methodology of Comparative Law – Some Comments Concerning the Wonderland’, Maastricht Faculty of Law Working Paper 2007/5. <http://www.law.unimaas.nl/maastrichtworkingpapers>. Also see the original source: David J. Gerber, ‘Sculpting the Agenda of Comparative Law: Ernst Rabel and the Façade of Language’ in Annelise Riles (ed), *Rethinking the Masters of Comparative Law* (2001) p. 190-208.

<sup>2</sup> Anuj C. Desai, ‘The Limits of Decss Posting: A Comparison of Internet Posting of DVD Circumvention Devices in the European Union and China’, *Journal of Information Science*, Vol. 31, 2005. p. 317-331. Available at: <http://ssrn.com/abstract=729947>, and Sun, Yang, ‘Rightholder as the Center: The DRM System in Copyright after so Many Years’, April 28, 2014. Available at: <http://ssrn.com/abstract=2430424>.

<sup>3</sup> Pierre Legrand is a revealing example on “contextualism” in comparative legal research. Legrand and the theory of functional comparative law are, or so it seems, suggesting a different orientation, notwithstanding, they appear to have something basic in common. This is just another way to say that, ‘naked rules reveal very little...’. Simply, there is an underlying willingness to see rules in a larger frame, not as mere points of restricted interest in legal-textual solitude, but as *a part of something larger*.

<sup>4</sup> Ibid 5;

<sup>5</sup> Ibid 5;

explaining and justify my creative research design, comparative and interdisciplinary research was adopted in this thesis thoroughly, from horizontal aspects (study objects selection) to vertical angles (economic/cultural/societal differences).

As the beginning, Chapter 1 not only provided the audiences a full view/ technique depiction on theoretical aspects of DRM, but also a brief introduction about digital world and its influence on intangible works based on literature review. The popular DRM practices are also discussed in Section 1, Chapter 1. The interaction between technology and law contained in DRM system and its elusive role are the focal points in Section 2 based on literature review.

By and large, in our informational society, my goal here is to identify what problems have occurred regarding China's DRM regulatory model; what are the influences on these issues in China and what solutions are available to tackle those problems. The comparative research methodology will be significantly used in my research, including the comparison of the different legal and cultural systems that vary from country to country, and I will focus on how such differences will affect the regulatory model of DRM architecture.

*“Comparative legal studies are best regarded as the hermeneutic explication and mediation of different forms of legal experience within a descriptive and critical metalanguage...Comparison must not have a unifying but a multiplying effect: it must aim to organize the diversity of discourses around different (cultural) forms and counter the tendency of the mind toward uniformization...comparison must involve the primary and fundamental investigation of difference.”*<sup>6</sup>

Chapter 2 and Chapter 3 are the main roles in comparative research of this thesis. In these two parts, the idea of stressing the context of DRM regulatory model instead of mere black-letter-rules could primarily make a response to the differences of various research objects.

The primary methodological principle of comparative law is that of *functionality*<sup>7</sup>

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<sup>6</sup> Pierre Legrand, 'The Impossibility of Legal Transplants'. *Maastricht Journal of European and Comparative Law* 4 (1997), 111-124, p.23-24.

<sup>7</sup> Konrad Zweigert, 'An introduction to comparative law', Elsevier North-Holland. 1977.



Functionalism, one academic orientation in comparative legal study, implies the functional of law, which emphasizes the functional of comparative legal study more on rules and institutions, but not imply limiting comparative study to written law only.<sup>8</sup> In a functional sense, law should be a part of the larger cultural, social, economic and ideological whole.<sup>9</sup> The definition of functionalism is narrowed down in Chapter 2. It could be acquainted as one analytic aspect of the DRM regulatory model comparison in China, the US and Europe. In this chapter, the background of anti-circumvention rules and their legitimacy features are discussed on the basis of literature review. Legal doctrinal research and comparative study are also taken for comparing the TPMs in U.S, E.U and China's legislation architecture. Besides, legal comparative studies are used intensively in researching exceptions and limitations under DRM regulatory model.

In terms of modeling, the social response can be developed or formulated as the result of the social needs and the social mechanism. The Chapter tries to explain, in as explicit a manner as possible, how this formula work in diverse DRM regulatory backgrounds. It is articulated in Chapter 2 and 3 that the social needs on digital works and digital copyright protection in China, the U.S and Europe are the same.<sup>10</sup> In other words, the characteristics of digital copyright in different countries and regions are all more or less the same. "The protection of original creative works" reinforces the equivalent position to "cultural knowledge dissemination" in the digital society, whether that's in developed countries or developing nations. For copyright in China, at least in terms of intellectual property matter, the matter was acknowledged—and recognized—much later than that in Western countries.

Over the course of the formation of certain social functions, or in order to fulfill the same common social function in relation to digital copyright regulatory architecture, it

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<sup>8</sup> Ibid 2.

<sup>9</sup> Ibid 6.

<sup>10</sup> In this regard, functionalism is on the same basis of "social needs" in the three research objects of my research. In short, in the sense of social needs, U.S, Europe and China shared no difference. Social function, if transposed as the factor to be considered, is not merely deemed as the final result of both formulas. Alternatively, social function is the common goal which in practice, most countries will probe or chase. It seeks to explore the eventual harmonization of the digital copyright world. Briefly speaking, the social functions of the digital rights management regulatory model—or, as we might say, of the intellectual property regulatory system—in different environments comes to be approximately uniform, and not automatically identical in nature.

seems to those countries that the social mechanism should be the same, or at least similar. The social mechanisms are expected to be formed into regulatory models. In this respect, as I mentioned above, the social mechanisms defined in the paper (DRM regulatory model) in China and Western countries have been exactly alike, since China indiscriminately imitated almost the whole of the Western countries.

The social mechanisms can be drawn up from two different aspects: legislative mechanisms and non-legislative mechanisms. As mentioned above, social mechanisms would be the same if we would like them to achieve the same social functions. Also, the social mechanisms in terms of DRM regulatory models in different areas, based on my research, are similar as well. For instance, China established its own copyright regulatory system, which practically cites the whole legislative and practical architecture of Western countries.

In Chapter 3, the undesirable research outcomes based on multi-perspective literature review shows that present DRM regulatory model in China, staying at non-systematization stage, are established on the basis of U.S and the E.U' DRM regulations with a strong characteristic of "hodge-podge". One current problem of DRM regulatory model in China is "Regulatory Model-Making" problem. The other one is "Regulatory Model Implementation" issue, which namely reflects that DRM regulatory model does not transplant well in China. Doctrine research or 'black letter' method in Section 1, Chapter 3, concentrates chiefly on the 'letter of the DRM law' in China. This part recounts the current regulatory model design of DRM in China needs to be re-structured with unsatisfactory regulation analysis.

Social Response implies the social acceptance and the practical enforcement of the tentative regulatory model on DRM in different countries. However, the sums (or social response) are hardly approximate, which can be treated as the incentive of contextualist exploration. What promotes the comparative outcomes with regard to the digital copyright system in particular situations? One thing's for sure: context matters. Chapter 3, interspersed with legislations interpretation, case studies and judicial action/practices analysis as well for detailed explanation in comparative legal studies, which diversifies the comparative legal researches.

Under the specific research questions, it is the comparative research perspective that provides a channel to investigate the underlying factors. Another orientation of comparative legal studies also been used. It is “contextualism”.<sup>11</sup> This direction of comparative study is mainly used in Section 2, Chapter 3 in order to explore/explain the contextual influence on DRM model in China. “Contextualism” can be seen as the external account of the nature of law.<sup>12</sup> It primarily discusses the role of the “context” in which the regulatory model was adopted, as well as the differences and the influence brought by the various regulatory model contexts. The perspective of functional comparative law stresses the comparison of rules and analyses particular similarities and even differences. While contextualists devoted themselves more on the differences than similarities. “Social needs” are assumed to be the same throughout. For the demands to protect intellectual property and knowledge, are the same in various countries.

No matter “functionalism” or “contextualism”, the epistemic willingness to expand the view from mere written law to contextual rules and the way they underline that rule is not only a rule are quite similar. Rather, rule is embedded in deep structures of the society or it has a character of vast architecture where it has particular functions. In this regard, these two aspects in comparative legal studies are highly consistent with my research purposes.

Based on the comparative analysis and the research outcomes in previous chapters, Chapter 4 tries to figure out two types of solutions for predicament in which China’s legal system has been trapped. Direct and indirect strategies are unquestionably generated from the summing-up of the comparative researches among U.S, Europe and China, which exactly means acts shall be appropriately made to the situation. Chapter 5 explores to sketch the outline of tentative DRM regulatory model in China to consider. Literatures review and doctrine research methods are used in this chapter, which pursues the potential DRM regulatory model sample based on the comparative study outcomes. Although the current DRM regulatory model does not transplant well from western countries, it does not mean that for China’s better choice, the regulatory model in U.S and Europe would count for nothing. At this point, Chapter 4, as the

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<sup>11</sup> “‘Contextualism’ refers to the position that the truth-conditions of knowledge ascribing and knowledge denying sentences...vary in certain ways according to the context in which they are uttered” (Jonathan Schaffer, “From Contextualism To Contrastivism”, *Philosophical Studies* 1999, 119: 73–103(2004). p.73)

<sup>12</sup> Ibid 2;

final episode of the whole research, still goes back to the comparative analysis method based on American and EU's experience and lessons. In Chapter 5, specific advice and recommendations for updating DRM regulatory model in China concern more on legislative parts, since legislation among others, after all, is the kernel of the whole regulatory model architecture. As aforementioned, it also adopts "black letter" research method in this chapter. This method in my thesis study intends to reduce the research of written law to a substantially descriptive study of massive technical legal rules to be collected in primary sources. Chapter 5, in methodological sense, is the extension of comparative legal researches on China's DRM regulatory model on the one hand, On the other hand, it is the innovative section for making research contribution.

Finally, a firm answer will be provided for making a response to the research question that "how should China do for restructuring her DRM regulatory model". The concluding remarks are summarized to restate the necessity for a new regulatory model of DRM in China and a series of specific improvements/recommendations have been introduced.

## **Terminology Definition**

Before discussing the DRM regulatory model deeply in a comparative background, a variety of essential concepts necessary for better understanding this research need to be outlined/clarified.

✧ **Digital Rights Management (DRM):** This term was certainly generated in network era. As the most crucial concept, it is thoroughly used in this comparative research. DRM in this paper refers to a comprehensive architecture which not merely protect copyrighted works against unauthorized use of works but also appropriately safeguard the interests of consumers and users. Hereinafter I am going to clarify this notion as a composition which includes TPMs and rights management information provisions, although DRM are sometimes confusingly used to refer solely to TPMs.<sup>13</sup> As the reminder made by Prof. Peter Yu, DRM should includes "a large set of technological tools that not only protect the content, but also monitor consumer

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<sup>13</sup> Graham Dutfield, Uma Suthersanen, 'Global Intellectual Property Law', Edward Elgar, 2008, p.269.

behavior and facilitate payment for content usage.”<sup>14</sup> In this regard, DRM is not merely a legal terminology, but with interdisciplinary implications. According to the explanation of the OECD (Organization for Economic Co-operation and Development) Working Party on the Information Economy, there are three vital procedures contained in DRM should be focused:

*“(a) the encryption of content to keep it unavailable to unauthorised users; (b) the establishment of a licence system for controlling who can access the content and what can be done with it in specific circumstances; and (c) the authentication of the identity of the user, a required step for accessing the different usage rights awarded by the licence.”*<sup>15</sup>

Both copyright owners’ rights and the general public’s could be covered under if well-structured DRM construction.

✧ **Technological Protection Measures (TPMs):** Above-mentioned difference identified by Prof. Peter Yu between DRM and TPMs is this concept was presented based on the governance landscape that provided by two WIPO (World Intellectual Property Organization) treaties, WCT and WPPT.<sup>16</sup> According to the general principle of the article regulated in WCT and WPPT, TPMs used by copyright holders should be “effective.”<sup>17</sup> Also, only copyright holders’ legitimate interests under the copyright law can be protected by effective TPMs.<sup>18</sup> In this regard, “TPMs refer to

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<sup>14</sup> Peter K. Yu, ‘Anticircumvention and anti-anticircumvention’, Denver University Law Review, Vol.84, (2006) p.61.

<sup>15</sup> Report on Disclosure Issues Related to the Use of Copy Control and Digital Rights Management Technologies.DSTI/CP(2005)15/FINAL, <http://www.oecd.org/sti/ieconomy/36546422.pdf>. Access Date: 20/11/2015.

<sup>16</sup> These two WIPO Treaties are WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT). These treaties improve international copyright standards for the Internet era.

<sup>17</sup> For technological protection measures, Article 11 of WCT states that: “Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.” And article 18 of WPPT summarizes it, “Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by performers or producers of phonograms in connection with the exercise of their rights under this Treaty and that restrict acts, in respect of their performances or phonograms, which are not authorized by...”

<sup>18</sup> Ibid;

effective technologies, devices or components used by right owners to prevent access and reproduction of copyright works without prior authorization.<sup>19</sup>

✧ **Rights Management Information (RMI):** Rights management information (RMI) is conceptualized by the WCT and WPPT<sup>20</sup> as information that identifies subject matters protected by copyright and neighboring rights, the right holders, terms and conditions of the use, and any numbers or codes associated with it. DRM systems provide a fast and easy tool for users to secure licences for the use of particular content, and for rights owners to collect information about such usage.<sup>21</sup> As used in Art 12(2) of WCT, “‘rights management information’ means information which identifies the performer, the performance of the performer, the producer of the phonogram, the phonogram, the owner of any right in the performance or phonogram, or information about the terms and conditions of use of the performance or phonogram, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a fixed performance or a phonogram or appears in connection with the communication or making available of a fixed performance or a phonogram to the public.”<sup>22</sup>

✧ **Intellectual Property Acculturation:** Legal culture and legal transplants (“La culture juridique et l’acculturation du droit”)<sup>23</sup> should be beforehand discussed and conceptualized, if “acculturation” needs to be clarified in this thesis. Legal transplants were defined first in the 1970s by Alan Wilson.<sup>24</sup> Scholars in various areas describe “acculturation” from different aspects.<sup>25</sup> Legal acculturation is defined as “a process of transformation whereby a nation that utilizes a non-Western system adopts a more

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<sup>19</sup> Jerry Jie Hua, ‘Toward A More Balanced Approach: Rethinking and Readjusting Copyright Systems in the Digital Network Era. Springer-Verlag Berlin Heidelberg, 2014, p.98.

<sup>20</sup> Art 12(2) of WCT, and Art 19(2) of WPPT, “Obligations concerning Rights Management Information, (1) Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing, or with respect to civil remedies having reasonable grounds to know, that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention: (i) to remove or alter any electronic rights management information without authority; (ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority”.

<sup>21</sup> IFPI—The WIPO Treaties: Protection of Rights Management Information, <http://www.ifpi.org/content/library/wipo-treaties-rights-management-information.pdf>.

<sup>22</sup> Art 12(2) of WCT.

<sup>23</sup> John W. Cairns, 'Watson, Walton, and the History of Legal Transplants', Georgia Journal of International and Comparative Law, Vol.41, 2013. p. 685.

<sup>24</sup> Ibid 2;

<sup>25</sup> Richard J. Ross, 'The Legal Past of Early New England: Notes for the Study of Law, Legal Culture, and Intellectual History,' William and Mary Quarterly 50, 1993, p.28-41.

civilized Western legal system”.<sup>26</sup> Here, in this research, this terminology is to depict the consequences of the intellectual property interaction of a migrant object, the whole ineffectual property culture of whom was shaped in a certain context under particular conditions—with intellectual property feature of the dominant one of the host society.<sup>27</sup>

✧ **Chinese Traditional Culture (Confucianism):** Chinese traditional culture was dominated by Confucius philosophy for thousands of years. So in that sense, Confucianism has been synonymous with Chinese Traditional Culture. It emphasizes the “social ethic” and “*Lun Chang*” (*Lun Chang* means Feudal Order of Importance or Seniority in Human Relationships). Although the Confucian school was discriminated in *Qin Dynasty* and earlier days in *Han Dynasty*, also was challenged by the Metaphysics the Buddhism around Six Dynasties. Nevertheless, experiencing the unprecedented adversity, the Confucianism has been continuous hereunto, depending on its “self-regulation” for accommodating social change. Therefore, the Confucianism has rooted deeply in implicit Chinese value system.<sup>28</sup> In traditional Chinese Confucian environment, intellectual creations and noetic outcome are promoted or required to share by each social member unconditionally, which seems more than what creators deserved in Chinese view so far. Consequently, what impact that Chinese traditional culture posed on its social values appears impenetrable to modern intellectual property culture notwithstanding, the significant unshakable influence from Confucianism school to Chinese intellectual property development cannot be underestimated.

✧ **Fair use/Fair dealing (Limitations and Exceptions of Copyright):** These two concepts<sup>29</sup> are most researched defenses of Copyright infringements, which we also

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<sup>26</sup> Charles R. Venator Santiago, ‘The Uses and Abuses of the Notion of Legal Transculturation: The Puerto Rican Example’, 13 Berkeley La Raza Law Journal, 2002, p.443.

<sup>27</sup> Ibid.

<sup>28</sup> Wu Handong, ‘A Cultural Explanation of Composition and Transfer of IP Law’, China Legal Science. Volume 6., 2007. (In Chinese).

<sup>29</sup> It is Berne Convention provides its member countries for the possibility of using protected works in particular cases, without having to obtain the authorisation of the owner of the copyright and without having to pay any remuneration for such use. Articles 10(1), 10(2), 10bis(1) and 10bis(2), Berne Convention, which includes as follows:

named as “Copyright Limitations and Exceptions”. ‘Fair dealing’ is a British-derived defense,<sup>30</sup> and ‘fair use’ defense originated from US.<sup>31</sup> They are available for the purposes of non-commercial research.

The ‘fair use’ is codified in section 107 of the US Copyright Act, which states that: “...the fair use of a copyrighted work...for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include:

(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work. The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.”

Copyright Limitations and Exceptions are considered into the substantial part for discussion and analysis to improve the reforming of China’s DRM regulatory model in this research.

✧ **Culture Lag Theory:** The term of “Culture Lag” was created by William F. Ogburn, an American sociologist, in 1920s. Ogburn used this concept to summarize the time lag of social transition between material culture and non-material culture. In essence, culture lag mirrors the unsynchronized relationship of the novel technologies adoption and the homologous non-material culture. This theory was adopted in the

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(1)quotations of published works provided that their making is compatible with fair practice, and the extent does not exceed that justified by the purpose; (2)use of literary or artistic works in publications, broadcasts or sound or visual recordings for teaching purposes, provided the use is compatible with fair practice; (3)reproduction by the press, broadcasting or communication to the public by wire (cabling) of newspaper articles on current, economic, political or religious topics; (4)reproduction for the purpose of reporting current events.

<sup>30</sup> The notion is jurisprudentially defined and set out by the UK Court of Appeal, in case *Hubbard v. Vosper* ([1972] 2 QB 84, at 94.), see Burrell, R. and A. Coleman, *Copyright Exceptions: The Digital Impact*, Cambridge, UK: Cambridge University Press, 2005.

<sup>31</sup> *Ibid* 17, p.93.



research to justify the authors' view of point on "culture factors" in Chinese context should be taken into account for analyzing/understanding the difference between China and western countries on this topic.

✧ **Reciprocal Determinism Theory:** The theory of Reciprocal Determinism was raised by psychologist Albert Bandura, one of the famous social theoreticians in 20th Century. Bandura proposed the reciprocal determinism, which involved Environment (E), Persons (P) and Behavior (B). He considers that people's behavior is the result that internal factors of persons (like cognition) interact (select/influence) with environment (like social elements). The core principle of Reciprocal Determinism theory illustrates "how what we do and who we spend time with our behavior impacts upon and changes the Life Conditions in the environment we experience and how we respond cognitively and emotionally as a person to the environmental signal we then receive."<sup>32</sup> The environmental feedback's status will cause different and variable reaction of people's behavior, for instance, beliefs, thoughts and manners. Normally, what people will do is based on what sense they obtain from the feedback.<sup>33</sup>

## **Chapter 1**

### **When Copyright Meets Technology: Digital Rights Management Infrastructure**

#### **Section1. Panorama of Digital Rights Management**

*"Until now, a great deal of the enjoyment of works of authorship was possessive and tactile. Many of us liked acquiring works (including unauthorized private copies); we liked having them; and we liked touching them, even if we rarely, if ever, in fact read, viewed, or listened to them. None of this matters when we apprehend a work through digital access."*<sup>34</sup>

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<sup>32</sup> Christopher J.Mruk, 'Self-Esteem and Positive Psychology: Research, Theory, and Practice', Springer, 2013.p.174, and also see Jeffrey Nevid, 'Essentials of Psychology: Concepts and Applications', Wadsworth, 2012. p.400.

<sup>33</sup> Ibid.

<sup>34</sup> Jane C. Ginsburg, 'From Having Copies to Experiencing Works: the Development of an Access Right in U.S. Copyright Law', Law and Policy 2001(3), p.2.

## 1.1 How Digital Rights Management Got Here

As human civilization has progressed, there has always been a close relationship between technology progress and copyright law. Each significant advancement in the world of technology left historically recognizable imprints in the developing copyright scheme. The smoothing interaction of the copyright system and technologies is not merely in favor of new technical growth and public interest, but it is also helpful in terms of the development of the copyright derivatives market. Inherently, unique value existing in the copyright law system has constantly had to be challenged due to technological progress. They got along with each other well in the overwhelming majority of cases, as a means of both promoting the value of the copyright system and technological development.

An upheaval looms in the way we experience works of authorship. Copyright laws have been revamped since considerable technology advancement in personal computers and the internet. Transformation and communication of works that technological growth has generated tend to reshape a more diverse copyright era.<sup>35</sup> This change was labelled as revolutionary. Less expensive and instantaneous reproduction and distribution of works of authorship, in a networked world, can be granted to each individual.<sup>36</sup>

Digital technologies were first developed in America in the middle of the twentieth century. The technical basis of digital technology was the binary algorithm that was created by German mathematician Gottfried Wilhelm Leibniz in the seventeenth century. "0" and "1" both refer to binary coding, which records massive information as the expression of sound, images and text. Compared with analogue techniques, digital technologies made vast information communication possible through small mediums compression technology. Digital technologies pose a radical influence on information storage, reproduction and communication. Briefly, the technical

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<sup>35</sup> Merges, R. P., Menell, P. S., & Lemley, M. A. (2010). *Intellectual property in the new technology age* (5th ed.). New York: Aspen Publishers.p.411.

<sup>36</sup> Ibid.

challenges that the copyright system met in the digital environment were mainly centered on two aspects: the novel communication routes and a pirating problem.

*"With the development of trusted system technology and usage rights languages with which to encode the rights associated with copyrighted material, authors and publishers can have more, not less, control over their work."<sup>37</sup>*

When American corporate leaders John Mauchly and J. Presper Eckert invented the first "ENIAC" (Electronic Numerical Integrator and Computer) in 1945,<sup>38</sup> one could already tell that digital technologies were well on their way to becoming popularity. In 1946, the "EDVAC" (Electronic Discrete Variable Auto Computer) scheme, proposed by mathematician John von Neumann, became the world's computer prototype. Along with the classification of "software" and "hardware" in 1969 by the International Business Machines Corporation (IBM),<sup>39</sup> computer products became increasingly sophisticated from then on. Computer technologies, as the core element of digital technology, developed quickly under the circumstances in which copyright barely intervened.

The controversy regarding DRM existence is endless. If John Walker was not treated as one of the major opponents of DRM in the digital environment by the public, then it would be preposterous that he said, "How big brother and big media can put the internet genie back in the bottle."<sup>40</sup>

*"Digital rights management is an example of a malicious feature — a feature designed to hurt the user of the software, and therefore, it's something for which there can never be toleration...."<sup>41</sup>*

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<sup>37</sup> Mark Stefik, 'Shifting the Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing', Berkeley Technology Law Journal, v.12, n.1, Spring, 1997.

<sup>38</sup> <http://history-computer.com/ModernComputer/Electronic/ENIAC.html>. Access date: 22/09/2014.

<sup>39</sup> Ibid;

<sup>40</sup> Richard Matthew Stallman, "The Right to Read", February 1997 issue of *Communications of the ACM*, Volume 40, Number 2, (1997) ,p.85-87.

<sup>41</sup> Dan Whitehead, "Banging the DRM, The history of anti-piracy", <http://www.eurogamer.net/articles/banging-the-drm-article>. Access date 14/04/2013.

When the famous software freedom activist Richard Matthew Stallman expressed his concern and anger over DRM in his article "*The Rights to Read*", the very existence of DRM seemed to be a continuous controversy.

Whether it is chips or devices that copyright holders embed, the measures merely prohibit the illegal usage and can also damage users' own equipment. When "better safe than sorry" was adapted to "better safe than Sony" (Sony rootkit incident), the negative impact of DRM bothered the general public considerably.<sup>42</sup> For the provocative statement from "Free Software Foundation Europe" (FSFE), it even described DRM as "digital restriction management".<sup>43</sup> In FSFE's mind, DRM is an obstruction for market competition, which significantly harms the sustainable competitive motivation of many start-ups. It is high time that the copyright owners weighed the cost of DRM hierarchy against the benefits it will bring since DRM is progressively used as the protective measure against piracy.

Besides, the regulatory mechanism related to users' protection needs to be balanced in advance as increasing dissatisfaction arises when the content industries recognize that their market has been decreased. Joseph Liu is also concerned about the relationship between copyright and users<sup>44</sup> which he insisted needs to be fully explored from a legal perspective.

"While the historical lack of consumer participation in crafting copyright legislation is lamentable, the continued lack of such participation is especially alarming, as digital technologies and the Internet open up many new political, social, economic, educational, and career opportunities."<sup>45</sup> For consumers, DRM architecture is not merely a defensive option for internet access, but also a signal of danger for copyright system expansion. It's no wonder that DRM is still not predicted to get the acceptance it would get at the beginning from every trade, like civil libertarians, consumers etc.

*"As the majority of hobbyists must be aware, most of you steal your software."*

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<sup>42</sup> Peter K. Yu, 'Anticircumvention and anti-anticircumvention', *Denver University Law Review*, Vol.84, p.76, 2006.

<sup>43</sup> <https://fsfe.org/activities/drm/>. Access date:10/12/2015.

<sup>44</sup> Joseph P. Liu, *Copyright Law's Theory of the Consumer*, *Boston College Law Review*, vol.44, p.401, (2003).

<http://dx.doi.org/10.2139/ssrn.466420>. Access date:10/12/2015.

<sup>45</sup> Peter K. Yu, 'Anticircumvention and anti-anticircumvention', *Denver University Law Review*, Vol.84, p.18, 2006.

*Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid? Is this fair?"<sup>46</sup>*

—Bill Gates

What you just read was an open letter that was issued in 1976, when Bill Gates's company was still called "Micro-Soft".<sup>47</sup> This letter was addressed to those who pirated Altair BASIC. "The fact that Altair BASIC came on a reel of analogue paper tape clearly demonstrates that the whole history of commercial software can be thought of as an ongoing technological war between those offering the codes for sale and those determined to take it for free."<sup>48</sup>

For the vast majority of computer gamers in the UK, it was in the late twentieth century that copy protection became a major topic. This was around the time that "Jet Set Willy" was released. This "Jet Set Willy" was a computer game that was developed for home computers (ZX Spectrum) by game programmer Matthew Smith. It was said by some people that the simple settings of ZX Spectrum's data storage, to a certain degree, facilitated piracy.<sup>49</sup> Any person could record and make a copy of the copy with a blank tape, back when double tape recorders were used.

In 1977, Apple Computer Incorporation promoted its new product Apple II, which astonished the computer world. The sales volume of Apple experienced a yearly increase of 700%, which led to the true "PC" (personal computer) times.<sup>50</sup> In fact, the sole development of electronic computing technologies has been far from the power of digital technologies. Indeed, the most stirring thing was the combination of computing technologies and communication technologies. In 1969, in order to deal

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<sup>46</sup> John Walker, "The Digital Imprimatur: How big brother and big media can put the Internet genie back in the bottle", *Knowledge, Technology, & Policy*, Vol. 16, No. 3 (2003) p. 24–77.

<http://www.fourmilab.ch/documents/digital-imprimatur/>. Also see [http://en.wikipedia.org/wiki/Digital\\_rights\\_management](http://en.wikipedia.org/wiki/Digital_rights_management).

<sup>47</sup> Richard Matthew Stallman, "The Right to Read", *February 1997 issue of Communications of the ACM*, Volume 40, Number 2, (1997) ,p.85-87.

<sup>48</sup> Dan Whitehead, "Banging the DRM, The history of anti-piracy", <http://www.eurogamer.net/articles/banging-the-drm-article>, 14/04/2013.

<sup>49</sup> Dan Whitehead, "Banging the DRM, The history of anti-piracy", <http://www.eurogamer.net/articles/banging-the-drm-article>. Access date:14/04/2013.

<sup>50</sup> Ibid;

with the "communication" issues among computers, the Advanced Research Projects Agency (ARPA) of the U.S. Department of Defense created the earliest network in the world, called "ARPANET". Distributed Networks, rather than Centralized Networks, were applied by "ARPANET" in order increase network safety. "ARPANET", to a certain degree, formed the features of the modern internet.<sup>51</sup>

If we agree with the concise description about "science", which is "trust, but verify",<sup>52</sup> we might also accept the simple saying on "technology", which can be concluded as "evolution, but paradox". People were concerned that modern science brought vast uncertainty "theories" into laboratory research. Technology, as it were, was doubted by the public — even by the inventors and the creators themselves — for its multifaceted nature. Its designated goals and features had changed so rapidly that they deviated from the very essence of technology — the reason why it was introduced in the first place. Ideally, technologies were to merely highlight creators' desires for facilitating or changing our lives. There are no good or bad people in the technological value system. In this regard, "neutrality" is regarded as nothing other than the exact expression for technological character,<sup>53</sup> no matter whether this discipline has been swayed.

Since human beings stepped into digital times, it was clear that numerous traditional matters had to be subverted by digital elements. Certainly, traditional communication approaches were also included, as communication mediums and their ways were treated as the symbols of revolutionary change. The communication channels in physical circumstances encountered misfortune—misfortune that was either desolated or replaced by digital means. The copyright regime, as an industry that develops and promotes itself via communication, reflects the value of its existence on the communicative progress of the digital environment.

Updated digital communication mediums seemed to be the active players in keeping traditional copyright alive, back when technologies were still relatively new. The combination of technologies and copyright showed the inevitable trend in digitalizing

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<sup>51</sup> Ibid;

<sup>52</sup> <http://www.vintageisthenewold.com/apple/>. Access date: 15/07/2014.

<sup>53</sup> Aditya Kapoor's Blog, "Technology and Learning—The prehistory of the Internet", <https://adityakapoor1.wordpress.com/2010/11/12/the-prehistory-of-the-internet/>

our world. Admittedly, this connection between copyright and technologies also presented the requirement of copyright holders. How could one possibly survive in these digital times? Or, in other words, how could one maintain the interest of copyright holders, and comply with the development of the digital era? This is the main concern nowadays.

When copyright exists independently under the intellectual property regime, it merely regulates the issues that have occurred in the physical world. With the rapid development of new technologies, the problems regarding copyright gradually spread into the digital context.<sup>54</sup> It is understandable that the copyright system has been challenged by technological growth, and sometimes the current copyright regime is delayed when it comes to adapting to this sort of technical innovation. Growing concern from the public is deemed as a control mechanism for the dissemination of information.<sup>55</sup>

Accessing information and knowledge is regarded as a unique method for solving the current dilemma of the copyright system in the digital context. The copyright law system has proved that it has the potential ability to accommodate the increasingly rapid development of technology, and it definitely has special measures to take in order to further its function in the digital world. It is acceptable — and essential — that the complementary feature of copyright makes up the defect in terms of the so-called access right that may emphasize the interests of the public, rather than those of the rights holders.<sup>56</sup>

Over the last two hundred years, the law on copyright has allowed the public to acquire a wealth of concepts, ideas, information or expressions described in different

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<sup>54</sup> "How Science Goes Wrong", *The Economist*. Available at: <http://www.economist.com/news/leaders/21588069-scientific-research-has-changed-world-now-it-needs-change-itself-how-science-goes-wrong>. October/19th/2013, p.11.

<sup>55</sup> Howard Will, "Understanding Net Neutrality: We Need A Better Analogy", *The National Memo*, November 17, 2014. Available at: <http://www.nationalmemo.com/net-neutrality-better-analogy/>.

<sup>56</sup> Tehrani, John, 'All Rights Reserved - Reassessing Copyright and Patent Enforcement in the Digital Age'; available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/ucinlr72&div=9&id=&page=>, access date: 14/08/2013, 72 *University of Cincinnati Law Review*, 45 (2003-2004).

ways, because the final goal of copyright is to protect the public.<sup>57</sup> Nevertheless, the internet significantly changed the world of copyright, challenging the current laws on copyright practice. Additionally, the copyright protection under these circumstances also poses challenges to the copyright system as a whole.<sup>58</sup> At present, the development of digital technology may violate the right of the copyright owners. The copyright architecture should be increasingly advanced in order to accommodate itself to the new environment; conversely, the excessive protection of copyright may hinder the development of digital technologies, and thus harm the interests of the public.

The whole copyrights system has been primarily and gradually changed by novel technology, which embarrasses the exploitation of copyright works and makes it hard to manage in a networked environment. In the digital context, the massive reproduction and distribution of new information and technological innovation has spread dramatically. However, the technical progress poses certain potential issues, including illegal piracy and unlawful commercial exploitation. The commercial profit gradually entered the general public's vision. A number of examples with regard to the economic interest balance have risked the established commercial modules that have absorbed both the normal use of copyright works and the competitive market at large.<sup>59</sup>

TPMs are more than proposed schemes, which have become important and significant components of the current copyright system, and have profoundly changed the copyright system in its entirety. Before the development of digital technologies, copyright holders were not afraid of private copying, because it could not significantly affect the commercial profits of copyright owners. Even when the internet was introduced in 1992, the enormous capacity of documents made reciprocal

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<sup>57</sup> Christophe Geiger, 'Copyright and Free Access to Information, For a Fair Balance of Interests in a Globalised World', *European Intellectual Property Review*. 7(28). 366.2006.

<sup>58</sup> Samuelson, Pamela, 'Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised', 14 *Berkeley Technology Law Journal*. 519 (1999), available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/berktech14&div=35&id=&page=>, access date: 14/08/2013.

<sup>59</sup> Steering Committee on the Role of Scientific and Technical Data and Information in the Public Domain, Office of International Scientific and Technical Information Programs, National Research Council, and National Academy of Sciences, 'The Role of Scientific and Technical Data and Information in the Public Domain: Proceedings of a Symposium', Aug, 2003.



interchange impossible. Private copying has little impact on the benefits of copyright holders. However, the constant development of innovative technologies has led to an earth-shaking impact on the communication and exchange mode, while the benefits of copyright owners have been greatly damaged. In this context, copyright owners began to realize the threat caused by private copying, and as a result, a dazzling array of technical measures are in the works. While the priest climbs a post, the devil climbs ten, and all TPMs shall be cracked without the protection of the law. Besides, “a few hackers are able to overturn the business mode,” so copyright holders begin to “seek to amend the laws, and try unremitting efforts to set more legal provisions for new-developed encryption technology.” After confronting countless obstacles, the World Intellectual Property Organization finally regulated anti-circumvention provisions into the International Protection System. Afterward, anti-circumvention provisions were gradually brought into copyright laws in various countries,<sup>60</sup> and TPMs finally asserted their position in the world of copyright law.

At present, primary electronic databases all adopt encryption technologies to control users' access and their ability to copy. The online music shop iTunes, launched by Apple Computer, is regarded as an online international implementation modality of copyright based on the contract, copyright rules and technology adopted by management media. A few scholars (like Jane Ginsburg)<sup>61</sup> and courts<sup>62</sup> believe that TPMs have become indispensable parts of copyright law in the network era, so we have to construct access rights based on TPMs in order to perfect the economic rights regime. But what is the legal nature and essence of these TPMs? Can they be regarded as the basis of the copyright protection system in the digital era? These questions should be carefully considered, in order to comment on the TPMs or to scientifically plan for the future of copyright. However, the academic circle tends to prefer the TPMs without rational analysis and positioning.<sup>63</sup> This paper starts with the legal

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<sup>60</sup> Stephen Summer, 'Music on the Internet: Can the Present Laws and Treaties Protect Music Copyright in Cyberspace?', Summer, 1999, 8 *Currents: International Trade Law Journal* 31, available at: <https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&crawlid=1&doctype=cite&docid=8+Currents+Int'+Trade+L.J.+31&srctype=smi&srcid=3B15&key=990a1ea8c1eebf0c89d434e991010b0a>, access date: 14/08/2013.

<sup>61</sup> Tom Mcewan, 'Managing Values and Beliefs in Organisations', Financial Times Management May, 2001.

<sup>62</sup> Kathleen Amen, Trish Keogh, and Necia Wolff, "Digital Copyright: A Tale of Domestic Discord, Presented in Three Acts", [http://www.infotoday.com/cilmag/may02/Amen\\_Keogh\\_Wolff.htm](http://www.infotoday.com/cilmag/may02/Amen_Keogh_Wolff.htm). Access date: 14/08/2013.

<sup>63</sup> Thomas P. Heide, 'Copyright in the EU and U.S.: What 'Access-Right'?', *Journal of the Copyright Society of the USA*, Vol. 48, No. 3, Spring 2001. Professor Jane Ginsburg identifies § 1201 of the 1998 Digital Millennium

nature and essence of TPMs, to analyze their passive influence and carry out positioning under the macro environment of the future of the copyright system in the digital era.

The legislation and implementation of copyright protection systems aim to protect the legitimate rights and interests of authors, coordinate the relationship between authors and users, and encourage authors to carry out creations, as well as widespread promotional measures regarding the development of scientific culture. The copyright system emerges along with the issuance of The Statute of Anne, and recent historical developments show an ever-present contradiction between private rights of the author and public benefits. The balance of interest of various parties is the main issue to be considered, while it can be said that the copyright is intended to show balance. The development of network technology, however, has brought about unprecedented challenges for the previous system. Both the circumvention of digitalization and technologically protective copyright measures demonstrate the characteristics of the network, free information flow and information sharing, which are unprecedented challenges in the copyright field.<sup>64</sup> In fact, some people vow that copyright could be overturned in the network era. Due to the prominence of information sharing, privacy has become less stable than ever. Network technology not only provides powerful information and a convenient approach to communication, but also tools and channels for people to probe into other people's privacy; this includes the means to steal others' commercial secrets, carry out illegal transactions, obtain improper interests, evade liability and more. Accordingly, some copyright holders have to set up protective measures for their information and rights. However, some hackers make unremitting efforts at cracking these protection technologies. In the network era, the development of digital techniques and the internet has brought along unprecedented challenges for the interest of copyright holders, while traditional relief measures seem powerless when facing modern infringement activity. Therefore, preventative copyright protection measures emerge as the times require. At present, popular measures refer to DRM technology.

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Copyright Act as the source of the "access-right". She insists this "right" was "implicit in the reproduction and distribution rights under copyright in the days before mass copying devices". Jane Ginsburg, From Having Copies to Experiencing Works: The Development of an Access Right in U.S. Copyright Law, in U.S. Intellectual Property: Law and Policy 2001(3), p.7-8. <http://ssrn.com/abstract=270861>. Access date: 14/11/2015.

<sup>64</sup> Los Angeles Times v. Free Republic, Civ. No. 98-7840, 2000 U.S. Dist LEXIS 5669 (C.D. Cal. Apr. 5, 2000), p.67-68.

## ◆ Why We Need Digital Rights Management

Along with the development of digital technology, the internet does not merely provide convenience while getting information, but it also profoundly affects the management mode of traditional intellectual property, which presents a challenge for current copyright system. In this context, how to create, manage, protect and apply intellectual property as a means of promoting web development through the effective use of the copyright protection regime is an issue of common interest in the intellectual property field, and also in the internet industry at large. At present, the copyright protection problem in the network environment has become a matter of general concern in the copyright protection field — and on a global level, at that. The copyright has the following features under the background of internet communication: The rapid increase of types and quantities of copyright works continuously swells the ranks of the creative, communication and consumption teams. The application of digital technology and the diffusion of the internet allow the masses to participate in the creation of copyrighted work, and to spread the word to the public on their own. Furthermore, the rapidity of their development makes for a difficult situation. With an increase in networking broadband and an overall improvement in transmission quality, it becomes easier for people to copy, spread and use others' work. What's more, anyone could be granted access to certain works — sometimes all it takes is a single click of the mouse. And digitalized works are easily violated compared to traditional works too.

Finally, there is a glittering array of ways in which to violate copyright in the network era.<sup>65</sup> In fact, some websites illegally duplicate, upload and disseminate others' work with no authorization whatsoever. This not only violates the legal rights of the right holder, but it also disturbs the disseminative order of normal network operation; it affects the healthy development of the internet, and results in a devastating shock, shaking traditional industries such as books, music, film and television to the core. Internet service and content providers, as well as customers, are all capable of carrying out these unlawful practices, and all of them shall bear relevant tort liability.

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<sup>65</sup> Kai Purnhagen, Peter Rott(eds), 'Varieties of European Economic Law and Regulation', Volume 3 of the series Studies in European Economic Law and Regulation p.439-458, Competition Law and Consumer Law: Why We Need a Common Consumer Model, July,2014.

The development of the internet cannot be separated from product and content innovation, which should be protected by the copyright protection regime. Therefore, it is of vital importance to perfect this regime and fighting online piracy behaviors.<sup>66</sup> In fact, the ways in which one can infringe the copyright of digital content are too numerous to list. The following reasons are responsible for this phenomenon: pursuit for grand financial interest, lagging legal protection laws and regulations, dislocated moral evaluation and imbalanced recognition on the principle of balance of interest. These conditions show that the development of the internet is calling for legal norms, which face severe challenges as the result of internet infringement.

There are both inherited similarities and differences between copyright protection in the traditional system and in the network era. Both possess the same theoretical origin, legal philosophy (emphasizing the fairness and justice principle, elaborating on the balance of interest, namely to resolve friction between authors and the public). The core concept of legal economics is benefit. Exclusive rights help creators gain compensation; to society, however, all consumers obtain the benefit of satisfaction based on voluntary payments to acquire products and services. In the network environment, copyright has jumped from printing copyright to digital copyright. Copyright protection can be carried out by public means or via implementations conducted by individuals, namely technological measures and rights management, both of which are protected by law. Simultaneously, the copyright needs both protection and management, but copyright holders feel powerless while facing massive authorization in the network environment, and they have to ask for the help of technologically protective measures for their copyright.<sup>67</sup> There are two approaches to copyright protection: the first is using public means, which protect the copyright on the basis of legislation and law enforcement. This kind of protection belongs to "compensation type" — the right of the copyright holder has been violated, so the legal remedies cannot completely heal the wounds. The second approach is adopting individual means, which refers to the precautionary and forewarning measures conducted by copyright holders in order to maintain their interests and keep infringement at bay. Technical measures and rights management both belong to the second means range.

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<sup>66</sup> Christophe Geiger, 'The future of copyright in Europe: striking a fair balance between protection and access to information', *Intellectual Property Quarterly*, Vol. 14(1), p.1-14, (2010).

<sup>67</sup> Qiong Liu, Reihaneh Safavi-Naini, Nicholas Paul Sheppard, "Digital Rights Management for Content Distribution", *Conferences in Research and Practice in Information Technology Series*; Vol. 34, 2003. p.49–58.

Implementations conducted by individuals—namely technological measures and rights management—shall be protected by law. At the same time, the copyright needs both protection and management. However, copyright holders feel powerless while facing massive authorization in the network environment, and they have to ask for technological protection in order to preserve their copyright. Ultimately, the emergence of the internet has changed people's modes of thinking—the way they behave and express themselves as well—which is affecting social relations from various perspectives.<sup>68</sup> In the network environment, the copyright has changed a great deal, from the copy genre to communication mode. The development of the internet, not to mention the overall digitalization of the modern world, has profoundly affected the publishing industry. Moreover, the emergence of online publishing not only changes the traditional form of publishing—the process and management variety, too—but this transformation will become the inevitable trend in the publishing industry. Implementations undertaken by folks, namely technological measures and rights management, shall be protected by law.

Laws became weak once wide-range violations of those laws came into play. The enforcement against large-scale unlawful practices was very limited, as costs were high. When the "Gatekeeper Liability" concept was introduced by Professor Kraakman, it was regarded as a supplement for direct law enforcement that the service/product provider's liability was affirmed by the government.<sup>69</sup> In this way, illegal doings would likely be stopped in advance. Like the prescription drugs system, it caused doctors to take responsibility for protecting patients from medicinal abuse. The copyright regulatory system has been virtually based on this similar "gatekeeper" model, whereby intermediary agencies would finitely undertake due tort liability. These intermediaries are the "gatekeepers" in the copyright scheme.<sup>70</sup>

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<sup>68</sup> Limitations and Exceptions to Copyright and Neighbouring Rights in the Digital Environment: An International Library Perspective , IFLA CLM September, 2002, <http://www.ifla.org/publications/limitations-and-exceptions-to-copyright-and-neighbouring-rights-in-the-digital-environm,2004>, access date : 11/08/2015.

<sup>69</sup> Gordon, Wendy J.; Bahls, Daniel, "Public's Right to Fair Use: Amending Section 107 to Avoid the Fared Use Fallacy", Utah Law Review, 619 (2007), available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/utahlr2007&div=26&id=&page=>.

<sup>70</sup> Thipsurang Vathitphund, "Access to knowledge difficulties in developing countries: A balanced access to copyrighted works in the digital environment", International Review of Law, Computers & Technology, Volume 24, Issue 1,p.9-10. ,(2010)

A significant number of artists and creators are able to communicate with the public via the internet, where the cost of recording devices decreases dramatically, and large record labels are hardly the only option for the digital music industry either. These songs, created under such circumstances, were part of the so-called "internet music", which was when a vast amount of new digital music players entered the global market. Public consumerism has changed as of late, along with the emerging business model. In 2002, Congressman Howard Berman made a speech in a Computer and Communications Industry Association (CCIA) meeting, where he expressed felicitously, "There is no justification for internet piracy. There is no difference between pocketing a CD in a Tower Records and downloading copyrighted songs from Morpheus. Theft is theft." <sup>71</sup>

Berman also pointed out that "internet piracy threatens to undermine the symbiosis between the technology and media industries. The widespread availability of pirate works online makes it difficult for copyright owners to develop viable internet business models. No matter what bells and whistles they add, copyright owners cannot compete with unauthorized internet services that make their works available for free."<sup>72</sup>

## **1.2 Digital Rights Management Techniques**

### **1.2.1 Digital Watermarking**

Watermarks emerged in the paper making industry about several hundreds years ago.<sup>73</sup> With the rapid development of technology, especially digital technology,

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<sup>71</sup> Andrew Tuch, 'Multiple Gatekeepers', John M. Olin Fellow and Fellow of the Program on Corporate Governance, Harvard Law School, *Virginia Law Review*, Vol. 96, p.107, (2010)  
[http://www.law.harvard.edu/programs/olin\\_center/fellows\\_papers/pdf/Tuch\\_33.pdf](http://www.law.harvard.edu/programs/olin_center/fellows_papers/pdf/Tuch_33.pdf). Access date: 14/08/2014

<sup>72</sup> William W. Fisher III, *Promises To Keep, Technology, Law and the Future of Entertainment*, Stanford Law and Politics, 2004, p134.

<sup>73</sup> Ricardo Melendez-Ortiz and Pedro Roffe, 'Intellectual Property and Sustainable Development: Development Agendas in a Changing World', Edward Elgar. Also see Xin Cindy Guo, 'Methodologies in Digital Watermarking: Robust and Reversible Watermarking Techniques for Authentication, Security and Privacy Protection', University of Toronto. p.1, 2008. Feng-HsingWang, Jeng-Shyang Pan, and Lakhmi C. Jain, "Innovations in Digital Watermarking Techniques", p.3-p.4, 2009, Springer. And Fabien A.P. Petitcolas, "Digital Watermarking", 'Digital Rights Management: Technological, Economic, Legal and Political Aspects', Edited by Eberhard Becker Willms Buhse Dirk Gunnewig Nielsr Publishing Ltd, 2009.

digital experts began to apply watermarks, after their popular usage in banknotes or stamps at the beginning of the nineteenth century.<sup>74</sup> Although digital watermarking has many uses in the digital world, digital copyright protection is among the most paramount. Still images, as well as audio and video files, can all benefit from watermarking.

From an application standpoint, digital watermarking is one of the parts of DRM.<sup>75</sup> "Digital watermarking is a process that embeds or inserts extra information, named the watermark or mark, into the original data to generate the output, which is called a *watermarked* or *marked* data".<sup>76</sup> A basic digital watermarking structure can be divided into two sections: (1) **Embedding Part**; a system that contains an embedded imperceptible watermark into protected source. Original copyright authentication data, tamper detection information or other confidential messages to restrict access are all possibly embodied in the watermark. (2) **Extraction Part**; based on specific decoding algorithms, the watermarking system can also display the cryptic watermarks to users.<sup>77</sup> This process merely distinguishes the correct method of extracting embedded information, which obstructs invalid access effectively.



**Figure 1.1 Structure of Digital Watermarks-based Systems**

Digital watermarking, as an indispensable technique tool for copyright protection, is characterized by several traits:

<sup>74</sup> Armstrong, Timothy K., 'Digital Rights Management and the Process of Fair Use'. Harvard Journal of Law & Technology, Vol. 20, p. 113, Fall 2006. Available at <http://ssrn.com/abstract=885371>. access date: 16/11/2015

<sup>75</sup> Xin Cindy Guo, "Methodologies in Digital Watermarking: Robust and Reversible Watermarking Techniques for Authentication, Security and Privacy Protection", *University of Toronto*. p.1, 2008.

<sup>76</sup> Feng-HsingWang, Jeng-Shyang Pan, and Lakhmi C. Jain, "Innovations in Digital Watermarking Techniques", p.3-p.4, 2009, Springer.

<sup>77</sup> Fabien A.P. Petitcolas, "Digital Watermarking", "Digital Rights Management: Technological, Economic, Legal and Political Aspects" Edited by Eberhard Becker Willms Buhse Dirk Gunnewig Niels Rump, 2003. p.91. Springer.

- **Robustness;** It has been accepted as a characteristic feature of digital watermarking. What robustness focuses on is the integrity (or partial integrity) of the embedded watermarks after digital processing (including inter-channel noise/ filtering operations /transformation, etc.).
- **Imperceptibility;** Digital watermarking is the technology embedded in host data that cannot be perceived by the visual sense or auditory senses. In other words, scarcely any modifications or distortions would affect the watermarked content after the application of the watermarks.
- **Security;** As I mentioned in the digital watermarking extraction section, the system requires users to cryptographically provide the correct keys to reach the watermarked information. This is the vital characteristic of digital watermarking, which is regarded as an effective way to protect digital copyrighted content.

Several years ago, IBM released visible watermarking technologies — different from the indiscernible watermarking technologies discussed above.<sup>78</sup> IBM's version allows copyright holders or distributors to embed their marks or logos into the image as visible watermarks. This kind of watermarking would only be erased only if “decryption” software applications or watermarking-remover programs were used.<sup>79</sup>

### ***1.2.2 Fingerprinting***

Technicians who are familiar with digital copyright protection technologies might comprehend that technically speaking, there are differences between digital watermarking techniques and the digital fingerprinting approach. Both digital watermarking systems and digital fingerprinting techniques are content-based identification technologies. Digital watermarking embedding systems normally contain copyright holders' identification information. Digital fingerprinting systems, conversely, consist of both users' and distributors' identification information.<sup>80</sup>

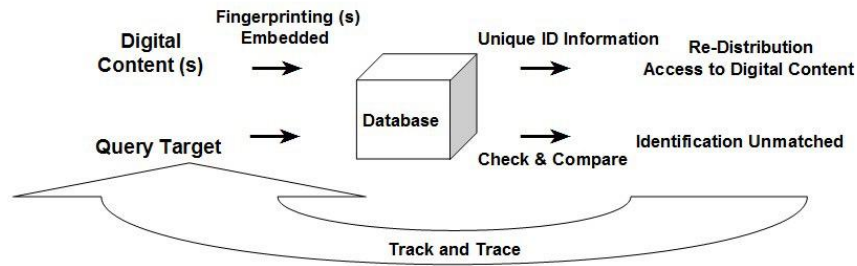
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<sup>78</sup> Xin Cindy Guo, "Methodologies in Digital Watermarking: Robust and Reversible Watermarking Techniques for Authentication, Security and Privacy Protection", University of Toronto. p.1, 2008.

<sup>79</sup> Ibid 81;

<sup>80</sup> Van-Nam Huynh, Thierry Denoeux, Dang Hung Tran, Anh-Cuong Le, Son Bao Pham, 'Advances in Intelligent Systems and Computing', Proceedings of the Sixth International Conference KSE 2014 (Advances in Intelligent Systems and Computing), p.202.





**Figure 1.2 Basic Principle of Digital Fingerprinting Technology**

The digital fingerprinting system consists of two subsystems; one is to embody digital fingerprints into copyrighted resources and to distribute these files (known as the "distribution system"). The other subsystem aims to track and identify these distributors who deliver digital content without unique signatures from the developers, and is known as the "tracking or identification system". These two sections work in tandem with each other, and a series of licenses between distributors and users can facilitate the process for digital fingerprinting technologies. The main duty of digital fingerprinting is to differentiate authorized users from unauthorized ones. Usually, original issuers embed various users' sequence numbers and identification information as different types of digital fingerprinting into digital copyrighted works, as a means of preventing copyright infringement. Otherwise, the original distributors could track the unauthorized distribution on the basis of a "tracking system". For these reasons, digital fingerprinting technology accommodates copyright owners in a positive way.

Also, digital fingerprinting is characteristic of robustness, which is comparable to the similar feature in the watermarking technology. Since robustness is the essential requirement for a content-based identification system, it ought to minimize distorted query signals.<sup>81</sup> In contrast, one way fingerprinting differs from the digital watermarking technique is the "*compact signature*", also known as "*signature compactness*".<sup>82</sup> This specialty is justifiable on the grounds of a great deal of content

<sup>81</sup> Peter Bonne, Copyright Protection and Copy Control When Distributing and Publishing Digital Information, *GSEC Practical Version 1.4b, Option 1*, 2003.

<sup>82</sup> Benjamin J. Bates, "Value and Digital Rights Management: A Soci Economics Approach", Paper to be presented to the Communication Technology division, Association for Education in Journalism & Mass Communication, for the 2006 annual convention, San Francisco, CA available at: <http://www.cci.utk.edu/files/aej2006-DRMSocEcon.pdf>, access date: 16/08/2015. p.4. And Ibid 81;

identification and distribution that digital fingerprinting schemes have to handle. Compact signatures would be convenient and unambiguous for dealing with corresponding information in copyright protection and transaction.

In 2001, one online music file-sharing company, known as "Napster", subscribed to a fingerprinting technology service from Luodeye.<sup>83</sup> It distributed exclusive signatures for millions of songs; and these digital signatures helped Napster track and filter through dishonest users, or distributors who intended to redistribute the original copyrighted content without permission from record labels.<sup>84</sup>

Music identification is among the practical applications of audio fingerprinting technology. A few products that have adopted this technology have become increasingly widespread, as of late. "Gracenote Mobile" software, developed by Gracenote, Inc. (USA) and Philips Research (Netherlands) in 2004, can be applied on mobile phones for music and song identification. The "Gracenote Mobile" application was integrated with audio fingerprinting identification technology from Philips and Wave fingerprinting database from Gracenote. For example, when subscribers would like to get more detailed information on a song or artist, they are encouraged to dial the Gracenote service number for inquiry. Users typically collect the sound data of the music in question and send a piece of five to ten seconds of the music to the Gracenote's server for matching feedback. If matching is done successfully, the servers will send singers, artists, images or other information to these subscribers through the text messages. Amena, a Spanish network carrier, employed a music identification service called "Music Wave", which also incorporated audio fingerprinting technology.<sup>85</sup> Furthermore, the British startup "Shazam" provided a similar service from as early as 2002, although it was on the basis of different audio fingerprinting technology than Philips.<sup>86</sup>

### **1.2.3 Encryption**

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<sup>83</sup> Norishige Morimoto, " Digital Watermarking Technology with Practical Applications", *Information Science, Special Issue on Multimedia Informing Technologies*, Volume2, No.4 1999. p.108.

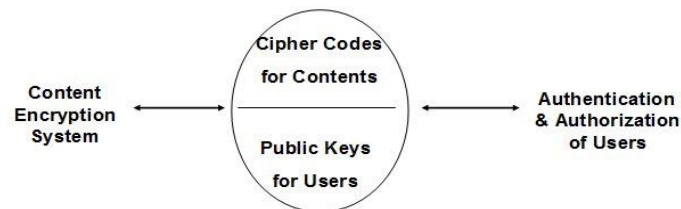
<sup>84</sup> Ibid 85;

<sup>85</sup> Ibid 82;

<sup>86</sup> Ibid 82;

In terms of DRM technologies, encryption is undoubtedly the strongest and most direct way to protect digital copyright.

Encryption is a technology that restricts unauthorized users from accessing the encrypted content, based on encryption algorithm. The algorithm encrypts multimedia information files into cryptographs. Copyright holders and distributors are increasingly aware of the importance of encryption technology for copyright protection in the digital era. Although encryption methods have been widely applied in current digital copyright defense, it is seldom used on its own. Namely, encryption technique is frequently combined with other technologies to be a composite system for DRM.



**Figure 1.3 Encryption-based Cipher Codes Management and Content Distribution**

Over time, encryption has become more and more useful for device identification and the safe transmission of signals from the original distributor to end users. The DRM system, with the data encryption and copy prevention at its core, technologically speaking, is based largely on cryptology theory. Traditional encryption technology for protected copyrighted works is meant to encrypt those works, after all — it's quite simple. Only authorized users could obtain the cipher code, which binds with users' hardware information, to decipher this encrypted content. For enhancing copyright protection, encryption technology can also be improved by constantly extending the length of the cipher code. Encrypting and hardware-binding combination technology minimizes illegal digital reproduction from the right holder's perspective.

Nowadays, people are more apt to watch movies on smart phones or tablet PCs, which has put DVD sales in a precarious position. The film studios, technical corporations and retailers launched "Ultra-Violet" standard as a means of increasing DVD sales and improving poor home-cinema returns. Ultra-Violet was created by the Digital Entertainment Content Ecosystem (DECE LLC), and the service helps these DVD or Blu-ray disk subscribers to watch movies on internet, and/or with their cell phones.

Movies are be stored in the "digital lock"; and DVD or Blu-ray Discs users are able to enjoy the films via various mobile devices once they've activated Ultra-Violet. Although the Ultra-Violet service seems somewhat inconvenient for users, it is currently regarded as among the most popular forms of DRM.<sup>87</sup> Buyers of Ultra-Violet have to create an Ultra-Violet account after they obtain the twelve necessary electronic codes. Subsequently, users must activate another account from an independent internet service platform in order to watch videos.<sup>88</sup>

Ultra-Violet standard has been supported by the majority of Hollywood and Silicon Valley enterprises, which indicates the potential growth of the digital film industry. UltraViolet allows legal users to transmit or download purchased content to multiple platforms or devices.<sup>89</sup> In fact, Ultra-Violet's practice encourages users to "buy once, play everywhere".<sup>90</sup> In fact, Ultra-Violet adopted basic encryption technology that ensures subscribers are able to play the digital works with the same version of the DRM all over the world. It also established a DRM platform between cooperative partners of the Ultra-Violet service for international content compatibility.

#### ***1.2.4 Access Control***

TPMs make up the whole DRM system. TPMs, furthermore, are the important components of the system. TPMs are actually technological approaches that aim to discourage the unauthorized use of digital works.<sup>91</sup> These promotions are fulfilled by controlling access to content, or by restricting to employ these works from specific aspects, including reproduction, distribution and more.<sup>92</sup> DRM systems are defined as "technology systems facilitating the trusted, dynamic management of rights in any

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<sup>87</sup> Vivencio O. Ballano, "Sociological Perspectives on Media Piracy in the Philippines and Vietnam", Springer, p.240.(2015).

<sup>88</sup> "Napster strikes filtering partnership with Loudeye", San Francisco Business Times, 7, Jun, 2001. <http://www.bizjournals.com/sanfrancisco/stories/2001/06/04/daily29.html>. Access date: 21/11/2013.

<sup>89</sup> Aaron Schwabach, 'Internet and the Law: Technology, Society, and Compromises', 2nd ed, ABC-CLIO, 2014. P.94.

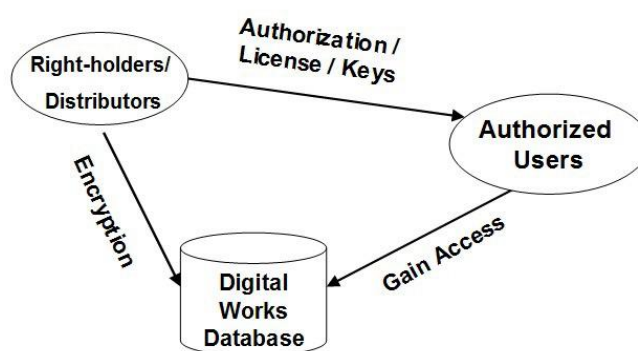
<sup>90</sup> Feng Shuyu, "Efficient and Robust Audio Fingerprinting", 2007. <http://scholarbank.nus.edu.sg/bitstream/handle/10635/13438/FengSY.pdf>. p.20.

<sup>91</sup> Mathieu Ramona, Geoffroy Peeters, "Audioprint: An Efficient Audio Fingerprint System Based On A Novel Cost-less Synchronization Scheme", [http://recherche.ircam.fr/anasyn/peeters/ARTICLES/Ramona\\_2013\\_ICASSP\\_AudioPrint.pdf](http://recherche.ircam.fr/anasyn/peeters/ARTICLES/Ramona_2013_ICASSP_AudioPrint.pdf). Access date: 21/11/2013.

<sup>92</sup> <https://community.mcafee.com/community/business/data/blog/tags/usb>, Access date: 10/12/2013

kind of digital information, throughout its life cycle and wherever and however it is distributed.”<sup>93</sup>

In light of different functions, TPMs are sorted into categories, including "access control" technology and "use control" technology. The access control method is a technological way to restrict unauthorized users from accessing digital content. Passwords and cryptography are the approaches to identifying which ones are authorized. Access control technology, conversely, prevents users from accessing digital works, unless they obtain the authorization to employ them, or the devices are authorized to display or play them.<sup>94</sup> Access control technology contains the Content Scramble System (CSS) and the Advanced Access Content System (AACS), as well as regional DVD coding.<sup>95</sup> CSS contains scrambling, key encryption and conditional access in three parts.



**Figure 1.4 Encryption-based Access Control Method Structure**

Access control technology, for right holders, seems to be the most effective method when it comes to protecting copyright. The current access control technology does not work alone, however. Granted, as technology has developed rapidly, seldom one technique is used for DRM or copyright protection alone. The McAfee Endpoint Encryption solution scheme, mentioned above, mainly utilized the encryption technology on a specific algorithm. However, an access-prohibiting effect somehow

<sup>93</sup> IPS Administration Guide McAfee® Network Security Platform 8.0.

[http://kb.mcafee.com/resources/sites/MCAFEE/content/live/PRODUCT\\_DOCUMENTATION/24000/PD24730/en\\_US/NSP\\_8.0\\_IPS\\_Administration\\_revA\\_en-us.pdf](http://kb.mcafee.com/resources/sites/MCAFEE/content/live/PRODUCT_DOCUMENTATION/24000/PD24730/en_US/NSP_8.0_IPS_Administration_revA_en-us.pdf), p.277. Access date: 10/12/2013

<sup>94</sup><http://maliksadiq13.wordpress.com/2013/09/11/ultraviolet-outlier-in-the-telcos-online-video-ambitions/>, Access date:10/12/2013.

<sup>95</sup> Ian Kerr, Alana Maurushat & Christian Tacit, *Technological Protection Measures: Tilting at Copyright's Windmill*, 34 *Ottawa Law Review*.7, p.13.2003. (Ibid)

came into play, what with the combination of encryption and access control technology. Encryption algorithms are embedded in both McAfee Endpoint Encryption for PC and McAfee Endpoint Encryption for Files and Folders for full disk encryption. In fact, if PCs were lost or stolen, the specific solution would initiate identification authorization for formidable access control. Conversely, for McAfee Endpoint Encryption for Files and Folders, it would extend the access limitation to almost an unlimited amount of internet users, in the case that PCs, laptops, internet servers or other mobile storage mediums were accessed without permission.

### **1.2.5 Use Control (Copy Control)**

Use control method is meant to control the subsequent use of works, even once access has been granted.<sup>96</sup> Comparing the function of "use access" technology to that of access control, we see that "use access" technology restricts the way works usage operates. Since "use" involves quite a few specific factors of copyright protection (like copy/distribution/performance/etc.), the use control method is not merely control "copy" — it, as the name implies, also boasts many "uses". As the most widely adopted approach in DRM and copyright protection, use control is a technological synthesis more than a specific kind of technology. Just as Jacques de Werra explains:

*"These technologies can protect not only against the mere copying of the work, but also against acts infringing other exclusive rights of copyright owners...A technological protection measure for audio (and video) content could also be developed in order to prevent the streaming of these works on the Internet. Because streaming 'does not copy the music onto the listener's hard drive', but 'merely allows her to hear it', such a technology would mainly prevent the infringement of the right of public performance and the right of distribution, and not the right of reproduction".<sup>97</sup>*

Here, CSS is an example of use control method in practice. CSS and Region Protected

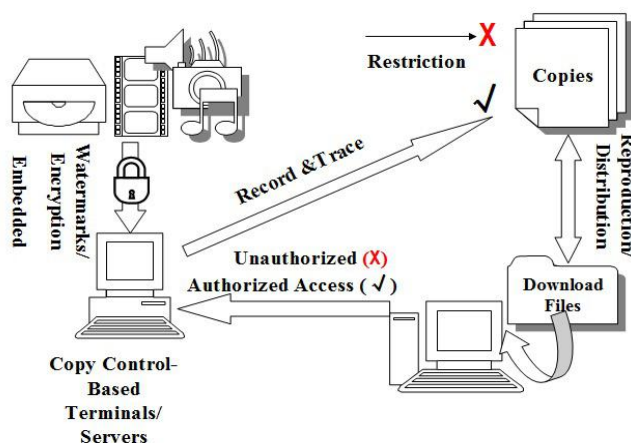
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<sup>96</sup> Original source from Nic Garnett, "Technological Protection of Copyright Works, and Copyright Management Systems" (Paper presented to the ALAI Congress, June 2001) [unpublished], online: ALAI 2001 Congress Program and Presentation.

[http://www.law.columbia.edu/conferences/2001/program\\_en.htm](http://www.law.columbia.edu/conferences/2001/program_en.htm). Access date:10/07/2015

<sup>97</sup> Ibid 49, p.14.

Codes (RPC) embedded in the DVD effectively-made restrictions on the regional usage of DVD playbacks. With the Serial Copy Management System (SCMS), or watermarking technology, it prohibits users from making digital copies of the originals without permission.<sup>98</sup> Watermarks can be embedded in the digital works under SCMS, and these watermark resources also can be applied as a means of identifying the original material or tracking copies<sup>99</sup> — otherwise, to help actualize copy-control function.<sup>100</sup> The watermark details in SCMS can be applied to identify whether CDs can be copied without control, and the copy times, if one was supposed to employ the corresponding recording equipment under SCMS to reproduce CDs without SCMS watermarks — then the trial would be frustrated.



**Figure 1.5 SCMS-based Use Control Architecture**

Digital Transmission Content Protection (DTCP) is another comprehensive use control technology, issued by the Digital Transmission Licensing Administration (DTLA). The purpose of the DTCP technique is to restrict the unauthorized distribution of digitalized audiovisual material, which is received at home once it has been decoded or deciphered.<sup>101</sup> The DTCP builds encryption technology for digital information.<sup>102</sup> DTCP contains "usage rules" (or "copy control information") that

<sup>98</sup> Ha Meléndez -Jubarbe, "DRM Interoperability", Boston University Journal of Science & Technology Law, Volume 15, p.195. 2009.

<sup>99</sup> Ibid 53, p.16.

<sup>100</sup> Digital Rights Background, Systems, Assessment, Commission Staff Working Paper.

[http://www.unic.pt/images/stories/publicacoes/drm\\_workingdoc.pdf](http://www.unic.pt/images/stories/publicacoes/drm_workingdoc.pdf). p. 18. Access Date: 03/12/2013.

<sup>101</sup> Ibid 106;

<sup>102</sup> Ibid 106;

signal the sink devices for the conditions under which they can receive copies of the resource through the organization.<sup>103</sup> Also, DTCP allows for the revocation of devices when personal device certificates have been rescinded — in the case that private key embedded software has been decrypted, or if it has been pirated onto another device.<sup>104</sup> These revoked devices cannot receive the information via DTCP.

In the Secure Digital Music Initiative (SDMI), music would have been safeguarded not merely by watermarking technology, but also by additional security measures.<sup>105</sup> The SDMI organization was established by the music industry for the protection of digital music; it suggests that digital watermarking technology should be encoded in CDs, and digital music data distributed via the internet. Similarly, the SDMI-compatible devices and software could collect information on the time it takes to reproduce content, like SCMS. If the copy times exceed the limited frequencies, the CDs or digital music will not play. Indeed, it's theoretically possible that the SDMI scheme efficaciously protects the profit of the recording industry; however, more importantly, it reduces the likelihood of copyright infringement.

These technologies that have been adopted increasingly by copyright holders and distributors for copyright protection in the digital copyright system are named "technological protection measures", and they are the part of the DRM system. Technology has seldom been solely used as a technical tool against copyright infringement. The only fate the technology system has been combating has been cracked by much more advanced technology, along with specific research times based on the complexity of that technology. More significantly, digital content and authorized works secured in the technology system will likely spread once their technology shield has been destroyed, which may bring about irreversible losses for copyright owners.

Various copyright protection measures are adopted in order to guarantee that the copyrighted works can only be obtained by those users who are authorized. For the

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<sup>103</sup> Original see Jacques de Werra, "The Legal System of Technological Protection Measures under the WIPO Treaties, the *DMCA*, the European Union Directives and other National Laws (Japan, Australia)", online: ALAI 2001 Congress Program and Presentation, [http://www.law.columbia.edu/conferences/2001/program\\_en.htm](http://www.law.columbia.edu/conferences/2001/program_en.htm).

<sup>104</sup> Ibid 49, p.20.2003.

<sup>105</sup> Ibid 106.



two different types of technological control techniques, “access control” and “use control”, there are subtle differences between them. Access control, as the name suggests, it answers “who can get access to what”. Also it contains a series of operational policies which can be implemented by users. While “use control” technique restricts users to fully use the copyrighted content. In other words, specific rights of copyright holders would be prohibited to exercise by “use control” measure. In this regard, copyright protection by “use control” technology will be weaker than what “access control” strategy offers. It is logical and strategic for the copyright owners to use “access controls” rather than “use controls” so as to enhance legal protection against circumvention.<sup>106</sup>

For encryption, it is one of the very fundamental features among the DRM technology. It is effective working on stopping illegal access. The works can be protected by encrypting for preventing them from being viewed until they are unscrambled with the proper key<sup>107</sup> (Public Key or Symmetric Key). However, encryption can not provide any further protection on how the copyrighted material spread once access is gained. The encrypted format could be copied and disseminated, with the decryption key. Then you will know everything. Encryption may be a risky choice for copyright holders to make.

Digital watermarking is normally employed to authenticate or validate message contained in digital media. Its main function is to identify the source, the ownership, or the authorized users of digital works. In a sense, the identification message of the original source, the distributor of the digital copyrighted work could be all the invisible data. Invisible message is embedded in digital content and these invisible information only can be read by specific software.

Digital watermarking has a range of types. It is impossible for a single type to meet all requirements of the applications, such as “identifying ownership, authenticating the content’s integrity, ascertaining unauthorized distribution or publication

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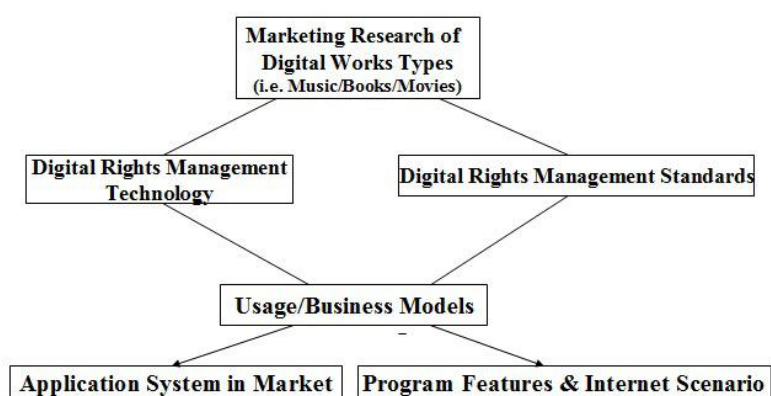
<sup>106</sup> Nicola Lucchi, 'Intellectual Property Rights in Digital Media: A Comparative Analysis of Legal Protection, Technological Measures, and New Business Models under EU and U.S. Law', *Buffalo Law Review*, Vol. 53 issue 4, 2005. p.154.

<sup>107</sup> The Digital Dilemma: Intellectual Property in the Information Age: Committee on Intellectual Property Rights in the Emerging Information Infrastructure, National Research Council, NATIONAL ACADEMY PRESS, Washington, D.C.2000.

(fingerprinting)<sup>108</sup>, digital watermarking can neither positively block the pirated copies production behavior, nor prevent distribution. Alternatively speaking, it can not control the dissemination of the copyrighted works, even these works are marked with digital signal. By and large, digital watermarking and digital fingerprinting merely function as an negative defense on copyright protection.

With respect to copyright protection, technological measures sometimes are combined comprehensively to play a better role for fighting with the circumvention and copyright piracy. As the technology advances, single technique barely handles everything.

### 1.3 Digital Rights Management Usage Models



**Figure 1.6 The Role of Usage Model under the Digital Rights Management-based Business System**

DRM systems are increasingly deployed by combined techniques. However, as a popular tool for copyright protection, it has to be evaluated by the commercial factors for a good market prospect. DRM operators would promptly improve the business models with any usage feedback from consumers.<sup>109</sup>

DRM-based business models provide diverse ways for consumers to access (temporarily obtain)/(permanently obtain) and use digital content. The music and

<sup>108</sup> Ibid 114;

<sup>109</sup> Ibid 106.

publishing industries are two main areas in which digital resources are protected by DRM technology. Therefore, the usage models mentioned afterward, which are commonly deployed, come in four major forms: Prepaid model, Rental service, Subscription business and peer-to-peer genre.

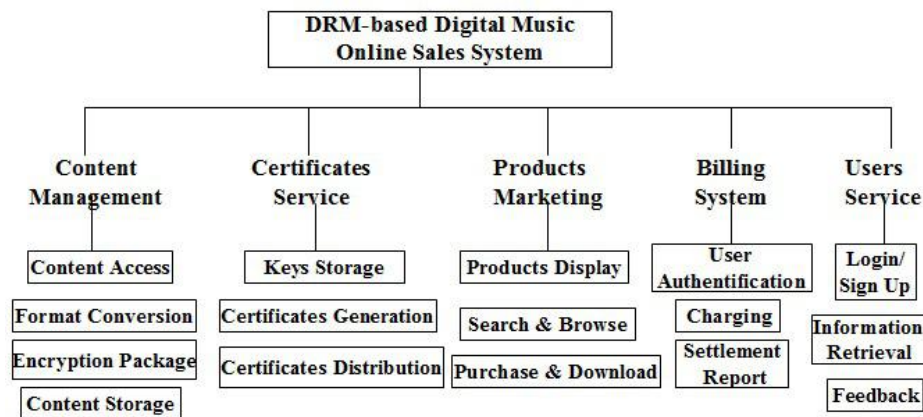


Figure 1.7 Classic Digital Music Sales Scheme under Digital Rights Management System

### 1.3.1 Prepaid

A prepaid credit card, released by a specific institution, that is "preloaded with funds and used like a plain credit card".<sup>110</sup> As far as we know, the prepaid credit card works differently from a common credit card, since the cardholders are not allowed to purchase products without deposit. In other words, payment has to be done before purchasers access the products or service.

It is adopted by DRM system usage architecture, which is the prepaid model. Prepaid service under DRM-based business models, interpreted literally, is a usage type of digital works, which requires consumers to pay via prepaid card or similar mediums in advance. Users typically have to submit prepayment with specific cards provided by the service providers, or their own credit cards. Consumption lasts until money runs out, and then consumers will be charged for renewal after the service has expired. The prepaid model, under the DRM scheme, offers convenient maintenance and low costs to users.<sup>111</sup>

<sup>110</sup> Ibid106;

<sup>111</sup> Ibid106;

Content or service suppliers even offer personalized products and services to users, based on the prepaid system records regarding consumer behaviour (i.e. frequency of usage). It is difficult for consumers to access their account balance or other information, which is one of the weak points of the prepaid model. Another disadvantage comes from the prepayment system, which collects consumer fees on the basis of usage duration or amount of information before making a transaction. Consequently, dealers hardly associate the content or material that users dip into with their revenue.

Moreover, there is another prepaid model that applies prepaid tokens to replace the actual card. According to Sai Ho Kwok, users have to be enrolled by the external DRM service center to acquire tokens.<sup>112</sup> Tokens are distributed to consumers from a specific local DRM services center from a token database.<sup>113</sup> These tokens play a similar role to “full-bodied” money here for digital works purchase or subscription. Users exchange tokens for specific services, such as pay-per-play, pay-per-view pay-per-download, pay-as-you-play, time-limited control, etc.

### **1.3.2 Rental**

Rental service is another DRM-based business model. In the recent past, a typical DRM-based rental business was the DVD rental industry: pay less per DVD, rent more films. The DVD rental service and online DVD rental model provides more movie choices of movies, even those that were issued recently. Basically, subscribers are charged a monthly fee for postal DVD rental orders. Users are arranged to have their bank debit accounts deducted automatically (autopay).<sup>114</sup> Consumers may book this online movie rental service according to their preferences. It is worthwhile for those buyers who usually rent films online each month to purchase this rental model.

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The frequency regarding broadcast content (especially music) has been defined by

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<sup>112</sup> Ibid 106;

<sup>113</sup> Ibid 106;

<sup>114</sup> Digital Transmission Content Protection (DTCP), Technical and Licensing Overview. <http://www.dtcp.com/documents/dtcp/dtcp-overview.pdf>. Access date: 13/09/2014.

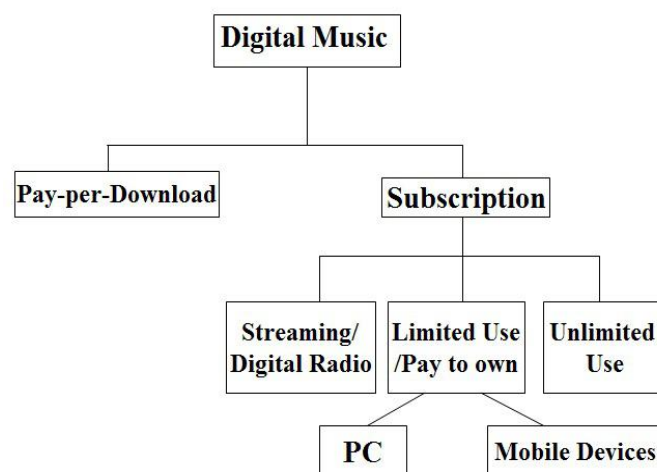
<sup>115</sup> Ibid 106;

DRM licenses for rental service. For example, a store operating an online video business may provide a video rental service to its consumers. Once users rent the digital content and download the licence issued by the DRM system, the license wouldn't expire until the rental service was complete. Normally, the licence would expire either 30 days after it was issued, or 24 hours after the first broadcast (whichever comes first).

Although Netflix has been hesitating to drop its DVD rental business,<sup>116</sup> the service — which seems old-fashioned — has contributed a profitable revenue. There are still about seven million subscribers who pay for Netflix's DVD rental business. Once fees are paid, Netflix will send consumers DVDs of films or TV shows by post.

### 1.3.3 Subscription

The DRM-based subscription model is regarded as a low-cost payment approach to obtaining digital works.<sup>117</sup> There are two main approaches to purchase digital music: Pay-per-download and Subscription. The subscription model, compared to the pay-per-download model, boasts more economic advantages on its operation principle.



<sup>116</sup> Janko Roettgers, 'Netflix May Ditch DVDs Sooner Rather Than Later', 2013. Available at <http://www.businessweek.com/articles/2013-10-21/netflix-may-ditch-dvds-sooner-rather-than-later#r=nav-r-stor>. Access date:12/12/2014.

<sup>117</sup> Willms Buhse, "Implications of Digital Rights Management for Online Music—A Business Perspective", Security and Privacy in Digital Rights Management, *Lecture Notes in Computer Science* Volume 2320, 2002, p 209. Springer. Original from Picot, A.; Reichwald, R.; Wigand, R. Die grenzenlose Unternehmung ,Wiesbaden, 2001. p.272.

### Figure 1.8 Digital Music Business Models<sup>118</sup>

Before the operators ran this DRM-based and value-added subscription business online, they found that consumers remarked on how conveniently they were able to access the digital resource. The subscription model rightly accords with the owners' crucial benefits on copyright protection, as well as user demand for model conveniences.<sup>119</sup>

For other digital content companies, the reasons why subscription models are favored are as follows: On the one hand, subscription business under DRM offers a new market for digital works, in which the consumers have a fresh appetite for a knowledge distribution experience. On the other hand, besides the copyright holders, subscription model service providers will also be paid via this novel usage-based channel.

Unlike those predecessors who made digital music subscription services, the startup Safari provides users with a ten-day free trial before the following subscription service ensues. For its subscription model, "7 cents per page viewed--this means that if a 400-page book is read, the publisher receives \$28," said Andrew Savikas, the CEO of Safari Books Online.<sup>120</sup> Savikas also mentioned that most of its subscribers are agencies, such as libraries, communities and government institutions.<sup>121</sup> Libraries in particular purchased subscription services from Safari after their first usage, as it appeared that even older books could be bought on the subscription-based website. Savikas said that book titles would be obtained by subscribers at its backlist, and half of their popular books were previously published.

The producer of RealPlayer, RealNetwork, issued Rhapsody as a music subscription service several years ago. Four kinds of usage services were offered to consumers.

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<sup>118</sup> Philipp Bohn, "Rent-A-Star: do you subscribe to digital music?", Berlecon Research, 22/06/2005.

[http://www.indicare.org/tiki-read\\_article.php?articleId=112](http://www.indicare.org/tiki-read_article.php?articleId=112). Access date : 19/12/2013.

<sup>119</sup> Ibid;

<sup>120</sup> "E-book Subscription Model: Is the Time Right?", Comment from Publisher Weekly, 29/04/2013,

<http://www.publishersweekly.com/pw/by-topic/digital/content-and-e-books/article/56989-e-book-subscription-model-is-the-time-right.html>. Access date: 20/12/2013.

<sup>121</sup> Ibid;

Users were allowed to access up to 25 songs per month for free under the basic service package.<sup>122</sup> The real music subscription service supplied by Rhapsody charged consumers around \$10, letting the subscribers to enjoy as many tracks as they wanted on their PC. And consumers were also allowed to transfer these tracks onto mobile devices with an even higher subscription payment.<sup>123</sup> Users, of course, are able to unsubscribe at any time they want.<sup>124</sup>

Subscription models are the direct method to combat the piracy of copyrighted works, whereas the more restrictive protection of copyrighted works would make for a potential damage to the previous balance in the physical copyright world.<sup>125</sup> It is understandable that the benefit on revenue comes from consumers to both record companies and distributors, directly for sharing. Moreover, subscription methods will be more profitable to content industries on account of constant streaming income from subscribers ("Potential Profit" or "Indirect Profit").<sup>126</sup>

#### **1.3.4 Peer-to-Peer**

*"In the larger EU countries, between 15% -30% of broadband Internet subscribers use at least one Peer-to-Peer application and most Peer-to-Peer households use two."*<sup>127</sup>

The Peer-to-Peer model, also known as "P2P", is an internet work type that relies on the exchange of information among peers without any central servers. P2P has been regarded as a classic and popular model for file sharing in the digital environment. In terms of the P2P structure, peers play the roles of both information user and information provider. Each peer is treated as a node for information communication, and they enjoy the equal status. Every user also functions as a server, which supports the online communication. The emergence of the P2P model has brought a profound

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<sup>122</sup> Digital Transmission Content Protection (DTCP), Technical and Licensing Overview. <http://www.dtcp.com/documents/dtcp/dtcp>. Access date: 20/12/2013.

<sup>123</sup> Ibid;

<sup>124</sup> Subscription model is also named "specific limited purchase model" under digital rights management based usage business.

<sup>125</sup> Ibid 114, Springer. p.79. 2006.

<sup>126</sup> Ibid 132;

<sup>127</sup> Andrea Gavosto , Bruno Lamborghini , Stefano Lamborghini , *Peer-to-Peer Network and the Distribution in the EU*, See Eli M. Noam, Lorenzo Maria Pupillo, e.d, *Peer-to-Peer Video: The Economics, Policy, and Culture of Today's New Mass Medium*, p.289. 2008. Springer.

change to DRM in the network era. As a new type of distributed computing model in which the information would be exchanged among different nodes, P2P supports multipoint to multipoint digital resource transmission. In fact, it also provides a flexible communication medium for files sharing, which is dependent on its functional superiority.

In the early stages, P2P was designed for exploring the potential computing capability of the internet. Napster's promotion of the P2P model made attracted users as early as 1999.<sup>128</sup> The first generation of software issued by Napster was in order to exchange MP3 files. Users cannot find any documents on the Napster server, which merely provided software for file sharing. Napster users activated the information exchange system for logging on after they installed the Napster software. Correspondingly, the core of P2P is based on technical design. Individuals are able to download musical resources, and meanwhile the downloaded files will be stored in users' own harddrive archives. P2P software identifies that for downloaded files, they would change network content providers to other users.

"What seemingly a mega-creative intention to internet users in digital world actually is a potential trouble to Napster and other internet service providers who provide the similar business".<sup>129</sup> By and large, platforms offered by Napster helped internet users to share digital works on the internet. Although Napster was taken to court by recording companies afterward, Napster P2P technology showed its extensive use potential on copyrighted resource protection.

In the usage model of DRM, P2P has been used as a significant revolutionary business model for digital copyright development. P2P technologies were regularly used by people who were supposed to reproduce or distribute copyrighted multimedia documents without copyright holders' authorization beforehand.<sup>130</sup> Previous P2P

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<sup>128</sup> A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 2001.

<sup>129</sup> Lackman, Eleanor M., "Slowing Down the Speed of Sound: A Transatlantic Race to Head off Digital Copyright Infringement", 13. Fordham Intellectual Property, Media and Entertainment Law Journal, 1161, 2002-2003. available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/frdipm13&div=38&id=&page=>, access date: 14<sup>th</sup>/08/2010.

<sup>130</sup> Michael A. Einhorn and Bill Rosenblatt, "Peer-to-Peer Networking and Digital Rights Management, How Market Tools Can Solve Copyright Problems", Policy Analysis, No.534. February 17, 2005. p.1.



models were deployed by most internet users—mainly to locate the digital files, which had been "torn" and shared with others for free via networks.<sup>131</sup> DRM operators seemed unaccustomed to the controversial situation brought about by P2P technology. A bearish result that DRM system encountered was a sort of double attack: a decline in consumers and decreasing turnover. Namely, from an economic perspective, it is impossible for the DRM scheme to prohibit massive illegal reproductions or distributions, regardless of the profits. In order to alleviate the pressure from marketing, DRM attempted to integrate with P2P.

DRM has been somehow accepted to be the supplement of P2P technology for copyright protection.<sup>132</sup> How DRM system cooperates with P2P has turned into an urgent issue for copyright owners and distributors. It has been acknowledged that the P2P platform is helpful when it comes to searching for unauthorized digital content; however, it is also useful for locating legal files and other resources in the public domain. A lot of copyright owners already recognized P2P as a novel medium that provides new opportunities of economic benefit.<sup>133</sup>

*"Films on Digital Versatile Disks (DVD) are also very popular. Here, Peer-to-Peer acts like a video-on-demand service, and a substitute for rental. When compared to physically renting a film, the appeal of Peer-to-Peer lies in the fact of not having to go to the video shop or distributing machine. Compared to VoD [Video on Demand], Peer-to-Peer's main appeal is that the films can be kept once they are downloaded, burned, transferred, and so on."*<sup>134</sup>

Superdistribution is a trait of P2P technology that allows copyrighted works to be distributed repeatedly.<sup>135</sup> Brad Cox elucidated the feature of software that it can indicate whether or not it is in use.<sup>136</sup> The principle of super-distribution is to establish a payment mechanism (per usage) to consumers, which is based on the

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<sup>131</sup> Ibid, p.2.

<sup>132</sup> Ibid;

<sup>133</sup> Eli M. Noam, Lorenzo Maria Pupillo, e.d, "Peer-to-Peer VideoThe Economics, Policy, and Culture of Today's New Mass Medium," p.15. 2008. Springer.

<sup>134</sup> Andrea Gavosto , Bruno Lamborghini , Stefano Lamborghini, "Peer-to-Peer Network and the Distribution in the EU", See Eli M. Noam, Lorenzo Maria Pupillo, e.d, "Peer-to-Peer VideoThe Economics, Policy, and Culture of Today's New Mass Medium," p.275. 2008. Springer.

<sup>135</sup> Subscription model is also named "specific limited purchase model" under digital rights management based usage business.

<sup>136</sup> Brad Cox, 'Superdistribution: Objects as Property on the Electronic Frontier', Addison-Wesley, 1995.



Certainly, songs provided by Mercola's at the playlist are selectable, which is different from traditional radio stations and platforms.

*"...[It] makes its money by letting you buy the music that you're listening to through Amazon, as well as posting unobtrusive Google-supplied ads to the application."*<sup>142</sup>

The kernel of integration between DRM and P2P technology focuses on a more adaptable method for the exchange of copyrighted material. Superdistribution implies the information-oriented development of DRM, and the way in which the society is moving forward. Under the DRM usage models, however, P2P results in more users' interactive involvement, as well as a greater amount of copyrighted works transactions and a reduction of illegal decrypted actions. The breakthrough made by the P2P model, in a manner, has satisfied users and copyright owners alike. It's a win-win situation that will at utmost achieve the balance of copyright holders' and distributors' economic interests, and public benefit, too. P2P schemes showed that the advanced technique design for a DRM solution was no better than an interactive synthesis of technological innovation and users participation.

When copyright independently exists under the intellectual property regime, it merely regulates the issues happened in the physical world. With the rapid development of new technology, the problems with regard to copyright gradually spread into the digital context.<sup>143</sup> It is understandable that copyright system has been challenged by the novel technology and sometimes the current copyright regime has not showed its adoption to the technical innovation. Growing concern from the public is deemed as a control mechanism on the information dissemination.<sup>144</sup>

P2P also is regarded as the greatest revolution happened on internet with expectation to the email and World Wide Web. When the emergence of dispersed P2P technology software challenged the current copyright protection, we have already recognized the

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<sup>142</sup> Sai Ho Kwok, " Digital Rights Management for the Online Music Business", ACM SIGecom Exchanges, Vol. 3, No. 3, August 2002, p.23. [http://www.sigecom.org/exchanges/volume\\_3/3.3-Kwok.pdf](http://www.sigecom.org/exchanges/volume_3/3.3-Kwok.pdf).

<sup>143</sup> Tehranian, John, 'All Rights Reserved - Reassessing Copyright and Patent Enforcement in the Digital Age'; available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/ucinlr72&div=9&id=&page=>, access date: 14/08/2013, 72 *University of Cincinnati Law Review*, 45 (2003-2004).

<sup>144</sup> Ibid 62, p.366.

previous rules concerning copyright protection have to be adjusted. Therefore, the legislation of copyright should be perspective towards the technology evolution to accommodate itself to various technologies.<sup>145</sup>

## **1.4 Digital Rights Management Practices**

### ***1.4.1 iTunes Model***

Our daily life sees us surrounded by computers, internet and digital communication technologies globally. The development of digital technologies, especially networks, facilitates the spread of knowledge. The communication of information has broken through the national boundary, which appears to be a limitation in physical circumstances. On the contrary, excessive restriction may result in issues with the public's privacy or others. Yet digital technologies have undoubtedly improved people's life greatly, which initiates an innovative business model for copyright protection. iTunes Music Store model has been deemed as one of the classic cases on DRM in digital copyright times.<sup>146</sup>

Unlike other downloading means which are based on "server-terminal", when the three global major record companies brought Napster into a lawsuit for its liability of downloading music, the centralized model of file-sharing communication had seemed to foresee its misfortune. Later, the representatives of the decentralized communication model, like Grokster and Kazaa, were also sued by the record companies. During that period, these servers made profits by advertisement input, as digital information spreading to the public had been free of charge online.

Most traditional communication platforms were operated with the same business strategies. Even Napster intended to negotiate with record companies for a "value-added" service as a profit allocation method, which was eventually dismissed. The combination of contracts law, copyright law and communication technologies has

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<sup>145</sup> Ariel Katz, 'The Potential Demise of Another Natural Monopoly: New Technologies and the Administration of Performing Rights', *Journal of Competition Law and Economics*, Vol. 2(2), p.245-284; (2006), <http://jcle.oxfordjournals.org/cgi/content/abstract/2/2/245>, access date: 14<sup>th</sup>/08/2015.

<sup>146</sup> Ben Farrand, 'The case that never was: an analysis of the Apple iTunes case presented by the Commission and potential future issues', *European Intellectual Property Review*, Vol.31 (10), p.508-513.(2009).

been comprehended in iTunes architecture, which integrates various copyright systems from a transnational perspective.<sup>147</sup>

The internationalized process of iTunes also presents discourse of how the policies of the Apple company are employed. It is fruitful and effective for iTunes in different copyright holders' eyes for DRM implementation in the copyright protection field. The iTunes music store, in this regard, has obtained more recording authorization or licenses, and multiple digital works in diverse countries or regions.<sup>148</sup> Though the iTunes platform has been acknowledged as the typical DRM supporter in digital copyright owners' eyes, they still decided to switch to another market strategy in 2009 for future commercial profit.<sup>149</sup>

Nowadays, intellectual assets are the most essential property type compared with other property varieties. The success operation, at least at the current stage, of the iTunes platform shows that digital technologies have been "a nuisance, not a mortal threat" to the copyright system. The establishment of a relevant copyright law environment is in favor of novel copyrighted works transaction models.<sup>150</sup>

Prof. Jane. C. Ginsburg has pointed out that iTunes would be an authorized, highly valued and marketable platform where DRM technologies embedded in copyrighted works can be downloaded. Ginsburg believed that iTunes has commendably combined digital technologies, copyright protection and controlled access of copyrighted works from the public. In other words, iTunes, in essence, has achieved the goal whereby the benefit of the copyright holders and the general public would be balanced.<sup>151</sup>

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<sup>147</sup> Urs Gasser, 'iTunes: How Copyright, Contract, and Technology Shape the Business of Digital Media-A Case Study', Berkman Center for Internet & Society at Harvard Law School Research Publication No. 2004-07.

<sup>148</sup> Nicola F. Sharpe and Olufunmilayo Arewa, 'Is Apple Playing Fair? Navigating the iPod FairPlay DRM Controversy', Northwestern Public Law Research Paper No. 07-18, Northwestern Journal of Technology and Intellectual Property, Vol.5, p.331-350, (2007).

<sup>149</sup> Apple adopted iTunes Plus, a DRM-free encoding for the iTunes Store; Music is encoded using the Advanced Audio Codec format (AAC) at 256Kbps. "Users who have already purchased music from the iTunes Store protected with Apple's FairPlay DRM will be able to upgrade their entire library of previously-purchased songs, though an additional fee is required — 30 cents per song". Peter Cohen, 'iTunes Store goes DRM-free', <http://www.macworld.com/article/1137946/itunesstore.html#>, access date: 26<sup>th</sup>/02/2016.

<sup>150</sup> Thierry Rayna, 'The Economics of Digital Goods: Selling vs. Renting Music Online', DIME Intellectual Property Rights Working Paper No.13, (2009).

<sup>151</sup> Alexa Klebanow and Tim Wu, 'Is Music the Next eBooks? An Antitrust Analysis of Apple's Conduct in the Music Industry', Columbia Journal of Law & the Arts, July 14,2015.

In America, iTunes works well on the basis of its favorable copyright law, pragmatism of commercial incentives mechanism, as well as obvious local protectionism. Constant infringement lawsuits initiated by copyright holders and the vast compensation claims have served as a strong deterrent so that a large number of internet users do not dare to download unauthorized music or other copyrighted works online.<sup>152</sup>

Vocational pirates have been struck severely, on the one hand, with the joint function of copyright regulations and digital anti-piracy technologies. On the other hand, the general public inclines to adapt high-quality service and stable technical support from authorized internet service providers or legal platforms. From the angle of iTunes' strategy effect, the entire area of piracy has been shrunk since the rise of DRM technologies uniting with a legal foundation, and the DRM scheme in digital copyright market perfects a degree of gradual adequacy of a comprehensive system.<sup>153</sup>

Apple Inc., as the distinguished brand in the digital technology field, has taken upon the whole industrial chain from hardware (iPod), software (Media Player Software) to internet service (iTunes Online Music Stores). All related marketing and economic actors included in this chain were organized and processed by Apple as its business model. The "Hardware + Content" pattern has turned iTunes into the sole official synchronous software with iPod. iTunes—iPod, succeeded reciprocally as the synonyms were tightly associated, while the fashionable appearance of the iPod and its remarkable performance caused fans of Apple products to grow steadily.<sup>154</sup>

This so called "seamless" business model, thus far, has sought out a fresh channel for earning profit for musicians, copyright holders and Apple Inc. Foremost, the consumption market position orientated by Apple Inc. was highly targeted, as it signed a series of agreements or licenses with the Five Record Companies (EMI, Universal, Warner Bros., Sony Music Entertainment and BMG) (Sony Music Entertainment and BMG merged as Sony BMG)). It built a copyrighted works

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<sup>152</sup> Ibid;

<sup>153</sup> Alex Solo, 'The Role of Copyright in an Age of Online Music Distribution', 19 Media & Arts Law Review 169, (2014).

<sup>154</sup> [http://www.pkulaw.cn/fulltext\\_form.aspx?Db=pfnl&Gid=117529046&EncodingName=](http://www.pkulaw.cn/fulltext_form.aspx?Db=pfnl&Gid=117529046&EncodingName=), access date: 14/09/2015.

database which very much appealed to the consumers and accumulated enough financing for marketing.<sup>155</sup> Also, iTunes itself offers numerous customized superior services to its users. For instance, the retrieval mode of a five-star evaluation system would provide the perfect reference datum or information of price discrimination in future practices.<sup>156</sup>

Technology swings between two worlds, which are the unrestricted world (free world) and the property world.<sup>157</sup> From the perspective of TPMs, iTunes is not compatible with other media players aside from the iPod. In other words, if the consumers would like to be served by high-quality and optimal compatibility, they have to choose iTunes.

The absolute protection from TPMs that are usually aiming at users' access seems impossible, although diverse companies have been sparing no effort on technology development. TPMs are increasingly employed in the digital copyright area, for which customers were compelled to pay out more, but consumers would hardly recognize their existence. As far as we know, technologies are vulnerable; a vast amount of technology adopted would result in potential privacy and security issues.<sup>158</sup>

Alternatively, if the iTunes users are treated purely as "consumers", then one fact will definitely be overlooked: it might be derived when most works are employed by the users. Derived exploitation of original works may create new works, which turns simple consumption into creation. At one time, if the DRM was overstressed by the internet service providers or copyright holders, it would pose a threat to the basic "peer to peer" structure on internet. This deterrent has attracted our keen vigilance since TPMs and has until now been undoubtedly a decent option, but is not an ultimate solution in the future. The combination of TPMs and legal contracts in the

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<sup>155</sup> Paul J. Heald, 'The Demand for Out-of-Print Works and Their (Un)Availability in Alternative Markets', Illinois Public Law Research Paper No.14-31.(2014).

<sup>156</sup> Ibid 163;

<sup>157</sup> Elizabeth A. Rowe, Foreword, *Technology and Intellectual Property: New Rules for an Old Game?*, 14 Journal of Technology Law and Policy, 2009, <http://scholarship.law.ufl.edu/facultypub/66>. access date: 14/09/2015.

<sup>158</sup> The Recorded Music Industry and the Emergence of Online Music Distribution: Innovation in the Absence of Copyright (Reform) George Washington Law Review, Max Planck Institute for Intellectual Property & Competition Law Research Paper No.11-09.Vol.79, Issue 6,p.1783 - 1813.(2011).

iTunes model has intensified exclusiveness, which aggravated the non-equivalence position of the negotiation between the licensors and licensees.<sup>159</sup>

In the 1990s, the copyright substitution issue has been emphasized along with the rapid development of digital technologies. The proposal on substitutive copyright means put forward involved creative commons, copyleft models and so forth. Nowadays, creative commons is not only used, but also widely spread in digital circumstance and educational institutions.<sup>160</sup> It is admitted that creative commons has been accepted in line with the aim of copyright legislation, which intends to at least protect the interest of the public. However, it is impossible for creative commons to be expected to be as popular as iTunes Online Music Stores.<sup>161</sup>

Many record producers are unwilling to throw their works into the public domain at once or in a relatively short period. In a way, it would be impractical to promote this strategy on a large scale. The licensing mechanism of creative commons has portrayed a distinct and latent feasible plan under international framework; it would be abortively operated in case there is no good toll system for profit collection and property rights.

It is distinguished between the digital environment and analogue surroundings where copyrighted works are created and communicated. As this difference will not fade away in the near future, the same copyright regulations are impossibility implemented in these two disparate worlds. It is insisted that works fixed on physical medium should be protected by traditional copyright law, and the protection issue of digital works might be dealt with a new approach which is accordingly improved from the traditional solution.<sup>162</sup>

iTunes affords a particular business model of "Online collective licensing fees on price" ( 网上集体许可对价征收使用费), which benefits all participants at each link. This business model has simplified copyright law, while at the same time internally

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<sup>159</sup> Ibid;

<sup>160</sup> Ibid 77;

<sup>161</sup> [http://freemusicarchive.org/member/chriszabriskie/blog/Why\\_I\\_Went\\_CC\\_BY](http://freemusicarchive.org/member/chriszabriskie/blog/Why_I_Went_CC_BY), access date: 14/09/2015.

<sup>162</sup> Lior Ze mer, 'Rethinking Copyright Alternatives', *International Journal of Law and Information Technology*, Springer, 2006.



adapted a dual-track approach within copyright architecture. It is deemed as a supplement with high feasibility of the current copyright scheme.

Some essentially thought of iTunes as a monopolistic entity in the digital products market; some disliked the larger expense charged from the iTunes business model; some advocated that there should be a substitutive flexible system for Apple Inc. At the present phase, whatever arguments there are regarding iTunes or Apple Inc. are dejected, as the iTunes model has proven to be the effective idea among few choices.

iTunes has applied comprehensive contract law, copyright law and technological means to create an international legal system for downloading music globally, which has been proved feasible. The triumph of the operation iTunes has largely restrained piracy or copyright infringements online; likewise, copyright protection consciousness has been embedded in the minds of the public.<sup>163</sup> iTunes freely spread or provided millions of digital works to the public when it helped copyright holders to defend their interest, which coincides with copyright law's goal. In this regard, Apple Inc., or at least iTunes, has partly succeeded.

#### ***1.4.2 Amazon Kindle***

In Nov. 2007 Amazon released its first Kindle readers, and they were recognized and welcomed by markets and customers quickly after being marketed, causing them to sell rapidly and soon go out of stock.<sup>164</sup> Very soon after, Amazon updated their products quickly and released a new generation of Kindles. In February, 2009, Kindle 2 was released; in May of the same year, Kindle DX was born; in Aug. 2010, Kindle 3 was released; Kindle Touch and Kindle 4 came into being in Sept. 2011; and in Sept. 2012, Kindle Paperwhite was released. Meanwhile, to meet the challenge of iPad, Amazon released its first tablet, Kindle Fire, in September of 2011 as well as Kindle Fire 2 and Kindle Fire HD in September of the next year. During 5 short years, Kindle products were upgraded and updated several times, manifesting the power of Amazon, a scientific and technical corporation driven by technology and innovation, and its

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<sup>163</sup> Ibid 163;

<sup>164</sup> Ibid;

concerns with Kindle products. Moreover, Amazon brought readers a better reading experience.<sup>165</sup>

E-book readers and tablet PCs are hardware products for reading e-books. While allowing readers to read, they have many other merits such as portability, high capacity and environmental protection.<sup>166</sup> Among them, e-book readers are devices specializing in the reading of e-books. Compared with printed books, it is simply a kind of change of medium. Meanwhile, tablet PCs integrate multiple functions like reading e-books, watching movies and listening to music, so reading is just a segmenting function. To guide the revolution of e-books, Jeff Bezos started to organize a group to develop Kindle readers as early as in 2004.<sup>167</sup> After three years of experimentation, the first generation of Kindle came out in 2007. Later on, he upgraded and updated Kindle readers several times. Furthermore, he has issued the series of Kindle Fire tablet PCs since 2011. To sum up, Amazon e-book reading devices have the following characteristics:

Although Kindle e-books enjoy the unique AZW format, document formats supported by Kindle readers are increasing, from indirect support of PDF format to direct support, from AZW to AZW3, from simple MP3 audio format to Audible (Audible Enhanced(AA, AAX)), AAC, MPS and WAV, and so on. The enrichment of supported formats of Kindle readers expanded documents accessible to readers and reduced otherwise difficult conversion between formats and devices.<sup>168</sup>

### ***1.4.3 Ubisoft and Blizzard***

Blizzard officially confirmed that it would give up its DRM online certification system on the video game Assassin's Creed: Brotherhood. DRM was an anti-piracy focusing system developed by Blizzard. In its contest with hackers, it allowed

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<sup>165</sup> A History of the Digitalization of Consumer Culture: From Amazon Through Pirate Bay to Farmville In: J. Denegri-Knott and M. Molesworth (eds), *Digital Virtual Consumption*. New York: Routledge, p.11-28.(2012).

<sup>166</sup> Michael Larkey, 'Cooperative Play: Anticipating the Problem of Copyright Infringement in the New Business of Live Video Game Webcasts', *Rutgers Journal of Law and Public Policy*,2015.

<sup>167</sup> Tom Campbell, 'The E-Books Conspiracy: Crossing the Line Between Applying and Creating Law',69 *U. Miami Law Review* Caveat 1, Chapman University, *Fowler Law Research Paper No.15-13*,(2015).

<sup>168</sup> Herbert J. Hovenkamp, 'Antitrust and Information Technologies', *Florida Law Review*, Forthcoming',*U Iowa Legal Studies Research Paper No.15-05*, 2014.

Assassin's Creed 2 to keep a great record of not being decoded for a long time, but it did not survive from the decoding of hackers; instead, it brought much inconvenience to users of original copies.<sup>169</sup> Did Assassin's Creed: Brotherhood's abandonment of the DRM system indicate that Blizzard gave in to crackers?

The system of Blizzard was opened with the release of The Settlers. After Assassin's Creed 2, which took a long time for hackers to crack and thus release for free download, Blizzard was very proud, and the high-level managers once said, "if we did not have confidence in the anti-piracy technology, we would never release the PC edition. We cannot say that the new DRM system must be created by God and it was perfect or could not be cracked, but we had confidence in it." After the release of Assassin's Creed 2 in March 2010, the DRM system did help the game against the cracking of hackers, enabling the game to remain free from the cracking of any organizations for over one month. It was luckier than other PC games in recent years, which suffered cracking very soon after being released and sometimes even beforehand. However, in April, the famous decoding organization "Skid Row" announced it had cracked the DRM system of Blizzard, and Skid Row wrote in "Readme" that "We are grateful to Blizzard for bringing such an interesting challenge, but the small problem was not enough to cause us to give up.<sup>170</sup> Next, you should pay more attention to the production of games instead of the DRM with so much manpower and material resources. What else, it brought a disaster to your loyal legal users. We cracked it just because we wanted to make life simpler."<sup>171</sup>

When developing the system, Blizzard spent much manpower and material resources and had high expectations of it, hoping it could get rid of the situation of being cracked, but the results were disappointing. What's worse, the DRM brought inconvenience to original game players. The system required original users to maintain their online state all the time. For users who could not connect to Internet, they could not play, not even single player games; moreover, if servers or network which were used by Blizzard or places where players were broke down, the game would not run and many players would curse Blizzard for destroying their game progress; besides, if Blizzard planned to stop maintaining the DRM server in a old

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<sup>169</sup> Andrei Dumitrescu, 'Nintendo, Blizzard and Ubisoft Are the Best Videogame Developers', [https://twitter.com/intent/follow?screen\\_name=softpediagames](https://twitter.com/intent/follow?screen_name=softpediagames), access date: 14/09/2015.

<sup>170</sup> <http://www.wired.co.uk/news/archive/2011-08/01/ubisoft>, access date: 14/09/2015.

<sup>171</sup> Ibid;

game, players could not continue to play it either. Many original users were dissatisfied with Blizzard's system.<sup>172</sup>

Players were pleased that Blizzard would not use the DRM system in Assassin's Creed: Brotherhood. Surely, original users were delighted since they could not put up with the frustrating setting of going online all the time any longer. Meanwhile, users of pirated apps would be more pleased, and there would be no mysteries about decoding the game.

At present, among popular games on the PC platform, although a single-player plot is still a key point of concern for players, it is the online multiplayer mode that players spend most time on, and the focus of games is partial to producing more wonderful multiplayer modes. One only needs several or dozens of hours to experience a single-player plot, while online multiplayer games can cause players to have passion for the game for months. Among most games, users can enjoy online services freely for life only if they purchase legitimate games. Although users of pirated apps can play parts of games, they cannot enjoy online services like buyers of legitimate copies. A few players would buy the legitimate copy if they think the game is good after experiencing the single plot and using a CDKEY to join in online.<sup>173</sup>

In Assassin's Creed: Brotherhood, the hero did no longer fought alone; instead, he built his own assassin organization. The marketing before claimed the online multiplayer part would be more wonderful. I believed it was this that attracted more people to purchase legitimate copies. Blizzard giving up using the DRM did not mean it gave in to piracy, but it was just a strategic shift.<sup>174</sup>

Cracking has been a headache to game developers who have spent a lot in fighting against crackers with no desirable results. Actions like Blizzard using the DRM system to prevent piracy but affecting original players are not advisable. However,

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<sup>172</sup> "Dear Ubisoft and Blizzard: Please stop this madness", <http://www.wired.co.uk/news/archive/2011-08/01/ubisoft>, access date: 14/09/2015.

<sup>173</sup> "Blizzard 'Surprised' By Fans Outrage Over Diablo 3 Online Requirement", <http://megagames.com/news/blizzard-%E2%80%98surprised%E2%80%99-fans-outrage-over-diablo-3-online-requirement>. August 7, 2011.

<sup>174</sup> Hilbert Hagedoorn, "Blizzard: DRM a 'losing battle'", <http://www.guru3d.com/news-story/blizzard-drm-a-losing-battle.html>. 05/28/2010,

with the improvement of online modes, more and more players purchase legitimate copies, which could be an effective way to compete with pirates.

#### ***1.4.4 National Digital Library Project in China<sup>175</sup>***

In 2000, the 863/300 project - China's digital library application system with the Chinese high-speed information pilot network as an operating environment - was assumed by the national library and the high-speed pilot network group of the Ministry of Science and Technology.<sup>176</sup> In the same year, the national library was involved in the control of Chinese metadata standards made by the Ministry of Culture.

Due to the effect of carriers and recording methods adopted by traditional documents, some were damaged. To preserve the literature and support their long-term, digital libraries applied digital technologies to convert traditional literature into digital forms so as to pass on the knowledge of the literature. Studies of later generations on the literature can be done through digitalized methods, achieving the goal of studying and reserving the literature. However, when protecting and serving the literature with digitalized methods, we must protect the copyright so that we can on the one hand meet the needs of readers to digitalized literature and on the other hand prevent the interests of copyright holders from being infringed.

Considering that the digital library system of the national library is confronted with complex data, a large number of digital resources and diversified services, the distributed system design which is identical to CALIS and CSDL has been adopted . However, it is different to them in design philosophy because it stresses on the integration of automation of traditional libraries and digital libraries.<sup>177</sup>

Moreover, both the library system and the digital library system is integrated through a standard interface, and the whole system adopts external standards which allow libraries, resource service structures, and even network search engine companies all over the world to have interoperation and communication with the national library

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<sup>175</sup> "国家数字图书馆计划";

<sup>176</sup> [http://news.xinhuanet.com/it/2002-05/27/content\\_411044.htm](http://news.xinhuanet.com/it/2002-05/27/content_411044.htm).

<sup>177</sup> [http://www.nlc.gov.cn/index\\_old.htm](http://www.nlc.gov.cn/index_old.htm), access date: 14/09/2015.

easily and conveniently.<sup>178</sup> The Z39.88 protocol of the national library and the search engine of Google have been linked and have passed system tests of domestic products of Open URL protocol. The OAI protocol has passed the tests of the international OAI protocol; the Z39.50 system has been linked with libraries at home and abroad; and the agent servers of the national library can connect with the authorized resources at home or abroad.

The national library has conducted the exchange between MARC and XML through OAI protocol and has related studies on the exchange between MARC and XML. ILL is mature inter-lending among libraries. URI is resource scheduling protocol of digital libraries, which has integrated several objects scheduling modes like URL, URN, ISBN, ISSN and DOI.<sup>179</sup> Only resources requiring certification need the resource scheduling protocol, while resources requiring no certification are processed through open linking protocol. Z39.90 protocol is the network reference consultation protocol, through which the national library can coordinate with the reference consultation network of all national libraries and can combine with the reference consultation network of CALIS and CSDL by adding a conversion layer.<sup>180</sup>

(1) A metadata processing system. The resource producing systems of libraries are richer. The traditional library automatic system is transformed to national union catalog system after being improved, cataloging records of which are not only data resources but also data used for resource management. Users of the system include both cataloging institutions of the national library and that of all libraries in the country. The public can use the OPAC system to retrieve catalog records, to locate corresponding libraries, and to locate various digital resource supply system, virtual reference resources and interlibrary loans by opening the linking protocol.

(2) A digitalized literature system would assume the job of converting traditional literature in libraries into digital ones, allowing information in traditional literature to spread through digital resources, making it possible to print unique copies out for preservation, while keeping and publishing digital contents.

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<sup>178</sup> <http://www.cdlic.cn/>, access date: 14/09/2015.

<sup>179</sup> <http://www.yuan0.cn/Article/462698.html>, access date: 14/09/2015.

<sup>180</sup> <http://lib.jlau.edu.cn/wxcd.htm>, access date: 14/09/2015.

(3) A knowledge processing system mainly takes the job of constructing single-point knowledge and systematic knowledge, which is the core of knowledge processing of digital libraries. Processed knowledge can be preserved and published.<sup>181</sup> A website obtaining system mainly collects corresponding websites and webpage from obtaining strategies and themes and conducts metadata processing for storage or publishing. The resource presentation system is a specialized system for publishing agencies submitting online resources and college essays which are preserved or published according to agreements. Purchased resources can be published or preserved.<sup>182</sup>

(4) A literature delivery system is a service system which delivers copies of corresponding physical resources to service systems of users through various methods according to the requirements of users, which is one of the extended networked and digitalized businesses of traditional libraries. A rapid printing system would reprint resources lacking in the national library for long-term storage and copy unique copies of the national library and generate microfilms as well.<sup>183</sup>

(5) A resources publishing and service system mainly includes metadata retrieval system, old full-text retrieval system, full-text retrieval system, and an online reading system (reading books, listening music and watching video) based on digital resources. A portal system and universal retrieval system are convenient for users to access to look for resources they need.

#### ***1.4.5 China Unicom/China Telecom Platform***

The ever-increasing value-added services of Internet and mobile networks increases the demand of digital contents to DRM. Mobile DRM has brought new energy to wireless service. High technologies such as smartphones, broadband, 3G and 4G enrich people's mobile life.<sup>184</sup> Reading books, listening to music, playing games and watching movies with phones can be seen everywhere. Phone has become a new platform for value-added contents.

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<sup>181</sup> Ibid;

<sup>182</sup> Ibid;

<sup>183</sup> <http://www.huawei.com/cn/>, access date: 14/09/2015.

<sup>184</sup> <http://www.yhwit.com/list.asp?ProdId=0171>, access date: 14/09/2015.

Mobile DRM products include server and client. As a new link of the digital industry chain, manufacturers must cooperate with CP/SP, operators, third-party platforms and manufacturers of terminal equipment during the development process. In cooperation with CP/SP, cooperation involving wireless business is not common; wireless businesses can often be seen in cooperation with operators, third-party platforms and manufacturers of terminal equipment. Operators need manufacturers of DRM to build a mobile DRM platform to maintain servers and provide testing services to 3G.<sup>185</sup> Third-party platforms must develop service ports to access to DRM servers, and manufacturers of terminal equipment should cooperate with manufacturers of DRM according to the DRM client.<sup>186</sup>

OMA (Open Mobile Alliance) is an organization initiated by leaders of the mobile industry. Founded in June 2002, the organization consists of nearly 300 world-leading mobile manufacturers, manufacturers of mobile terminal equipment, providers of mobile network equipment, providers of information technology, and providers of contents and services, for example, Nokia, IBM, Motorola, Alcatel-Lucent, China Mobile and China Unicom. OMA created its DRM standards.<sup>187</sup> In Nov. 2002, it issued the first international mobile DRM standard - OMA DRM1.0 Enabler Release - which provided guidance to establish a DRM system in a mobile network. After OMA DRM1.0 was released, giants of the industry including Nokia and Motorola developed and found many problems, thus they had several discussions on and modifications made to OMA DRM1.0.<sup>188</sup> On June 14 2005, OMA issued OMA DRMV2.0, formulated a security and trust mode based on PKI, releasing the function system and language standards of rights description of mobile DRM, digital content format (DCF) of DRM and the rights object acquisition protocol (ROAP).

OMA DRM standard is an open one, which has been supported and applied by many operators and equipment suppliers. At present, DRM systems of most European and American operators have basically adopted OMA DRM. However, mainstream mobile phone manufacturers like Nokia, Motorola, Samsung, LG and SonyEricsson preset the OMA DRM Agent in their phones to support the application of OMA DRM1.0; meanwhile, companies like Nokia and LG have started to preset the Agent

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<sup>185</sup> [http://www.enet.com.cn/article/2010/1105/A20101105771379\\_2.shtml](http://www.enet.com.cn/article/2010/1105/A20101105771379_2.shtml),access date: 14/09/2015.

<sup>186</sup> Ibid;

<sup>187</sup> Ibid;

<sup>188</sup> Ibid;



which is based on OMA DRM2.0 so as to realize the evolution from OMA DRM1.0 to 2.0. Therefore, as for OMA DRM, the biggest advantage is the standardization and openness of platform ports.<sup>189</sup>

OMA DRM was applied at home long ago, and the four biggest operators took OMA DRM1.0 as the standard.<sup>190</sup> China Telecom and China Network have applied OMA DRM1.0 in an OTA download at present and started to apply them to music and streaming media.<sup>191</sup> As a member of OMA, China Mobile also considered applying OMA DRM to various fields as technologies for copyright protection, especially whole-song downloads which was under the test of China Mobile the cutting-edge and core business in developing its digital music. China Mobile is considering whether to adopt private standards of manufacturers or OMA DRM based on an open interface. It is said that China Mobile has decided to apply more open and standard OMA DRM, and this has been affirmed by China Mobile.<sup>192</sup> Considering whether shortcomings of OMA DRM1.0 would affect record companies providing copyright of whole-song download, China Mobile had consulted the four record companies and had been supported by them to use OMA DRM1.0 as copyright protection technology for whole-song download. In addition, after applying OMA DRM1.0 in the Java platform, China Unicom also considered applying OMA DRM to its new music business.<sup>193</sup>

In addition, with the wide use of OMA-DRM in the industry, private DRM protection technologies have some development and a group of companies adopting private standards sprung up. Private standards keep some small apps under the protection of digital copyright; however, with the increasing of apps, some problems exposed themselves.<sup>194</sup> Firstly, the limitation of private standards caused DRM apps to rely on providers of private standards. Thus, both expansibility and substitutability were poor.

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<sup>189</sup> 'Digital Rights Management Approved Version 1.0–15 ,Open Mobile Alliance OMA-Download-DRM-V1\_0-20040615-A', [http://technical.openmobilealliance.org/Technical/release\\_program/docs/DRM/V1\\_0-20040625-A/OMA-Download-DRM-V1\\_0-20040615-A.pdf](http://technical.openmobilealliance.org/Technical/release_program/docs/DRM/V1_0-20040625-A/OMA-Download-DRM-V1_0-20040615-A.pdf), Jun 2004.

<sup>190</sup> <http://3gca.org/newsletter-june-2013/>, access date: 14/09/2015.

<sup>191</sup> <http://www.well.com/user/lonewolf/main/vera.html>, access date: 14/09/2015.

<sup>192</sup> Russell Shaw, 'Will OMA DRM 2.0 be the solution?', OMA digital rights management, <http://www.zdnet.com/article/will-oma-drm-2-0-be-the-solution/>, IP Telephony, February 16, 2007 access date: 14/09/2015.

<sup>193</sup> 'The Future Of Music Copyright In A Digital World', <http://www.soundonsound.com/sos/mar99/articles/copyright.htm>, access date: 14/09/2015.

<sup>194</sup> Ibid;

Second, with the increasing demand for copyright protection, many companies embezzled current standards and developed their own private DRM, which put many apps at risk of a lawsuit. Therefore, relevant specialists suggested that for large DRM apps, DRM with open standards was recommended so as to avoid the above-mentioned risks.<sup>195</sup> Considering the hidden danger of private standards, Telefonica changed private standards into OMA DRM standards after it developed its whole-song download business. With the development of mobile networks, new apps emerged endlessly and an ever-increasing amount of content requires copyright protection. Thus, as for OMA standards organization, it has more chances of developing OMA DRM in China. Because of this, more and more DRM manufacturers considered cooperating with Chinese enterprises, such as CoreMedia, BeepScience and SafeNet,<sup>196</sup> as they wanted to establish partnerships with domestic manufacturers.

#### ***1.4.6 Founder Information Industry Group: Apabi Technology***

Founder Information Company is a pioneer of the publishing industry in China. And Founder Apabi Technology Ltd., which provides digital publishing technologies and digital products, operates as a subsidiary of Founder Information Company. It has involved itself in the digital publishing field since 2001. Apabi Company developed digital publishing technology, which has been treated as the solution strategy as a whole for digital publishing, based on Founder's dominate position in China's publishing industry and traditional printing techniques.

The characters in Apabi (A-P-A-P-B-I) stand for Author, Publisher, Artery, Buyer and Internet respectively, which seems "claptrap" to its marketing strategy. With respect to the digital technology (original style and streaming type) and the reading experience adopted and developed by Apabi, it would provide a secure platform for digital copyright protection.

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<sup>195</sup> 'OMA's Race to Construct in China',

<http://www.bloomberg.com/bw/stories/2006-11-09/omas-race-to-construct-in-chinabusinessweek-business-news-stock-market-and-financial-advice/>, access date: 14/09/2015.

<sup>196</sup> <http://www.educity.cn/tx/928884.html>, access date: 14/09/2015.

As the core competences, data mining and knowledge indexing technology have further optimized its service. On the one hand, the whole publishing procedure has been presented online by Apabi, in order to facilitate the publishing companies and periodical or newspaper offices to step inside of the publishing market. On the other hand, the websites involved can be equipped to be the digital electronic platforms for online reading. In this regard, traditional libraries are transposed to be digital libraries. Apabi technology makes multi-win come true based on each player's advantages and features in the digital publishing industry. Founder Apabi has offered a comprehensive solution concerning copyright for the presses etc.

So far, Apabi has presented the digital books, digital newspapers, digital museums, other various specific databases, and mobile reading technical solutions. Even operation services with regards to diverse digital resource products have been included as well. According to the statistics,<sup>197</sup> over 90% of presses in China have been using Apabi's digital technology and its digital platform for online publication distribution. 120,000 kinds of digital books, in total 700,000 volumes of digital books are distributed through Apabi's platform annually. Around 90% of newspaper distributors and almost 800 kinds of newspaper and journals in China have adopted the digital newspaper system issued simultaneously by Founder Apabi. Globally, users from 8000 schools, governmental authorities, industries and public libraries have benefited from Apabi's digital resource and digital libraries' toolkit which afford the users online reading and a professional knowledge retrieval service.

DRM design under Apabi's technology system has been considered as the one of the most characteristic aspects as well. Of all the patented technologies Apabi owned so far, perhaps the most contributing of Apabi's technology has been DRM technology. Apabi's DRM technology has stayed in a leading position more than other counterparties and shaped a systematic architecture for digital copyright protection. In the Apabi DRM scheme, there are four mainstay products:

- (1) **Apabi Maker:** various formats of digital files are transformed into e-book format through Apabi maker. An e-book format is a format which is composed by "script" and "image" format. A transposed e-book format will still retain all the

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<sup>197</sup> <http://gw.apabi.com/partners/press/>. Access date:04/01/2016.

information (scripts and images included) that the former digital files contained without being constrained by the operation system and the internet environment.

**(2) Apabi Rights Server:** digital data will be copyright-protected and managed by this server. Also, the security identification for the encryption and transaction of digital books, to users' login to the online bookshop for consumption, this server, which is normally fixed at the publishing terminate server, plays a basic but the most important protection role in Apabi's digital system.

**(3) Apabi Retail Server:** as mentioned above, this issues a series of services for consumers who would like to buy the digital material, and is located at the publishing terminate server as well.

**(4) Apabi Reader:** tools for reading digital books from Apabi's platform. Buyers could purchase, read and download digital resources through browsers, and also create their own electronic library, which has classified the management of e-books.

Above all, the most creative and crucial technology of Apabi is, without question, the digital copyright protection technical system (DRM technology), which has currently been implemented by 168 digital encrypted technologies.<sup>198</sup>

## **Section 2. Digital Rights Management Scheme: Far More than We Know**

### **1.5 The Elusive Role of Digital Rights Management in Digital Era**

#### ***1.5.1 Not Just a Copy Protection Fortress***

Copyright can be defined as the right for the source to prevent others from replicating the work without permission.<sup>199</sup> In other words, the uniqueness of the method or the product is now acquired by the maker only, and nobody under the legal jurisdiction

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<sup>198</sup> <http://www.enet.com.cn/article/2004/0907/A20040907341363.shtml>

<sup>199</sup> "Music Industry News-as it happens", <http://www.musicdish.com/mag/print.php3?id=6337>, access date : 26/01/2014.

would have the authority to recreate that product or to use that method without permission from the source.

If you understood DRM architecture merely as an important magic weapon against digital piracy, you might not be that absurd, from a technical perspective.<sup>200</sup> However, the unilateral conclusion on DRM would be challenged by its partial and imbalanced acknowledgment. It can refer to what has been stated or mentioned as the foregoing, but DRM cannot be described or defined by a unique technological component; rather, it ought to be defined by a comprehensive organism, one that has been employed by the modern copyright regulatory system in the digital era.

In other words, whether the position of DRM is just on copyright protection or not, in essence, is the question whether "DRM systems only concerns technologies". DRM by itself, by and large, plays an active role in digital copyright protection, since technological solutions effectively hold up digital copyright infringements and regulate digital works markets. DRM, to a certain degree, made for the maximum involvement of the content creators. We might say that the main function of DRM is to protect authorized works and limit (or eliminate, if possible) the access to copyrighted works without permission. Besides, technologies embedded in the DRM scheme also design the digital industry business models, or consumers' usage patterns. Another part of the DRM system is regulation, which intends to build the mutual restriction of content creators and end users.

In this regard, DRM has been focusing on more than just technologies, which are deemed the sole components of digital copy protection.<sup>201</sup> On one side, due to the comprehensive nature of its feature, the DRM system has combined technology and regulation to fight in the digital copyright infringement war. On the other side, what has been discussed above regarding the characteristics of DRM also implies that digital piracy has not been eradicated at the network level, although its technologies have updated rapidly. It is unreasonable to query the effectiveness of DRM on account of the current lawful practices, which indirectly shows there is more to DRM than

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<sup>200</sup> Ibid;

<sup>201</sup> Hugh Laddie, Peter Prescott, Mary Vitoria, 'Modern Law of Copyright and Design', Butterworths, 2000.p.1 and also see Tzen Wong, Graham Dutfield 'Intellectual Property and Human Development: Current Trends and Future Scenarios', Cambridge University Press, 2011. p.9.

technologies. As such, copy protection is merely the tip of the iceberg.

Intellectual property rights and all other rights are far from the same. To a certain extent, however, intellectual property rights are closer to special monopoly rights, which most people admit is a justifiable monopoly. John Locke, in his theory of property, has demonstrated labour's "just desert", deeming intellectual property as a "suitable reward for intellectual labour".<sup>202</sup>

If the digital copyright protection is titled by "defensive warfare", then DRM systems would be one of the defense lines. DRM construction, technically speaking, is based on its distribution and usage mechanism; it provides various profit-earning channels between content creators and end users. DRM strategy has helped the content creators obtain profits directly through different interactive models, which are in line with DRM standards. Also, regarding the economic benefit, DRM architecture guarantees content creators' earnings from two sides.

What I touched upon regarding the designed inner structure of DRM is the first aspect, which gives these right holders one chance for the direct collection of profit. As a matter of fact, the existence of DRM schemes prevents digital copyright infringements that lessen the economic loss of content creators — this is called an "indirect benefit". By and large, the necessity of DRM is not only out a monetary consideration, but it also serves anti-piracy purposes. Likewise, this is the reason why the DRM system was created, the reason why it was praised in the digital world.<sup>203</sup>

### **1.5.2 New Business Method**

Traditional copyright has been thought of as a mediums-leaning copyright regime.<sup>204</sup> Various copyright types are expressed and represented by different mediums. With

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<sup>202</sup> Julia Layton, "How Digital Rights Management Works", available at:

<http://computer.howstuffworks.com/drm.htm>.

<sup>203</sup> Ibid 86;

<sup>204</sup> David Rooney, etc., Greg Hearn, Thomas Mandeville, Richard Joseph, 'Public Policy in Knowledge-based Economies: Foundations and Frameworks-New Horizons in Public Policy Series', New horizons in public policy Series, Cheltenham [u.a.]: Elgar, 2003. During the same period, Georg Hegel argues that intellectual property is recognition of individual's sovereignty over their thoughts, while these two arguments are based on ethical concerns.

technological integration, namely digitalization, all mediums turned into digitalized types in information communication. Simply put, books, movies, music, paintings and all other audiovisual content have been diffused by the ultimate pattern "0" and "1", which are the digital outputs of computing technique. It was pointedly described that one of the most remarkable differences between traditional copyright law and digital copyright law is regarding mediums.

In the physical world, traditional copyright ordinarily regulates the replication and distribution of physical mediums. In digital environment, copyright law stresses the usage and acquisition of digital data. It seems that there are few regulatory similarities between techniques developed under traditional copyright laws and technologies covered by digital copyright laws.

Digital technologies in the DRM system, to a certain degree, could provide a more rapid, integrated channel to satisfy consumers. Take the digital music industry as an example; internet consumers, instead of purchasing music in a CD shop, can do so through an online service. Customers could, for the very first time, purchase single songs off the internet, rather than an entire album. The improvement of internet bandwidth even brought a "celestial jukebox" into the digital world, which gives internet users a platform to access music at anytime and from anywhere, without downloading files or filling storage space on their electronic devices.<sup>205</sup> Profits also can be earned by creators through digital technologies.

If the biggest contribution of DRM, in the digital era, was the solid shield against copy protection, the change of mediums would tremendously boost the development of digital works that are wrapped by DRM technologies. In the meantime, digital industry transactions flourish within the DRM system.

We have to admit that the framework of DRM has not been promoted to the unassailable solution against digital copyright infringement nowadays. But it seems that there has yet to be an impeccable approach to protect digital copyright in the modern world.<sup>206</sup> After all, DRM schemes include technologies; this means that those sophisticated techniques could be replaced by advanced or improved technologies.

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<sup>205</sup> Ibid;

<sup>206</sup> Ibid 78;

Furthermore, DRM could be gradually dissected with new cracking tools or techniques.

The DRM technology defenses are designed by specific computing algorithms and programming rules. However, the essence of computer science can be expressed by "sequences", "options" and the "logic loop". Each component of the inner structure of the DRM system might be operated. There is no "endless loop" that exists. The whole system can be edited by the coding program, which is relatively flexible in nature.

Tentatively, DRM should be treated as piracy-control tools in the digital world, which is actually the sub-optimal satisfaction level.<sup>207</sup> Computing programs' features imply that DRM technologies are encoded by various functional computing languages. In this regard, the programming of DRM technologies can definitely be cracked or bypassed with the input of solvable computing codes. What is controversial and a heated discussion topic nowadays is why the effects of the DRM system are questionable.

Still, DRM has been regarded as the most resultful approach to curb digital copyright infringement in the digital copyright environment. It cannot necessarily restrict society as a whole for impairing copyright holders' legal benefits, however. But for the general public, this system has indeed reached its anti-piracy goal. And you cannot expect every single person in the world to be an expert on computing science. To a certain degree, the core commercial market of DRM architecture is focusing on the general public, or the end users. As such, it is obvious that there despite certain discrepancies, no copyright infringement will keep technologies from functioning as they should.

### ***1.5.3 Obstruction for Market Competition***

DRM is particularly senseless trying to prevent unauthorized sharing of digital files. DRM can always be broken producing DRM-less versions which makes the authorized versions less valuable than the pirated ones, since they are less convenient

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<sup>207</sup> Munindar P. Singh, 'The Practical Handbook of Internet Computing', CRC Press, p.21-4, (2004).



to use in numerous ways. As a result of this, DRM makes piracy more attractive, which is why most of the music industry finally decided to stop using it.

DRM technology encodes and prevent e-book files from reproduction. Original bricks and mortar bookstore could have unlocked accounts with major distributors, but publishers make it clear that you have to be a large corporation before selling electronic versions of those books. This is because DRM is not only frustrating the readers, it is also expensive for the online booksellers that are mandated to use it.

For DRM to be provided, you need a huge sum of money to cater for the server, technical devices and other administration fees, which includes current expenses related to the software. Requesting retailers to encode e-books with DRM technology, large publishers are basically prohibiting retailers from the online marketplace. This sounds like large company indifference to the predicament of small start-ups, but it is really worse.

There is a more fascinating reason we need an Indie publisher and writer to exist in the e-book market. For example, the Apple/Amazon duopolistic power on e-book sales is highly destructive for writers, publishers and readers. As soon as one of these big companies can freely set the price of e-books, they determine the situations of the market for everybody. They can pay publishers very little and charge consumers very high, leaving writers with some small bit of the pie. Insisting on the deployment of DRM with their books makes it difficult for independent online booksellers to thrive and thus increasing the control of the two giants of the sector, dwindling the bargaining power of the publishers and writers. DRM turns out not to be ineffectual and unfair, but also particularly bad for the companies who recklessly insist on its use. Developing and licensing DRM technology is not free. The cost of encoding media files and dealing with a host of DRM-related customer service complaints are passed on from the retailers to the content producers. This means that content producers make considerably less money selling DRM "protected" content than they do selling DRM-free content.

In addition to the several costs of licensing DRM for content, there is a cost that is frequently ignored and that is the cost which is associated to losing people who do not

have incompatible players or who do not want to buy DRM protected content and because there is no commonly compatible DRM standard, many people can't purchase your content if they are not in possession of a compatible player.

#### ***1.5.4 Copyright Expansion Signal***

DRM is fundamentally envisioned to safeguard the copyright owners from losing sales of their digital works. The idea goes that the easier it is to duplicate and distribute digital works through the internet and on compact discs, the more sales the copyright owner lose out, hence the less money they will generate from their own work. DRM systems put the control of our computers in the hands of content corporations rather than the owners of those computers. DRM cannot inhibit copying. It poses a danger to free software that it is completely banned from significant jobs such as reading e-books and watching content on DVD.

DRM does two major things. Primarily, it assumes that the person who has bought the content is a thief who cannot be trusted, therefore attempts to give total control of all the actions that can be performed on that media to the content provider. Secondly, DRM puts limitations on you, not just for how you view or listen to the content, but your ability to keep the content technologically current.

DRM systems are bad for the social order, businesses and music artists because it hinders the rights of consumers, who now discover that they are entirely limited in what they can do with their digital files. Piracy is often mentioned in relation to DRM and this is deceptive, DRM is certainly forcing people to buy a copy of a song for their computer, then buy it again for their car and buy it yet again for home stereo. This will be highly profitable for the content producers and is something they would like to do.

Consumer's freedom of action is restricted by DRM implementation. A printed book can be resold or lent out to a friend or family member. But the licensing of DRM on many e-Books take away these freedoms. All you have is a license approved by the publisher to use it in. DRM has also been a limitation in certain conditions. For example, you bought an e-book on the history of your favorite movie, with the

complete episode guide for reference and you choose to print out a copy so you can have the episode guide close to you when selecting which episode you want to watch. The distress is, if the creator exercised the right to use DRM, you will find out that you have been prohibited from printing out a copy. This actually prevents you from printing out copy after copy and selling it yourself, but it also hinders the usage of the product to the user.

## **1.6 Technology and Copyright Law: Chorus in Digital Rights Management Regulatory Model Framework**

*“We become what we behold. We shape our tools, and thereafter our tools shape us.”*

—Marshall McLuhan

*“The social consequences of a technology cannot be predicted early in the life of the technology. By the time undesirable consequences are discovered, however, the technology is often so much part of the whole economics and social fabric that its control is extremely difficult. This is the dilemma of control. When change is easy, the need for it cannot be foreseen; when the need for change is apparent, change has become expensive, difficult and time consuming”.*<sup>208</sup>

—*The Collingridge Dilemma the Social Control of Technology*

Technology produces far-reaching and profound effects on people’s lives. Compared to science, technology plays more direct and important roles in people’s behaviors and day-to-day lives.<sup>209</sup> What’s more, concerning the relationship between technology and law, the development of technology shall directly drive the growth of wealth to further push the growth of “rights” as a vital factor in economic relations,<sup>210</sup>

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<sup>208</sup> The Collingridge Dilemma the Social Control of Technology and also see Wolfgang Liebert, and Jan C. Schmidt, "Collingridge's dilemma and technoscience: An attempt to provide a clarification from the perspective of the philosophy of science". *Poiesis Prax*, 7:55–71, 2010.

<https://www.axelarnbak.nl/wp-content/uploads/2014/01/Liebert-2010-Collingridge%E2%80%99s-dilemma-and-technoscience.pdf>. Access date: 19/01/2016.

<sup>209</sup> Rolf H. Weber, Mirina Grosz, and Romana Weber, 'Shaping Internet Governance: Regulatory Challenges', Springer, Verlag Berlin Heidelberg, 2010.

<sup>210</sup> Luo Li, "Coordination of the Social Norms: Technology and Law", *Social Sciences in China*, Vol.1, 2006.

which also leads to changes in the allocation principle and rules concerning both rights and power. Friedrich Engels believes that economic relationships are a critical base of social history, including all manufacturing and transportation techniques.<sup>211</sup> Furthermore, it also determines the exchange, means of distribution and social class divisions after the disintegration of the clan society — the relationship between politics and servitude, national law, etc. Throughout the progress of copyright law, the growing sophistication of printing technologies have ignited the emergence of copyright law, and the advancement in terms of the copyright and communication fields, which continually their equilibrium.<sup>212</sup>

Technology, and Copyright Law exist unique, but not isolated on DRM regulatory model. Factors involved in the regulatory model, could be relevant with economic, societal, cultural and other areas. In this regard, it is firmly believed that how DRM regulatory model vigorously run primarily depends on how successful those elements coordinate.<sup>213</sup>

There is a debate currently underway in some circles about whether DRM regulatory model would die. But this debate is largely beside the point. Technology routinely violates the former peace in copyright world that copyright holders presume, which makes regulatory model an inevitable option. Businesses have to give careful consideration on whether and how to enter markets where DRM strategy hung in the balance. People have to choose how to act online, what information to share and with whom, which ideas to voice and how to voice them.

Technology appears as social norms in real life to directly and compulsively regulate people's behavior. In addition, technology has countless forms, among which morality, behavior, discipline and law are commonly known. However, we can rarely see the role technology plays in social functions, as social norms in traditional societies (which are popular in nowadays) have profoundly affected people's behavior.<sup>214</sup> Social norms, technology and law are mutually independent, regulating people's behaviors in society, participating in the allocation of property, benefits,

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<sup>211</sup> Ibid;

<sup>212</sup> Kleinsteuber Hans J., 'The Internet between Regulation and Governance', in: Möller/Amouroux (eds), OSCE Representative on Freedom of the Media, The Media Freedom Internet Cookbook, Vienna, p.61-75.2004.

<sup>213</sup> Walker Clive, Wall David and Akdeniz Yaman(eds), 'The Internet, law and society', The Internet, Law and Society, Longman 2000.

<sup>214</sup> Ibid 221;

right and power.<sup>215</sup> And this kind of technology should be acknowledged and supported by law, and is subject to law as well. Moreover, technology is able to provide assurances for the implementation of law. Compared to law, technology has a glittering array of advantages in terms of social norms, because the implementation of law depends on public force to a larger extent than common resources, which are effective within a certain scope of the national compelling force. In contrast, technology is capable of working directly, accurately, efficiently and economically, because it is not only capable of building up behavioral standards, but it's also helped realize the normative contents.<sup>216</sup> For example, CDs with anti-copy functions will keep customers with illegal intentions from infringing copyright, which forces them to obey all relevant laws. What's more, under the condition that people can protect their rights through technical approaches, they shall inevitably ask for more technological requirements than they will legal requirements. Besides, the role technology plays is not confined to countries, and thus attracts rights holders to enter the network environment. It is based on the condition, as have found, that the most obvious change in network policy is the transformation of technology: now, technology is law. <sup>217</sup>

DRM could be considered as a very diminutive aspect of Lessig's "Four Modalities of the Regulation" theory, if decisions concerning DRM regulator models had been promoted by continually evolving digital technologies. Examples of social behavior in cyberspace described in Lessig's book puts more emphasize on how to integrate each modality and how these modalities interact with each other.

Lawrence Lessig articulated that the dimensions of regulation structure should be acknowledged by the current society, although he explored his research based on real life in a hypothetical environment. There are four approaches by which the actions would be regulated in a networking or non-networking situation: (1) the law, (2) social norms, (3) the market, and (4) the architecture.<sup>218</sup>

Lessig conducted further investigations into the autonomous nature of these four elements as well as their overall interaction with particular actions in the digital environment. Examples of social behavior in cyberspace described in Lessig's book

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<sup>215</sup> Ibid 221;

<sup>216</sup> Ibid 221;

<sup>217</sup> Ibid 221;

<sup>218</sup> Ibid 24.p.122-123.

further emphasize how to integrate every modality, and how these modalities interact with one another. These issues regarding intellectual property and privacy, in his mind, would be influenced by these formalities. Finally, he brought one thought-provoking question to the table:

*“How much control should we allow over information, and by whom should this control be exercised? There is a battle between code that protects intellectual property and fair use; there is a battle between code that might make a market for privacy and the right to report facts about individuals regardless of that market; there is a battle between code that enables perfect filtering and architectures that ensure some messiness about who gets what.”<sup>219</sup>*

If we took a research angle on Lawrence Lessig's authoritative work on regulation, then the DRM mechanism could be considered a minuscule facet of his "Four Modalities of the Regulation" system, if decisions regarding DRM regulatory models had been promoted by ever-changing digital technologies. In a sense, the establishment of the DRM regulatory model could be justified by the starting point at these four aspects. It regulates the various parties' behavior in the digital environment rather than DRM technology itself, if the 'four modalities of the regulation' theory were adopted and incorporated in the DRM regulation scheme. In fact, the four elements included in normative regulatory take on DRM mentioned above, more or less, aims to oversee people's actions in the digital world. Also, the critiques on “DRM technology, are still working, though be taken” are basically considered to be the obstacles for proceeding DRM substantive rules on the internet.<sup>220</sup>

The “market” factor should be treated as the lubricant, or lever, in a profit diagram. However, with regard to the “market” restraint, the DRM system has been challenged by all participants in the digital industry.<sup>221</sup> On the one hand, the economic benefit motivations for each parts (content owners/consumers/internet service providers) concerning the DRM system has not been consistent. Furthermore, profitable copyrighted material subscriptions have been encountered with numerous cases of piracy and non-profit employment.

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<sup>219</sup> Ibid;

<sup>220</sup> Ibid;

<sup>221</sup> See Chapter I, 3.1.2.4.

As such, we might say that the DRM market — at least, the digital technology market — is not fueled by any projected common benefit among all participants. It is not easy and very unlikely for the content owners to abandon their interest gained from the distribution of digital copyrighted works to the public. In this regard, they cannot accept unrestrained and rampant piracy activities in the digital world, not only because of “defending copyright dignity”, but also for “considerable revenue”. The entanglement and the divergent economic interests and positions have constituted in creating a standard regulatory model for DRM yet. Marketing impact is undoubtedly a factor.

The structural design has engendered significant complications regarding the DRM system which has been extensively protested. “Architecture” in Lessigs “four modalities theory” is regarded as a decisive formality in which norms and certain market characteristics are determined by the actual architecture under network circumstance. Also, architecture is considered a kind of law, since it determines the extent of usability by the public.

The architecture of digital space creates an increasingly challenging arrangement for the regulation of people’s activities and actions. The distribution scale and speed of copyrighted works has enlarged exponentially. Since the very intangible material was the only resource of network, and computers, manipulated by specific digital programming brought us to a wealth of content, in which we even have no idea what we are using and what we are watching.

In terms of “norms”, there are many variations between those in the physical world and those in cyberspace. As mentioned above, norms, to a certain degree, are determined by the “architecture” feature of the digital world. In this respect, the negative influence initiated by the architecture, like the technology, has distorted the consumer’s consumption decision.<sup>222</sup> The meaning of DRM technology has been narrowed down theoretically and yet in practice has been extended to almost all kinds of technology, which misaligned users’ reasonable and legal behaviors. Likewise, users are apostate to the technology, since the traditional norms of the physical

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<sup>222</sup> Ibid 24, p.77.

environment cannot be the prohibitive tools of the digital era.<sup>223</sup>

It is ironic that what we called “piracy” in the copyright scheme, in pirates’ mind, was originally considered “freedom”. But it is prevalent and common place in the digital copyright world, since the internet facilitates the distribution and reproduction of copyrighted works. Piracy issues have become incrementally urgent, especially in developing countries.

“The more one gets, the more one wants”. Internet users favor this “free meal” (like downloading music for free, or P2P file sharing) under digital copyright architecture, and they are absolutely insatiable all the time. So-called “piracy freedom”, in this circumstance, needs to be regulated by the “norms”. However, norms are likely not functional in the intricately complex digital environment. It is reasonable that the users are not tolerant of “norms” in network times, since they are habituated to enjoying “free” copyright. The norms in the digital world hardly work.

According to Lessig’s “four modalities”, the position of “law” has been more relevant and vital than the other three.<sup>224</sup> The “law” formality, at least as it was, is the most controversial element of the DRM regulatory model. For the laws, especially anti-circumvention regulations that restrict the users’ access to copyrighted works, they’ve been demonized as the biggest militating factor against technological innovation. Although the limitations and exceptions contained in the fair use doctrine have made adequate provisions for publics’ interest, it seems almost impossible for these laws to be applied effectively to the digital copyright architecture. DRM technologies are updated along with unremittingly challenging circumvention technology. Hence, laws are not adjustable to technological implementation, which is an entrenched issue in the digital times.<sup>225</sup>

“Like a force of nature, the digital age cannot be denied and stopped.”<sup>226</sup> Nicolas Negroponte stated that digital trends began almost twenty years ago in his classic work, “Being Digital”. While his previous prediction have been realized so far, the

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<sup>223</sup> Ibid 24, p.23.

<sup>224</sup> Ibid 218.

<sup>225</sup> Ibid 261;

<sup>226</sup> Nicholas Negroponte, “Being Digital”, Hodder & Stoughton, 1996. p.229.



concerns human beings could not have envisaged are abundant on the technology proportion but also upon regulatory scale. Although Nicolas's words came to life before our very eyes, still, more than anything, concerns are based on the circumvention of the digital environment, or, alternatively speaking, the elusive features of technology.

If works are encrypted by designed “watermark” technology, it means individuals are prohibited to download this work illegally without “watermark”. TPMs of DRM are deemed as the technology with “intentional normative effect”<sup>227</sup> on functionally regulating prohibitive circumvention actions.<sup>228</sup> “Affordance” of technology makes the claim titled “technology is neutral” untenable.<sup>229</sup> In this sense, it is understandable that Leenes insists technology can be accepted as an instrument, like law, for ensuring policy aim attained, which shares the same position with Lessig's point “code as law”.

TPMs, to a large extent, are embedded into DRM construction intentionally for copyright protection. In this regard, DRM infrastructure has incorporated inner techno-regulation already, since techno-regulation is nothing but such a kind of thing that “technology with intentionally built-in mechanisms to influence people's behavior”.<sup>230</sup>

The complexity of DRM architecture and the four regulatory modalities have mounted inordinate pressure on the current regulatory approach of DRM, thereby necessitating the irresistible need for an innovative and specific model that can effectively address all risks.

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<sup>227</sup> Ronald Leenes, ‘Framing Techno-Regulation: An Exploration of State and Non-State Regulation by Technology’, *Legisprudence*, V5N2, (2011). p.151. <http://dx.doi.org/10.5235/175214611797885675>, access date: 6<sup>th</sup>/12/2015. In this paper, Prof. Ronald Leenes discussed the (normative) effects of technology are both intentional and unintentional, although the boundary between the both is not simple to define. In his words, if the artifact with particular features which are intentional-constructed with by its designer consciously in order to respond to certain behavior, it may be acknowledged as an act of regulation. However, it is merely a side-effect or unintended effect of the design if it has no such functions.

<sup>228</sup> *Ibid*;

<sup>229</sup> *Ibid*, p.154.

<sup>230</sup> Bert-Jaap Koops et al., “Starting Points for ICT Regulations: Deconstructing Prevalent Policy One-liners”, Vol.9, *Information Technology and Law*, T.M.C. Asser Press, The Hague. 2006, p.158

Copyright owners might choose a world where the rights approved under the law or declared through license develops into self-enforcement. This can be done through the use of technological devices associated with copies of a work as they are circulated. These devices take a range of forms as software, hardware or a combination of both.

Technology-based control systems could be used to inhibit right to the use of digital content without the approval of the content owner.<sup>231</sup> Access to protected content might be denied except condition upon payment or terms of usage for the protected content is fulfilled. The consumer might be offered a comprehensive license, which may be in the form of a "click wrap," to which he must agree before the control system allows access.

The control system might as well be structured so that the condition of payment and terms of use are embedded as restrictions upon the level of access. For instance, instead of making a term of agreement in a written license that as a condition of access, the user will only be allowed to make one copy of the content, the technological controls may be fabricated to allow just one copy to be made. Instead of approving a written license that as a condition of access, a fixed price for a copy of the content will be paid by the user, the technological controls may be fabricated to accept a credit card number upon access and this is charged as an extra price per copy, each time it is made. Technological control systems could link the use of the work to a definite machine, or when attached to a web or other indicating device, could monitor the degree and type of use of the work, possibly to measure payment by the bit, by the minute, or by other unit of usage. Licensing the terms of agreement may be enforced by the control system itself in a situation where the technological controls are used in combination with "click wrap".<sup>232</sup> They might permit different levels of use subject to the level of payment made. Conditional or alternative terms might be automated into the system, thus permitting a single access for a certain fee, or limitless access for a higher fee. Access might be canceled automatically by remote

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<sup>231</sup> Dan L. Burk, 'Anti-circumvention Misuse', 50, *UCLA Law Review*, 1095, 2003, p.1100.

<sup>232</sup> Dean S. Marks & Bruce H. Tumbull, 'Technical Protection Measures: The Intersection of Technology, Law and Commercial Licenses', 22. *European Intellectual Property Review* 198, 2000.

command, if payments are not completed in a well-timed approach.<sup>233</sup> Subsequently, where technological controls are software fashioned, and software can be scripted to accommodate a range of user performances, technological controls can be scripted to include constraints that might be the focus for written license.

Joel Reidenberg has also observed that because of these features, technological control and legal control may be interchanged in many cases.<sup>234</sup> Conversely, technological control and legal control are different, particularly in the amount of preference afforded by the user. For this reason, content owners may desire to instantiate the terms of use as computer code, instead of copyright or contract law.<sup>235</sup>

In a situation where legal byelaw institutes obstruction to the use of content, users may breach it at their own will, escaping penalty until they are seized and legal action is imposed. Technological barriers may not be difficult for content owners. Unapproved uses are basically impossible except users are technologically expert.

The primary disadvantage relying on technological controls is that users who are technically experts may disable the control system, and possibly assist inexperienced users in doing so. The barrier created by one programmer may be avoided by another. A skilled user may "hack around" the controls assembled into technological content systems, while the majority of users unlikely to have such skills get supplied with easy software hacking tools by those who are skillful. The widespread availability of skilled users, or tools needing little skills can be a threat to technological control over content. Although technological controls may constrain unapproved uses, technology only cannot be predicted to achieve thorough control of protected content. Legal prohibitions against circumvention action may be compulsory to support the integrity and set-up of the control system. The use of both legal and technical constraints offers maximum control over content, each control tool accompanying the other.

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<sup>233</sup> Julie E. Cohen, 'Copyright and the Jurisprudence of Self-Help', 13 Berkeley Technology Law Journal, 1089,1998,p.1102-1110.

<sup>234</sup> Joel R.Reidenberg, Lex Informatica: The Formation of Information Policy Rules Through Technology, 76 Texas. Law Review. 553 (1998). This work was influenced by Lessig's theory, which formulates the focal point of the cyber-paternalist school.

<sup>235</sup> Ibid;

To conclude, here, law and technology can be regarded as two sharp swords designed to protect copyright owner's digital works. If legal sanctions for infringement act refer to a remedy that only kicks in after-the-fact, then the approach adopted by copyright holders to prevent their work from being checked, copied and spread are precautionary measures. As the saying goes, "mend the fold after the sheep have been stolen is not as smart as keeping something for a rainy day." Therefore, in the opinion of people from various countries, TPMs should be properly adopted, and at the same time, they have to conduct anti-circumvention activities against evasive actions. <sup>236</sup>

### **Interim Conclusion**

With the development of technology, the regulative law can't always keep up.<sup>237</sup> In addition, there is a mutual complementary and interactive relationship between copyright law and technology. If the law fails to prevent infringement acts, technology shall be adopted to compensate for that; and if technological techniques are cracked by advanced technologies, the law plays the role that prevents the technology from being cracked.

While technological growth and copyright law exist in isolation, their involvement is not closed in the DRM regulatory model. While the relationship between the said two has deepened with time; economic, social, cultural and other similar spheres also influence this model. The systematic amalgamation of these factors is what ensures the smooth and effective functioning of the DRM regulatory model. The framework of DRM has not been promoted as an impregnable solution to copyright infringement in the current scenario. However, so far though, there is no other infrastructure that presents an impervious path to the protection of digital copyright. This is because; since DRM is a technological game, it is susceptible to being replaced or overtaken by newer, more sophisticated technologies.

Over the years, it has been seen that the DRM system has been highly successful in restricting digital copyright infringement. While its role hasn't been restrictive towards society, especially when it comes to impairing a copyright holders' legal benefits; it has helped get a crackdown on piracy, with respect to the consumer. Not

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<sup>236</sup> Ibid;

<sup>237</sup> Ibid 182;

everyone in the world is well versed with the subject of computer science. Hence, the integral commercial market here thus becomes the general public. It can be said with a degree of certainty, that despite certain discrepancies, copyright infringements don't have a lasting effect on the regular functioning of technologies. Also, consumer feedback greatly helps DRM operators to improve their business models. These business models equip users with a varied number of ways to access digital content, and at the same time ensure that the very same content is well protected by DRM technology.

There is an ongoing debate about the expected survival of the DRM technology. However, it would seem like this argument is quite directionless. Since technology is a tool providing access into the copyright world, the existence of such a model becomes inescapable. Smoothing out the foundation of such a model right now, will ensure a leveled intermingling of technology and copyright in the years to come. Careful consideration needs to be made by businesses entering markets wherein the DRM strategy hangs in the balance. Online behavior, exchange of ideas and the voicing of opinions, all have to be carefully monitored. Governments too have to play their part in ensuring the lawful regulation of the above.

This chapter offers the starting point for this idea, beginning with concentrating on the segregation of the digital rights regulatory model on the basis of country. These diversities reflect a landscape that is complex and is bound to become more so in the coming years, as billions more connect to the internet. In order to maintain a digital rights regulatory model that delivers the greatest possible benefits to the digital world, a serious discussion needs to be delved into that discusses: the principles that will guide us, what rules should hold existence and what machinery needs to be put in place, with an emphasis on how to go about doing so.

## **Chapter 2**

### **Legislative Architecture of Digital Rights Management Regulatory Model in U.S., E.U and China**

#### **2.1 The Background of Anti-Circumvention Rules Emergence**

The comprehensive DRM system includes multiple elements, such as licencing, technology and law. Prof. Stefan Bechtold deemed that “DRM systems are not only technological phenomena: they pose complex legal, business, organizational and economic problems.”<sup>238</sup> Although the DRM system is able to provide high-level technology security protection, there is no flawless system.<sup>239</sup> The case of SDMI (Secure Digital Music Initiative) also indicated that there is no “fully secure” system we can count on, even though these technological factors and design structures are more innovative and thorough. Technology systems would be cracked by much more advanced technologies if specific research times provided for more complexity. More significantly, digital content and authorized works secured by the technology scheme would have spread once the technology shield were destroyed or wrecked. This situation also brought about irreversible losses to copyright owners. Considering the inherently risky result, protecting digital copyrighted works via a technological approach is entirely futile. Therefore, the rights holders began their journey to search for a new tool for intensive copyright protection in the digital era, besides the combined protection of licences and technology, which presented the arrival of anti-circumvention rules.

The term “anti-circumvention rules” aims to clarify research conducted on the DRM system. The concept of “anti-circumvention rules” embraces “anti-circumvention legislations” and “rights management information”. The figure below shows that the relationship is among anti-circumvention rule, technological measures legislation, rights management information legislation, anti-circumvention legislation and anti-device legislation.<sup>240</sup>



**Figure 2.1 Architecture of Anti-Circumvention Rule**

<sup>238</sup> Ibid 68.

<sup>239</sup> Tomas Sander, ‘Golden Times for Digital Rights Management?’, *Financial Cryptography*, Springer. 2002.

<sup>240</sup> Wang Dongjun, *Studies on Problems of Legal Restrictions on Digital Rights Management*, China National Knowledge Infrastructure (CNKI) as Internet resource for database, at 22.

### **2.1.1 Technological Protection Measures Legislation**

In order to enhance the integral safety of the DRM system, new technological measures legislations motivated by the copyright industry have come through. These acts (so-called “preparatory activities”), which circumvent TPMs and produce or sell the devices that can be used as circumvention means for TPMs, are illegal.<sup>241</sup> A retrospective of the idea that forbids a special technology via domestic legal provisions has traced back to the Audio Home Recording Act of 1992 [17 U.S.C.§1002 (c)]. Article 1002 (c) of prohibition on the circumvention act of Serial Copy Management System (SCMS) is about “prohibition on circumvention of the system”.

*No person shall import, manufacture, or distribute any device, or offer or perform any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent any program or circuit that implements, in whole or in part...<sup>242</sup>*

On the international horizon, the World Copyright Treaty (WCT) and the World Performance and Phonogram Treaty (WPPT), under the World Intellectual Property Organization (WIPO) structure, both contain similar provisions to ban the circumvention behavior of TPMs.<sup>243</sup> The Article 11 of WCT states that:

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

Article 18 of WPPT states like that:

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<sup>241</sup> Ibid;

<sup>242</sup> Ibid.

<sup>243</sup> Ibid .

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

In 1998, the American Congress passed the DMCA, which includes relevant TPMs provisions. DMCA was designed in line with TPMs from two different but parallel points. One of them is “access control” rule, which controls the general public’s access to the copyrighted works; and the other one is “use control” regulation, which aims to “secure the rights owners’ copyrights”. Another important aspect regarding DMCA is about the partition from “direct circumvention acts” to “preparatory activities”, and the “use control” technology merely applies to the “preparatory activities”.<sup>244</sup>

In the EU, TPMs legislations were established through passing multi-directives related to copyright law. Article 7(1)(c) of “Software Directive” in 1991<sup>245</sup> pointed out that:

*Any act of putting into circulation, or the possession for commercial purposes of, any means the sole intended purpose of which is to facilitate the unauthorized removal or circumvention of any technical device which may have been applied to protect a computer program.*<sup>246</sup>

Article 4 of “Conditional Access Directive” has similar provisions:

*[T]he manufacture, import, distribution, sale, rental or possession for commercial purposes of illicit devices; the installation, maintenance or replacement for commercial purposes of an illicit device; the use of commercial communications to promote illicit devices.*<sup>247</sup>

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<sup>244</sup> Ibid .

<sup>245</sup> Herbert J. Hovenkamp, 'Innovation and Competition Policy, Chapter 1 (2d ed.): Competition Policy and the Scope of Intellectual Property Protection', January 11, 2013.

<sup>246</sup> Ibid;

<sup>247</sup> Ibid;



The most important TPMs legislation is the Copyright Directive from 2001.<sup>248</sup> Article 6 (1) of this Directive forbids acts against the circumvention of any effective technological measures. And Article 6 (2) prohibits the “import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services”. Similarly, devices “have only a limited commercially significant purpose or use other than to circumvent” or “are primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention”. Generally speaking, Article 6 (1) and Article 6 (2) provided the DRM system comprehensive protection.

### ***2.1.2 Rights Management Information Legislation***

Unlike anti-circumvention legislation, rights management information legislation has not been reproached by universal odium, which is likely on account of the non-restriction on people’s use of digital content. In other words, rights management information legislation does not directly limit Internet users from accessing digital copyrighted works. Provisions related to rights management information in WCT and WPPT are explicit and specific. Article 12 (1) of WCT involving “obligations concerning rights management information” expresses:

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

*(i) to remove or alter any electronic rights management information without authority;*<sup>249</sup>

*(ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority.*<sup>250</sup>

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<sup>248</sup> Ibid;

<sup>249</sup> Council Directive of May 14, 1991 on the legal protection of computer programs (91/250/EEC).

<sup>250</sup> Council Directive of May 14, 1991 on the legal protection of computer programs (91/250/EEC).

This is similar to Article 19 of WPPT.

## 2.2 Anti-Circumvention Rules Design

Legislation and implementation systems of copyright protection aim to protect the legitimate rights and interests of authors, to coordinate the relationship between authors and users, to encourage authors to create and to promote its creations for further development of scientific research.<sup>251</sup> Copyright System emerges from the issuance of *The Statute of Anne*; And recent development historically shows an ever-present contradiction between the private rights of author and public benefits. Balancing the interest of various parties is the main issue to be considered.<sup>252</sup> However, the development of network technology has brought about unprecedented challenges for the original balanced copyright system. Both the circumvention of digitalization and TPMs of copyright demonstrate the network characteristics: free flowing and sharing of information, which are unprecedented challenges of copyright monopoly. This led to some people pledging that certain copyrights should be overturned in the network era. With one hand, there are the precarious benefits of copyright holders; on the other hand, there are unprecedented requirements of information sharing. Network technology not only provides powerful information and convenient communication method.<sup>253</sup> However, such mighty tool also services as channels for people to probe into other people's privacy, steal others' commercial secrets, carry out illegal transactions, obtain improper interests and evade liability, etc. Therefore, some copyright holders have to establish protective measures for their information and rights. However, some hackers try unremittingly to crack these protection technologies. The development of the internet faces unprecedented challenges which conflicts with the interest of copyright holders that deemed as modern infringement activities.<sup>254</sup> Henceforth, preventive copyright protection measures emerge overtime. Current popular measures are referred as DRM technologies.

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<sup>251</sup> Cyberspace Law Developments: Annual Survey, American Bar Association. Section of Business Law. Spring Meeting, 1998. p.236.

<sup>252</sup> William Patry, 'How to Fix Copyright', Oxford University Press, 2011. p.136.

<sup>253</sup> The New world of the Information Society: Proceedings of the Seventh International Conference on Computer Communication, Sydney, Australia, 30 October-2 November. 1984. p.350

<sup>254</sup> Michael Rustad, 'Global Internet Law'(Hornbook Series), West Academic, 2014.

Historian Arnold Joseph Toynbee believed that any power, including the power produced by advanced scientific technology is ethically neutral.<sup>255</sup> Judging from the nature of technology, TPMs aim to protect copyright. The decree of TPMs is to punish others from copyright infringement. This law specifically targets equipment and service makers who deliberately provide techniques to carry out infringement activities. In the current network environment, new right of copyright holders only manifest themselves in the controlling the accessibility of their work via the web. However, digital works can completely free themselves from the psychical medium during the online dissemination process. Thus, traditional methods used to prevent physical torts are unable to make a significant difference anymore. Given that the old measures cannot adequately protect copyright holders, patent holders must seek to private remedies such as further adopting technological measures to protect their rights from unauthorized usage and duplication. However, the barriers built by present technology will quickly be replaced by new technologies, and sequentially, advanced defensive technology promote hackers with new virus ready for more attacks. Copyright holders match their wits with anti-hacking technology experts, and meanwhile, appealing to the protection of the law, it enhances their tactics during attack and defense actions.

TPMs are introduced to protect copyright in the digital era. If that is the case, then it begs the question of what is the legal nature of TPMs? How do these measures protect copyright holders? To answers these two questions are premises for accurately capturing the current issues arise of TPMs. From a legal perspective, TPMs are a private solution for copyright infringements.<sup>256</sup> In terms of protected methods, TPMs are methods to control the end consumers.

### ***2.2.1 In terms of Legal Nature***

Copyright protection measures can be divided into public and private solutions. Private remedies refer to the situation whereby they believe that their rights are being

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<sup>255</sup> Daniel C. S. Wilson, "Arnold Toynbee and the Industrial Revolution: The Science of History, Political Economy and the Machine Past", History and Memory, Indiana University Press, Vol. 26, No. 2 (Fall/Winter 2014).

<sup>256</sup> Strader, Troy J., 'Digital Product Management, Technology and Practice: Interdisciplinary Perspectives', Business Science Reference, 2011, p.195.

infringed;<sup>257</sup> they solve the disputes to achieve their right independently without a third party or state officials. The characteristics of private remedies include: a lack of any third party; the disputes settlement process is non-programmable; when copyright holders adopt private remedies, they think that their rights are being infringed. The goal of private remedies is to realize the value of rights<sup>258</sup> and solve disputes, while the channel of private remedies depends on private power. The key distinction between private and public remedies is the intervention of a third party. "Private remedies are social-control models which are non-centralized, highly fragmented and private."<sup>259</sup> On numerous occasions, people are directly involved in disputes seeking to solve problems by themselves. However, the institutionalization of private remedies does not mean that this will no longer be the case. Because the key point to differ public and private remedies is the intervention of a third party, but not determined by legal rules.<sup>260</sup> Even though public remedies dominate the modern society, private remedies are always cheaper. Take three private remedies: self-defense, avoiding emergency, and self-help.<sup>261</sup> If they are prohibited, and people have to wait for the help of public officials, then an extremely low economical efficiency will come out of the situation. Private remedies are often the result of spontaneous behaviors from individuals,<sup>262</sup> and it is not the objective of third party to comment on the necessity and the limitations of remedy, which it would inevitably bring along a sort of benefit-orientation and randomness. Other extensive private remedies will led to more negative effects. Therefore, legislation should have a prudent attitude toward private remedies. Furthermore, civil law has to establish frameworks to prevent the potential shortages of self-defense technology. and also avoid emergency self-help remedy in terms of the times, scope and means.

In terms of legal nature, TPMs are undoubtedly the private approaches for copyright holders to protect their creations. Relevant copyright regulations only define that anyone has the obligation not to circumvent "effective" TPMs. These laws establish

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<sup>257</sup> Richard Collins, Cristina Murrioni, 'New Media, New Policies: Media and Communications Strategy for the Future', Policy Press,1996. p.112.

<sup>258</sup> Hanoch Dagan, 'Reconstructing American Legal Realism & Rethinking Private Law Theory',Oxford University Press, 2013.

<sup>259</sup> Gary T. Marx, "Technology and Social Control: The Search for the Illusive Silver Bullet Continues Encyclopedia of the Social & Behavioral Sciences", 2nd edition, 2001, <http://web.mit.edu/gtmarx/www/techsoccon.html>.

Access date: 15/01/2016.

<sup>260</sup> Tolley's Communications Law, Tolley Publishing Company,Vol.3. 1998. P.165.

<sup>261</sup> Christian Witting, 'Street on Torts', Oxford University Press, 2015.

<sup>262</sup> Ibid;

by copyright holders themselves do not have a clear definition of the type and the setting of measures. Judging by the process when law recognizes measures, TPMs and anti-circumvention provisions are the outcomes of that which copyright holders are pursuing. It is the active promotion of copyright holders that protection measures and anti-circumvention provisions are finally introduced into the copyright. According to terms of legal nature, TPMs can be regarded as private remedies ignited by copyright holders.<sup>263</sup>

### ***2.2.2 In terms of Protection Methods***

As one of the important intellectual property rights regulation architecture, the copyright law defines the protection scope based on the range of prohibited behaviors. However, the use of copyrighted works is more than that. Reading books, lending of audition works and the exhibition of works all belong to the “use action” in copyright law but these usages are not specified in the copyright law — they are beyond the perimeter of law. The reasons why these usages are not included in the copyright law are that they are not full controlled effectively enough. For example, it is difficult to know how many times readers read the copyrighted books. Readers may infringe other interest of copyrights individuals. While there are available technology which tracks what readers are doing via the web, it may infringe the privacy when you supervise users' reading activity. Furthermore, copyrighted works are often created for the public.<sup>264</sup> In this regard, the full control on works may lead to a situation in which the public is not willing to use these copyrighted works, and the benefit of copyright holders may rely on nothing. In the development of copyright laws, imitation activities are evolving with the progression of the social economy, culture and technology. Before the emergence of broadcast radio and television, works could be circulated to the public via analog mediums. Then, copyright holders can obtain benefits by controlling the medium and commercially use of the mediums activities. Copyright works have mediums, which possess consumption exclusiveness and competition. Also the public is limited by space and time when they use copyrighted works, which is not beneficial for copyrighted works dissemination. The copy technology is not developed at that time, which also costs a great deal; an individual

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<sup>263</sup> Strader, Troy J., 'Digital Product Management, Technology and Practice: Interdisciplinary Perspectives', Business Science Reference, 2011, p.195.

<sup>264</sup> Ibid 6;

cannot carry out cost-effective copying. As a result, printing plants and publishing companies carry out copying activities.

Therefore, it is for copyright holders to recoup the capital outlay and receive the benefits through controlling replication mechanisms.<sup>265</sup> After the emergence of broadcast radio and television, copyright works can be spread without physical mediums. However, relevant equipment is very expensive, and the main disseminators concentrate on just a few institutions. There is not a large amount of individual communications, which enable copyright holders to control these centralized disseminators maintain their benefits. Prior to digital technology, copyright holders were able to protect their economic benefits by controlling centralized copying or major disseminators because copying and transmission is intensively carried out. At that time, copyright holders indirectly received their payment from the public (end consumers), and the protection mode of copyright served as a mean of control intermediary. The emergence of the printing press granted individuals to access copyright works, the restriction of private dissemination and the quality of those works cannot fundamentally change the copyright protection modes. The current emergence of digital technology has changed everything; copying and knowledge transfer abilities radically change the communication platforms of copyrighted works. When a certain individual buys a book or a movie, he or she can upload it its purchase online. Afterward, endless downloads and copying occurs. “The use of copyright works change from copying to directly experiencing the contents of works”;<sup>266</sup> “basic principles are no longer the buying and selling activities of property right in the market, but an access for providers and users to services in the network environment.”<sup>267</sup> In a new environment, the market is giving a way to the network, and the property is gradually obtained by on-line access. Therefore, the typical protection intermediary model cannot play a role under this platform. “Access” has become the basic characteristics of the digital era. Copyright holders began to create and to expand various TPMs along with laws to change the intermediary model to an end-controlling model so that the evolution in the protection types, which was based on the traditional model, does not control the “access to works.” Meaning the control

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<sup>265</sup> Dara Kerr, "Netflix purges 79 movies, say goodbye to 'Taxi Driver'", June 30, 2014,

<http://www.cnet.com/news/netflix-purges-79-movies-say-goodbye-to-taxi-driver/#!>. Access date:16/10/2014.

<sup>266</sup> Jane C. Ginsburg, 'From Having Copies to Experiencing Works: the Development of an Access Right in U.S. Copyright Law', *Law and Policy* 2001(3), p.2.

<sup>267</sup> Ibid;

of pre-digital world is totally lost. This enabled a new-found freedom for the public to access copyrighted works with the implementation of TPMs it also facilitated copyright holders' tight control of end users' behaviors.

### ***2.2.3 In Terms of Economic Role***

Copyright holders can earn profits while providing products, and are able to benefit others (homo economics). However, they can only get a part of profits of the whole social revenue based on an approval price. Even though the creators are responsible for the cost of creation, society as a whole turns a profit. As such, some say the market allocation conducted on products is inefficient. In terms of products such as copyright, policies can be used to overcome these barriers, encouraging an external economy, namely to prevent freeloaders who try to get by without payment. Because of new technology, digitization has made copying with low payments at a high accuracy possible, which helps more people access content. What's more, these means of access are convenient, even without payment.<sup>268</sup> Besides, the risk of using, adapting and copying without authorization significantly increases; in addition, the copyright holders, users and publisher are highly fragmented. Each consumer becomes a potential infringer and disseminator, and then turns into potential competitors against the copyright holders. Traditional copyright law based on limiting the copying technology is no longer able to prevent the strengthening external economy, and copyright works demand a new, updated system. Technical measures seek to control illegal access and copying: the legal sense of technical measures is to punish others who commit copyright infringement, and those equipment and services makers who deliberately provide techniques to carry out infringement activities, which indicate the strengthening of power to control the external economy.

The clear connotation of negotiation steps, as defined by Navarro, is, "Both parties or more entities involved try mutual efforts to reach a consensus through discussion on the disputes and solutions based on equal dialogue."<sup>269</sup> Chong believes that contract refers to the agreement that every participant should take on duties and

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<sup>268</sup> Navarro Guillermo, Firozabadi Babak, Sadighi Rissanen. Constrained delegation in XML-based access control and digital rights management standards. In: Proceedings of the IASTED International Conference on Communication, Network, and Information Security, New York, NY., United States: Int. Assoc. of Science and Technology for Development, 2003.

<sup>269</sup> Ibid;

responsibilities.<sup>270</sup> The negotiation mechanism is comprised of a series of trigger conditions and dialog steps, which are important compositions and links to reach a contract. In the second chapter of this paper, there is a clear declaration that DRM should be correctly regarded as the execution of an electronic contract.<sup>271</sup> Therefore, correspondent negotiation mechanisms should be implemented as well. Lee puts forward that agreement strategies based on computer processing mode include two significant elements: the first is to carry out the formal specification of the contract, and the second is to set up or authorize reliable agencies with the availability of assisting in the processing of each key step.<sup>272</sup>

Besides, Bonatti raises other added demands on the mechanism of automated negotiation.<sup>273</sup> First of all, there should be a proper language to define the rules used to handle matters, which should also be adopted to comment and judge the items involved in the negotiation process. Second, there are important elements that should be ignored: the language has to correctly demonstrate participants' appealing and decision-making behaviors. In this chapter, there are two protocol modes put forward, both of which are deepened and detailed. Moreover, after comparing current protocol evaluation modes, petri net has ultimately been selected to act as the analysis and simulation tool of formalized description and construction, as it is convenient to describe the relationship between process sequence supervene, conflict and synchronization. Compared to other system network models, it has unique advantages. For example, as a system model, petri net describes not only the structure, but also the dynamic behavior (such as the state changes). It adopts petri net to analyze the nonexistence of deadlock and reach-ability analysis of various expected conditions, so as to fully elaborate on the established protocol with integrity.

With respect to the social field, it discusses various participants' possible behavior models, as well as the influence the processes have on the final result. In terms of the industrial field, it requires a Multi-Agent System as the research hot spot in the

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<sup>270</sup> Chong CheunNgen, Corin Ricardo, Doumen Jeroen. LicenseScript: A logical language for digital rights management. *Annales des Telecommunications*. 2006, 61(3).

<sup>271</sup> See Chapter 2.4.1.

<sup>272</sup> Xue Wei, Huai Jinpeng, Liu Yunhao. Access control policy negotiation for remote hot-deployed grid services. In: the First International Conference on e-Science and Grid Computing, Melbourne, Australia: Institute of Electrical and Electronics Engineers Computer Society, 2005.

<sup>273</sup> Ibid;



Distributed Artificial Intelligence field.<sup>274</sup> *Agent* originates from a conceptual model of DAI with objects, behaviors and knowledge, which independently complete specific tasks to reach a certain goal based on ability, conditions, resources, relevant knowledge and external information with plans and activities. The Agent put forward by Amamiya is a physical or abstract object, which can complete system objects with concerted action among agents with the premise of satisfying constraints.<sup>275</sup> It focuses on a systematic construction principle, as well as the coordination mechanism of several entities. Traditional DAI mainly studies the DPS (Distributed Problem Solving), which breaks problems down into sub-tasks, solves them with different processors, then collects the results.<sup>276</sup> As such, it is a top-down system. To some extent, DPS aims to solve the problem of computational efficiency. However, it is difficult to deal with conflicts among different entities. Thus, people put forward the idea of a Multi-Agent System — a down-top system that defines the independent agent and researches how to identify multiple solutions. The starting point is the systematic behaviors, which are based on the partial information and objectives of every agent, and which can complete the overall objective with the interaction and coordination of multiple agents, based on limited knowledge and resources. Therefore, MAS can better reflect human intelligence than DPS, which is better suited to the e-commerce environment. In this DRM application environment, the DPS is shown mainly in the following situations: the interaction between end users and copyright holders, and the interaction between end users and copyright agents. Li makes a discussion on various influencing factors of the negotiation strategy and the protocol development process, which include the number of participants, interest groups, reproducibility of communication process, the number of consultation provisions, and third-party intervention.<sup>277</sup>

### **2.3 Legal Protection of Technological Protection Measures in Different Regions**

To a certain degree, from the perspective of the implementation of global legal

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<sup>274</sup> Bonatti Piero, Olmedilla Daniel. Rule-based policy representation and reasoning for the Semantic Web. In: Lecture Notes in Computer Science, Dresden, Germany: Springer Verlag, 2007.

<sup>275</sup> Ibid;

<sup>276</sup> Qinglin Guo, and Ming Zhang, 'A novel approach for multi-agent-based Intelligent Manufacturing System', Information Sciences, Vol,179,p.3029-3090,(2009).

<sup>277</sup> Xu H, Brussel H V, 'A behaviour-based blackboard architecture for reactive and efficient task execution of an autonomous robot', Robotics and Autonomous Systems, Vol.22(2), p.115, 1997.

measures, the anti-circumvention rules in various countries are deemed to be the creature in the structure of WIPO.<sup>278</sup> WCT and WPPT granted the implementation right of specific means against circumvention acts to their signatories.<sup>279</sup> Also, they merely provide a general principle of legal solutions concerning these acts, like “enough protection” and “effective legal remedy” on the issue. In this respect, besides being inherently similar in nature, every single member state of WCT and WPPT builds their own legal system for anti-circumvention regulations based on respective legal value orientations.

### ***2.3.1 U.S. DMCA: Dominated by Government under the Practitioners’ Promotion.***

The United States has had almost two hundred years’ worth of development since it first established copyright in its early years.<sup>280</sup> The protection range has developed from the early books to arts and music, and electronics from weak to strong. The history of the development of the American copyright system has contributed greatly to copyright owners in each field.<sup>281</sup>

The developmental history of copyright before the network age — the development process of American copyright in the early years is mainly as follows: copyright regulations were issued successively by each state. In 1789, articles and clauses of copyright were defined by the Constitution. In 1790, the first Copyright Law was passed by Congress, and the copyright system in early America was mainly affected by Great Britain. After the Independence Movement, British laws and regulations were abandoned in America without establishing any corresponding copyright protection system; besides, issues related to copyright were not mentioned in the Articles of Federation that passed in 1781. Publishers represented by Noah Webster persuaded among the states, which greatly promoted the issuance of copyright regulations in each state thereon after.<sup>282</sup> The copyright articles in each state manifest the protection of authors’ ideas so as to stimulate further innovation, to increase intellectual communication and to broaden publishers’ interests. However, they

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<sup>278</sup> Ibid;

<sup>279</sup> Ibid;

<sup>280</sup> Robert Brauneis, 'Intellectual Property Protection of Fact-based Works: Copyright and Its Alternatives', Edward Elgar Publishing, 2009. p.6.

<sup>281</sup> William M. Landes, 'Richard A. Posner, 'The Economic Structure of Intellectual Property Law', The Belknap Press of Harvard University Press, 2003.

<sup>282</sup> [http://www.historyofcopyright.org/pb/wp\\_fe548a29/wp\\_fe548a29.html](http://www.historyofcopyright.org/pb/wp_fe548a29/wp_fe548a29.html), Access date:19/12/2015.

caused a great deal of inconvenience due to the disunity of copyright regulations, so experts decided that one united law had to be issued by the federation as urgently as possible. Thus, the eighth item, eighth clause — the *first article of the Constitution* was passed — in 1787. It claimed that “authors and inventors have exclusive rights for their works and inventions in a certain period in order to promote the development of scientific and practical technology,” which is considered to be the foundation of American copyright and patent laws.<sup>283</sup>

The first Federal Copyright Law was passed by the Congress in 1790. It has seven articles in total, all of which are almost identical to the Statute of Anne, aiming to protect the copyright of native citizens and residents. In 1990, the Copyright Law was revised again, and the prominent feature was that the concept of work became mature with a large protection range. Although authors were entitled with access to copyright according to the Copyright Law in 1790, the notion was a book without the concept of “work”. After over a century, the stipulations of the Copyright Law were expanded in 1909, due to publishers’ constant appeals to courts and persuasions to Congress, by which the right of reproduction was increased on the basis of the previous print, reprint, sales and imports. Network technology was developed early on in America; thus, America was the first country to protect network copyright. In the network era, according to traditional copyright laws, copyright owners have less control over the capabilities of copyright, so rights holders managed to seek new legal provisions to protect their interests and status. In 1993, the National Information Infrastructure Task Force was built by the Clinton Administration, who began to revise copyright policies in the digital age.<sup>284</sup> The Information Commission was established under the leadership of an intellectual property group, and Bruce Lehman, the commissioner, was the convener of the Patent Office.<sup>285</sup> The team was responsible for holding public hearings and understood the demands of different classes with the proposal of the Green Book. According to the Green Paper, all reproduction would be considered infringement, which aroused strong objection among users, including the providers of library network information for public writers. Undoubtedly, the Green Paper

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<sup>283</sup> Julie E. Cohen, 'DRM and Privacy' Berkeley Technological Law Journal, Georgetown Public Law Research Paper No. 372741, Vol.18, p.575-617,(2003).

<sup>284</sup> Technology and society at a time of sweeping change: proceedings, 20-21 June 1997, University of Strathclyde, Glasgow, UK, Institution of Electrical Engineers.

<sup>285</sup> 'Intellectual Property and The National Information Infrastructure: The Report of The Working Group on Intellectual Property Rights', <http://www.uspto.gov/web/offices/com/doc/ipnii/ipnii.pdf> Access date:19/12/2015.

attracted support from traditional copyright industries, including publishing, film, music and software.<sup>286</sup> After the issuance of the Green Paper, however, the Lehman team held public hearings and convened representatives from traditional copyright industries and school libraries for consultation, after which they decided that traditional copyright owners would be reluctant to upload their works on the internet if their rights were not protected well enough; communication would then be weakened.<sup>287</sup> In addition, the international treaty cannot be directly executed in America. Instead, a certain domestic law needs to be designated by Congress to perform the obligations in the international treaty. Therefore, it is of extreme necessity to carry out requirements of international treaties for the legislation of digital copyright.<sup>288</sup>

### **Digital Millennium Copyright Act in 1998**

The Digital Millennium Copyright Act (DMCA) is regarded as one of the most authoritative statutes in recent years. Section 1201 of the DMCA cites three types of anti-circumvention of both copyrighted works protection and copyright protection behavior. The anti-circumvention categories include direct circumvention, providing means for circumvention and indirect circumvention.<sup>289</sup> Although these practices were welcomed by internet content providers and accepted by digital copyright regulators, the general public still has a strong aversion to the DRM system.<sup>290</sup>

Most of the DMCA's contribution is to divide TPMs up into two types: "access control" and "use control", both of which are highly contentious issues. In the practice, there is no straightforward distinction of the two measures. The DMCA created a new doctrine of liability fixation that is completely separated from the traditional doctrine under the digital copyright system through those articles. The rights holders claimed

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<sup>286</sup> Eric Priest 'Why Emerging Business Models and Not Copyright Law are the Key to Monetising Content Online', Brian Fitzgerald, et al. (eds), *Copyright Law, Digital Content and The internet in the Asia-Pacific*, Sydney University Press, 2008

<sup>287</sup> Wolfgang, Fikentscher and Philipp Hacker, Rupprecht Podszun, "Fair Economy: Crises, Culture, Competition and the Role of Law", Springer-Verlag Berlin Heidelberg, 2013

<sup>288</sup> Aaron Schwabach, 'Intellectual Property Piracy: Perception and Reality in China, the United States, and Elsewhere', TJS Legal Studies Research Paper No. 1022243 *Journal of International Media and Entertainment Law*, Vol.2, No.1, p.65, 2008.

<sup>289</sup> Hannibal Travis, 'Opting Out of the Internet in the United States and the European Union: Copyright, Safe Harbors, and International Law', *Notre Dame Law Review*, Florida International University Legal Studies Research Paper No.08-03, Vol.83, No.4, (2008).

<sup>290</sup> Ibid;

specific lawsuits against certain circumvention acts, and there is no need for them to provide any evidence of the existing infringement acts, or even proof of substantial circumvention. Judges, once plaintiffs show “technologies”, “devices” or “services” accused the very eligible objectives under the definition of “circumvention devices” in anti-device legislation. The anti-circumvention legislation in DMCA — especially the anti-device legislation — has been negatively influenced in the digital copyright system. “Technology” itself, not the use of technology, is treated as “illegal” in DMCA, which may be widely accepted as the absurd problem in DMCA.<sup>291</sup>

### **2.3.2 The E.U Directives**

The E.U has provided legal protection to technological measures for a very long time,<sup>292</sup> and it has formed a systematic system of management rules constituted by Orders of the EU on Computer Software, the Green Book of Copyright and Neighbouring Rights in Information Society of the EU; in addition to Suggestions and Orders on Copyright and Orders on access to the Appendix.

The earliest clause on TPMs of the EU can be seen in the orders on legal protection to computer procedures (which was called “Software Directive” at the time), issued in 1991.<sup>293</sup> Article 7 (1) Special Protective Measures of the Orders listed the actions that member states should sanction according to their domestic laws, and the third clause stipulated the regulation of investing in, circulating or possessing any equipment for commercial purposes (if the only goal of the equipment was for the convenience of unauthorized deletion and circumvention of any technological equipment aimed to protect computer procedures).<sup>294</sup> Since the Orders were only limited to the protection of computer procedures, its scope of protection was relatively narrow, and the Orders prohibited only two actions: one was anti-circumvention of the circulation of equipment, and the other was possession of anti-circumvention equipment.<sup>295</sup>

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<sup>291</sup> Alfred C. Yen, What Federal Gun Control can Teach Us about the DMCA’s Anti-Trafficking Provisions, *WISCONSIN LAW REVIEW*, 649-698 (2003).

<sup>292</sup> Irini Stamatoudi, Paul Torremans, 'EU Copyright Law: A Commentary', Edward Elgar, 2014. p.487.

<sup>293</sup> Directive 91/250/EEC, on the legal protection of computer programs, entered into force on May, 14, 1991, <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31991L0250:EN:HTML>, access date : 26/09/2015

<sup>294</sup> The WIPO Treaties: Technological Measures', March 2003, <http://www.ifpi.org/content/library/wipo-treaties-technical-measures.pdf>, access date : 26/09/2015

<sup>295</sup> Ibid;

Moreover, the definition of anti-circumvention was also clear, and the judging standard was whether it had just one purpose; that's to say, whether equipment specialized in providing convenience for the unauthorized deletion and circumvention of technological devices used to protect computer programs, but the definition also imposed restrictions on the affirmation of anti-circumvention equipment. Due to the aforementioned restrictions, implementation of the Software Orders had shortcomings in practice; for example, the requirement of only-purpose was too strict. If several other functions were added on purpose upon designing anti-circumvention equipment, it would have been very easy to evade this regulation.

In July 1995, the EU issued the Green Paper on Copyright and Relevant Rights in Information Societies<sup>296</sup> (which was referred as Green Paper below). From the perspective of rights holders, the report stated issues regarding the copyright protection of new products and services in information societies in great detail. In the section of *Technical Systems of Protection and Identification*, there is a specific discussion on the technological measures of copyright protection.<sup>297</sup> The essential point is that if a proper protective system was installed, digital technologies could make works and other protected objects identified, tattooed, protected and automatically managed; and that if information societies wanted to operate successfully without damaging the interests of rights holders, these protective systems must be introduced and accepted internationally.

In general, the Green Paper stressed the importance of copyright protection in information societies from the standpoint of copyright and rights holders, and the coordination of various countries, protecting technological measures as a part of the EC.<sup>298</sup> However, the technological measures involved in the Green Paper were still limited to identification, and the suggested protective scope of technological measures was quite limited as well.

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<sup>296</sup> European Commission Green Paper of 27 July 1995 on Copyright and Related Rights in the Information Society COM(95) 382 final, <http://europa.eu/scadplus/leg/en/lvb/l24152.htm>, access date : 20/09/2015.

<sup>297</sup> Zohar Efroni, 'Access-right: The Future of Digital Copyright Law', 2011.p.298.

<sup>298</sup> 'The content of Commissions Green Paper on Copyright and Related Rights in the Information Society' considered how the information society ought to function, showing the importance of the information society for the European Community and which current issues relating to copyright and related rights should be looked at... The "voluntary measures" established by Article 6, paragraph 4 represent measures taken by the right holders to protect their rights', Ana Carolina da Motta Perin, 'Technological Measures for Protection of Copyright in the European Union, United States of America and Japan' Munich Intellectual Property Law Center, 2007. [http://www.vogaladvocacia.com.br/SBC\\_EN/Technological Measures for Protection of Copyright September, 2007\\_Motta Perin, Ana C..pdf](http://www.vogaladvocacia.com.br/SBC_EN/Technological%20Measures%20for%20Protection%20of%20Copyright%20September,%202007_Motta%20Perin,%20Ana%20C..pdf). Access date : 20/09/2015.

In November 1996, on the basis of wide consultation, the Commission of the EU issued a subsequent Green Paper on copyright and relevant rights in information societies (referred as “Subsequent Green Paper” below)<sup>299</sup>, which investigates copyright protocol in a single market from economic, social and cultural perspectives; it assumes that the legal system in information societies should be constructed on the basis of the community. Compared to the Green Paper, the Committee had a statement on active and positive effects of technological measures of legislation priority on the basis of the community in the second chapter of the Subsequent Green Paper.<sup>300</sup>

The Committee upheld that the digital management and protection system of copyright was beneficial for rights holders to identify and monitor piracy, but it also pointed out that it would have a positive effect on user privacy. In addition, the Green Paper was only concerned with technological measures of identification, while the Subsequent Green Book observed that the application of new technological measures such as access control, anti-copying and personal use would have a great impact on copyright protection. Members of the Committee believed the large scale introduction of electronic management and protection system of copyright depended on whether a set of standardized projects could be developed as a way to resolve the interoperability of these systems. Therefore, the Committee encouraged all parts to continue attempting to standardize the industry, appealing to take action on the basis of the community, and coordinated legal protection to the technological identification and protection systems.

After the WCT and WPPT treaties were passed in the diplomatic conference of the WIPO, the Committee of the EU extended the legislative process of legal protection to technological measures as well. In December 1997, the Committee submitted the Suggestions on the coordination of several orders of copyright and relevant rights in information societies<sup>301</sup> (referred as Suggestions on orders of copyright below), with the purpose of adjusting and improving the current legal framework — especially

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<sup>299</sup> Commission Green Papers on encrypted services, Commercial Communications and the protection of minors in audio visual services, and the proposed Directive on a transparency mechanism.

<sup>300</sup> Lucie Guibault et al., 'Study on the Implementation and Effect in Member States' Laws of Directive 2001/29/EC, on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society', (2007), [http://www.ivir.nl/publications/guibault/Infosoc\\_report\\_2007.pdf](http://www.ivir.nl/publications/guibault/Infosoc_report_2007.pdf), Access date : 20/09/2015.

<sup>301</sup> Vance Little, 'Audiovisual Media Services Directive: Europe's modernization of Broadcast Services Regulations', *Journal of Law, Technology and Policy*, Vol.2008,No.1,(2008). Available at: <http://www.jltp.uiuc.edu/recdevs/little.pdf>. Access date : 26/09/2015.

copyright issues regarding new products and services that contain intellectual property, including online products and services, physical loaded DC, CD-ROM and digital light disks to protect the single market of copyright and relevant rights, as well as to stimulate creation and investment of the EU.<sup>302</sup>

The Suggestions on orders of copyright included asking EU member states to provide full legal protection to effective technological measures used to protect copyright and other relevant rights, and to sanction actions of breaking the aforementioned technological measures, as well as manufacturing and issuing breaking equipment and providing breaking services. The suggestion also clarified the definition of breaking equipment and services — propagating, popularizing and marketing equipment or services for breaking, or equipment and services taking breaking technological measures as their only goal, or a major commercial purpose; or equipment or services designed, manufactured, adopted or performed to break technological measures protection to copyright and other such relevant rights.

In November 1998, the EU passed Legal Protection to conditional access (conditional access Directive)<sup>303</sup> with the purpose of protecting the broadcast services of radio and TV stations, which charged — or had conditions — for access, as well as other services in information societies, including audiovisual services, online information services and electronic publishing as required. In February 1999, the law was submitted to the European Parliament for a first reading vote, and the parliament put forward 58 amending suggestions. In September 2000, the Council of ministers of the EU finally came to a political agreement on an integrated copyright law,<sup>304</sup> thus entering into a second reading procedure. In February 2001,<sup>305</sup> after another discussion, the law on the coordination of copyright and relevant rights in information societies (copyright law in information societies) that had been in progress for six years was finally born, and was officially carried out on December 22, 2002. The law stipulated the protection of technological measures in the third chapter, and the

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<sup>302</sup> Dan L. Burk, Legal and Technical Standards in Digital Rights Management Technology, 74 *Fordham Law Review* 537 (2005).

<sup>303</sup> Directive 98/84/EC of the European Parliament and of the Council of 20 November 1998 on the legal protection of services based on, or consisting of.

<sup>304</sup> *Ibid* 368;

<sup>305</sup> Directive 2001/29/EC, on the harmonisation of certain aspects of copyright and related rights in the information society, entered into force on June, 22, 2001, [http://eurlex.europa.eu/pri/en/oj/dat/2001/l\\_167/l\\_16720010622en00100019.pdf](http://eurlex.europa.eu/pri/en/oj/dat/2001/l_167/l_16720010622en00100019.pdf). Access date : 26/09/2015.



definition of technological measures in Article 6.

From lawmaking stipulations of criminal protection to technological measures of copyright in the broader sense, we know that most countries punish both perpetrating and preparatory acts of circumventing technological measures. Few countries merely punish preparatory but perpetrating acts — Britain is one such country to do so. For acts of providing services for the circumvention of technological measures, some countries, such as Japan, do not issue consequences, but most countries do. Thus, the “proper and full protection” required in Article 11 of the WIPO Copyright Treaty<sup>306</sup> is a provision with broad meaning. As for what kinds of protection are proper and complete, that is decided by each country.

Compared to the provisions-related TPMs in the DMCA, the EU directive shows the similar articles on this part, whose specific characteristics are as follows:

First, in the anti-circumvention provisions, it states that a person is only liable for the “circumvention of TPMs” if “such person knows, or has reasonable grounds to know”, while the DMCA has no similar provision. It seems that the restriction scope of circumvention acts of the EU directive is far narrower than that of the DMCA, which is in fact not true, since the direct circumvention acts seldom happened in the case that one did not know their behavior belonged to the “circumvention of TPMs”. Owing to the high requirement of technological skills on the “circumvention of TPMs”, it is unbelievable that in these situations no one knew what they did in terms of technological measures (i.e. the act of “circumvention of TPMs”, even if it did exist). In copyright holders’ minds, the focal point is that anti-device legislation contained anti-circumvention rules. Once the possibility that the public could obtain circumvention tools was excluded, the importance of anti-circumvention legislation wouldn’t be as prominent. Therefore, this condition in the EU Directive did not distinguish its legal effects in practice from the DMCA. The positive affirmation of the EU Directive is that it still kept the prudent attitude toward defining the scope of infringement liabilities, unlike the DMCA’s rash decision.<sup>307</sup> Although the EU Directive has not listed the denumerable provisions with regard to the acts of

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<sup>306</sup> Article 11 of the WCT

<sup>307</sup> Cong, Xu, ‘Redefinition of Current Legal Measures’ Role as “Panaceas” in Digital Rights Management Play’, Vol.11, No. 2. February 2014.p.142.

circumvention of “access control” and “use control” technologies, the EU Directive essentially differentiated these two acts through the definition of what the “effective” TPMs are. It is worthwhile to note that the circumvention act of “use control” is not forbidden under the DMCA, but is banned by the EU Directive. This means that the scope of application of “anti-circumvention legislation” in the Directive [Article 6 (1) and 6 (2) provide stronger protection] is wider than that in the DMCA.

Although most countries added technological measures of copyright into copyright laws, no countries regarded copyright technology as the contents of copyright law. Even in Japan, technological measures of copyright are considered anti-unfair competition law; and therefore, crime against the circumvention of technological measures are unrelated to the infringement of copyright, as they are independent crimes. Moreover, independent criminal law articles regarding perpetrating and preparatory acts of circumventing technological measures of copyright show that these acts also have their own constitutive elements of crime too.

### ***2.3.3 Cases in U.S and Europe***

#### ***Felten v. Recording Industry Association of America***

Felten was a council member of EFF, as well as a professor of computer science and public affairs in Princeton University. What's more, he was one of the founders of the information and technology policy centre at Princeton University. Felten once took part in many lawsuits against RIAA and Microsoft. In the case “America Charging Microsoft”, Felten played the role of the chief expert witness of computer science for the Ministry of Justice of America.<sup>308</sup> In this case, Microsoft was accused of abusing its monopolistic position in the fields of operating systems and browsers. Felten and his group once cracked the SDMI (Secure Digital Music Initiative) music encryption technology, but he suffered legal threats when he prepared to publish an academic paper on cracking technologies. In 2001, people — including Felten — claimed the RIAA and SDMI with the help of EFF, requesting that the court affirm that publishing an academic paper on cracking technology was not illegal. He even doubted that the DMCA went against constitutional spirits.

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<sup>308</sup> Nate Mook, "Scientists Take Recording Industry to Court", available at: <http://betanews.com/2001/06/06/scientists-take-recording-industry-to-court/>.

In the investigation that ensued, the court decided there were no disputes. Felten regarded himself as a Galileo who fought against tyranny, but in fact, he was just a Don Quixote, and irritated by a pinwheel. Therefore, his lawsuit was rejected. Meanwhile, considering the Ministry of Justice indicated there were no actual disputes in the case, they filed a Motion to Dismiss because organizations like the RIAA accused Felten of lacking a legal basis for his claims; and so people, including Felten, decided not to appeal. The essay was published successfully later on.

The case *Felten v. RIAA* influenced the world into exploring the balance of protection for rights and other freedom of action.<sup>309</sup>

### ***Finnish CSS Cases in 2007***

However, in 2004, in the case “321 Studios v. Metro Goldwyn Mayer Studios”<sup>310</sup> with the same background, the local court of California, America made a totally opposite judgment with the idea that CSS technology was an effective technological measure. The CSS case in Finland was identical to the Norwegian hackers releasing DeCSS procedures to crack CSS technology.<sup>311</sup> In January 2006, the two defendants of the case also released the software that was used to crack CSS technological measures on the internet, and provided services specializing in cracking and circumventing technological measures.<sup>312</sup> Prosecutors appealed to the local court with the opinion of “cracking technological measures” and asked for a corresponding penalty. However, the local court of Helsinki denied all accusations.

On May, 25, 2007, the local court of Helsinki, Finland made an extraordinary judgment on the case about DVD-CSS technological measures. The judgment pointed out that since the methods used to circumvent the CSS encryption technology were widely used on the internet, the CSS technology did not belong to effective technological measures stated in the copyright law; and thus, the action that the defendant cracking the CSS technology was not an act of “circumventing technological measures”. The reason was that the accusation of “cracking

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<sup>309</sup> *Felten v. RIAA* Case No. 01-CV-2669, (filed D.N.J. 2001).

<sup>310</sup> *Felten v. RIAA* Case No. 01-CV-2669, (filed D.N.J. 2001).

<sup>311</sup> *Ibid* 6;

<sup>312</sup> 307 F. Supp. 2d 1085 (N.D. Cal. 2004)

technological measures” suggested by plaintiff must be specific to effective technological measures. Since hackers from Norway cracked the CSS technological measures in 1999, some cracking software of this kind diffusion were free on the internet, and some computers even preset cracking software. For common users, it became very easy to circumvent CSS technological measures, so CSS technology could not realize the original goal of protecting DVD products. Since expert witnesses of both parties approved of this, CSS technological measures were no longer effective. Therefore, the lawsuit should be rejected.

In the case “321 Studios V.S MGM”, the defendant, a film company, accused a website of reprinting CSS decoding of violating laws about protection to technological measures. Upon deciding the efficiency of CSS technology, the state court of California pointed out that we could not consider that it was no longer an effective technological measure because methods of circumventing CSS were widely spread across the internet. “Protecting rights of copyright holders effectively” stated in laws and regulations referred to prevent, restrict or limit others exercising rights of copyright holders in process of usual operations. In this case, CSS could undoubtedly control users' access to DVD films effectively and protect rights of copyright holders.<sup>313</sup> The court did not consider whether decoding CSS technology could be realized through common sense and legal common tools, or whether it requires the help of specific cracking tools or services provided by hackers.<sup>314</sup> On the contrary, the court believed the only legal ground to judge “efficiency” was whether CSS technology could prevent duplication in normal operations. According to this logic, all technological measures were effective.

The method of the Finnish court that judged the “efficiency” of technological measures according to prevalence of cracking methods made it difficult to produce fair and reasonable results. As we all know, most technological measures could be decoded, and the convenience of the internet could make a cracking method spread over to every common user rapidly. Therefore, under the condition of high technology, very few technological measures could be free from cracking. If most technological

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<sup>313</sup> <http://www.pigdog.org/decss/>, access date: 14/09/2015.

<sup>314</sup> J. Griffin, The ‘secret path’ of Grokster and Corley: Avoiding liability for copyright infringement, *Journal of Computer, Media and Telecommunications Law*, 10(5), 2005. pp. 147 – 151.

measures were considered ineffective according to this, the chances of copyright holders using technological measures to protect their own interests would be deprived.

It was noteworthy that the judgment made by the Helsinki court was based on the copyright amendment passed by Finland in 2005, and the amendment was formulated for the implementation of the Orders.<sup>315</sup> The related clauses about technological measures were almost adopted by the copyright amendment of Finland as they were. Therefore, the judgment of the Helsinki court was the first specific explanation and application to relevant clauses of the Orders. No matter if the explanation was completely right, it was worthy of extreme concern. Judgment standards to “efficiency” of technological measures could decide whether a balance between protecting copyright and safeguarding public interest can be realized, which is a very complicated issue.

### ***Nintendo v. PC Box***

With regard to the legality of DRM measures, the Court of Justice of the European Union (CJEU) ruled on this issue for video games on January 23, 2014,<sup>316</sup> which made consistent trend of "positive decisions against the sellers of circumvention devices".<sup>317</sup> The Interactive Software Federation of Europe even held the opinion that, "CJEU has now confirmed a robust level of protection for TPMs in line with existing legal norms".<sup>318</sup>

The plaintiff Nintendo was a video game giant, who sued PC Box for infringement. Nintendo adopted technological measures to prevent illegal copies of its games being played on Nintendo DS and Nintendo Wii. PC Box is an Italian company which sells the users mod chips and game copiers for playing unauthorized games on Nintendo systems by circumvention. In this case, PC Box argued that Nintendo’s main purpose was not to protect copyright, but to prevent third party independent multimedia

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<sup>315</sup> Mark Perry and Casey. M. Chisick, "Copyright and Anti-Circumvention: Growing Pains in a Digital Millennium", New Zealand Intellectual Property Journal, August 2000. p.261.

<sup>316</sup> <http://www.engadget.com/2007/05/26/finnish-court-rules-css-dvd-protection-ineffective/>, access date: 14/09/2015.

<sup>317</sup> Case C-355/12 Nintendo v. PC Box. (January 23, 2014)

<sup>318</sup> "CJEU Ruling in Nintendo v PC Box case CJEU Ruling in Nintendo v PC Box case". <http://www.isfe.eu/about-isfe/news/cjeu-ruling-nintendo-v-pc-box-case>.

content being played on Nintendo's consoles and systems, which is not "proportionate" under EU law.

DRM again became "the target for attack". In other words, discussion on technological measures in Europe has incurred a constant chatter. In the EU, Article 6 (chapter III) of the Copyright Directive (Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society) provides protection of technological measures against circumvention actions.

The CJEU ruled that, although Article 6 of the Copyright Directive defines technological measures widely, the legal protection applies to DRM that are "proportionate" under EU law.<sup>319</sup> In this case, relevant factors considered by the court for judging the proportionality of DRM:

- Whether the DRM prohibit devices or activities which have a "commercially significant purpose or use other than to circumvent the technical protection (emphasis added)";<sup>320</sup>
- A comparison of the cost and effectiveness of the DRM versus available alternatives;
- A survey of evidence on the purpose and actual use of a circumventing device: namely how often the device was used for copyright-infringing purposes and other purposes; The current state of technology;<sup>321</sup> (The copyright holder's particular intention of use is not relevant to the analysis.)<sup>322</sup>

Obviously, a copyright holder with a 'proportionate' technological measure could be able to rely on the legal protection of DRM as a basis to challenge providers of technical devices. According to the CJEU, legal protection is "granted only with regard to [DRMs] preventing or eliminating, as regards works, acts not unauthorized

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<sup>319</sup> Ibid.

<sup>320</sup> Case C-355/12 Nintendo v. PC Box. (January 23, 2014)

<sup>321</sup> Recital 48 of the 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.

<sup>322</sup> AG Opinion, Case C-355/12 Nintendo v. PC Box (September 19, 2013), para. 52.

by the right holder of copyright [...]” and “[t]hose measures must be suitable for achieving that objective and must not go beyond what is necessary for this purpose.” Thus, “if such measures prevent also acts which do not require authorization then, if they could have been designed so as to prevent only acts which require authorization, they are disproportionate and do not qualify for protection.”<sup>323</sup> In the circumstances, the right holders cannot rely on the DRM shield.<sup>324</sup>

### **2.3.4 Regulations in China**

#### **2.3.4.1 Assimilation of Anti-circumvention Provisions based on Internationally Multilateral Treaties**

Legal assimilation is a phenomenon of different laws embracing and affecting one another in the global economy. Meanwhile, the application of computers and internet technologies has generated a request for international laws, because the internet space has no borders, and the legal mechanism of online trading breaks national boundaries. Therefore, cyberspace should have global technological standards and trading rules.<sup>325</sup> At the same time, the digital trading of copyright works is also required to carry out, in a relatively unified framework, international law protection. Therefore, intentional legal assimilation is imperative. However, it is not simply putting each part together and embracing different laws. The country in a hegemonic position, or a leading position, is the main promoter of legal assimilation, which illustrates the phenomenon that stronger nations in terms of politics, economy and technology conduct one-way communicative measures to promote legal ideas and systems to other countries with different patterns of propagation.<sup>326</sup>

It's easy to replicate digital copyright works in an illegal manner, and copyright owners in countries with intellectual property provisions and powerful information technology adopt TPMs to limit the unauthorized access to their works.<sup>327</sup> Nevertheless, these protective measures are cracked by new technologies; and

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<sup>323</sup> AG Opinion, Case C-355/12 Nintendo v. PC Box (September 19, 2013), para. 67.

<sup>324</sup> AG Opinion, Case C-355/12 Nintendo v. PC Box (September 19, 2013), para. 52.

<sup>325</sup> Michael Nwogugu, 'Economics of digital content: new digital content control and P2P control systems/methods', Computer and Telecommunications Law Review, (2008), <http://dx.doi.org/10.2139/ssrn.1134407>, access date: 14/09/2015.

<sup>326</sup> Ibid 24;.

<sup>327</sup> Ibid;

therefore, copyright owners ask laws to protect technologically protective measures of copyright. *The WIPO Internet Treaties* of WCT and WPPT were forged in 1996, led by America and driven by the European Union; they defined that “Contracting parties have to provide appropriate legal protection and effective legal remedies to technological circumvention means, which are adopted when creators are granted with the right of this treaty or *Berne Convention*, aiming to limit the copy of works, performance and sound recording without being authorized.” However, the formulation process of the treaty is quite complicated, which reflects the conflicts of interests among America, the European Union and other countries.<sup>328</sup> To conclude, the safeguard clause for TPMs is the result of compromise,<sup>329</sup> and its expression adopts a principle text with flexible words determined by southern African nations, and does not define effective technical measures. Therefore, we cannot ensure whether access control technological measures are within the range of anti-circumvention provisions. Besides, these measures do not clarify exceptions and limitations, and the condition of offering dodging device services or preparatory acts for abandoning circumvention is not clarified either. The flexibility and principle of anti-circumvention provisions of technological measures in the internet treaty lead to the illegibility of standards of legal protection, which leave a considerably large space for anti-circumvention duties. When various contracting parties formulate or revise the domestic law for technological measures, they explain and implement anti-circumvention provisions from their individual interests.<sup>330</sup> Therefore, different domestic laws are generated to implement technological measures, and different countries work out different domestic laws to protect their own interests, based on the product competitiveness of network copyright.

	<b>Access-Control Circumvention</b>	<b>Copy-Control Circumvention</b>	<b>Anti-Circumvention Exceptions</b>	<b>Protection Level</b>
<b>United States</b>	<b>Forbidden</b>	<b>Not Forbidden</b>	<b>Narrow Range</b>	<b>Highest</b>
<b>European Union</b>	<b>Forbidden</b>	<b>Forbidden</b>	<b>Narrower Range</b>	<b>Higher</b>

**Figure 2.2. Protection Standards Comparison of Technological Measures in Terms of Assimilation of Internationally Multilateral Treaties**

<sup>328</sup> Marshall A. Leaffer, 'Understanding Copyright Law', Lexis Nexis, 2010.

<sup>329</sup> Ibid 95;

<sup>330</sup> Sheldon W. Halpern, 'Copyright Law: Protection of Original Expression', Carolina Academic Press, 2002, p.246.



#### ***2.3.4.2 Assimilation of Anti-circumvention Provisions based on Bilateral Free Trade Agreements***

Copyright is definitely a favorable property for international trading in America.<sup>331</sup> The emergence of the internet has provided a world-level open market for American copyrighted products, which also face a great threat and huge losses in the network environment.<sup>332</sup> Therefore, it is a common wish to develop a serious mechanism against digital privacy. What's more, the technical measures of protection clause in *The WIPO Internet Treaties* have not reached the requirement of the edition requested by American copyright owners and software organizations. Meanwhile, the U.S. Congress explained and understood the technical measures in accordance with the highest standards of protecting information content industries, based on its flexibility and principle to meet the information content industry's demands; and they issued a *DMCA* in 1998. This act creates a series of rights that are completely different from traditional editions, and the anti-circumvention right in this act is described as "super copyright": it allows for the controlling of non-copyrighted materials, and provides grant information owners with new rights, which do not only control the access to works protected by technical measures, but also the attached technology involving information protection America, as the biggest exporter of intellectual property products, is making unremitting efforts to clear the range of intellectual property and expand the execution intensity.<sup>333</sup> The standards all contracting parties adopt in implementing *The WIPO Internet Treaties* are lower than the standards stipulated in the *DMCA*.

Intellectual property protection, under the network environment, should transcend geographic and political boundaries. Further, its international convergence has become an irreversible tendency. Concerning international legal rules, China has not been able to become an absolutely dominant player, or the one responsible for global legal standards.<sup>334</sup> Therefore, China should correctly choose the paths for the convergence of network copyright law.<sup>335</sup> The above path shows that the final result

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<sup>331</sup> J. Rosen, 'Intellectual Property at the Crossroads of Trade', Edward Elgar Publishing, 2012, p.67.

<sup>332</sup> The Infringement Age: How Much Do You Infringe On A Daily Basis?', <https://www.techdirt.com/articles/20071119/015956.shtml>, access date: 14/08/2015.

<sup>333</sup> Ibid;

<sup>334</sup> McKay Cunningham, 'Next Generation Privacy: The Internet of Things, Data Exhaust, and Reforming Regulation by Risk of Harm', Groningen Journal of International Law, Vol.2, ed.2,(2014).

<sup>335</sup> Glen Creeber, 'Digital Culture: Understanding New Media', McGraw-Hill Education, 2008.p.49.

of convergence is to present the legal ideas and systems of powerful countries; yet, skyrocketing contracting parties are granted with opportunities to demonstrate their appeal in international law mechanisms. Moreover, strong states find it difficult to unify the different wills of other negotiating states, and therefore the international legal mechanisms that are finally formed are always in shortage of rigidity and clarity. Consequently, we ought to draw up regulations or executive modes in accordance with China's legal environment, and in line with the fundamental interests in the premise of fulfilling international obligations, according to the principle and ambiguity of international multilateral treaties.<sup>336</sup> Concerning the second means of convergence, it should be acceptable if China were able to obtain full and reciprocal benefits.<sup>337</sup> However, it is hard to implement this in real life, because China is a large country with enormous profits and extensively divergent interests, so the exchange of reciprocal benefits is difficult to be realized by way of one concrete legal mechanism. Accordingly, China ought to focus on the first approach while participating in the convergence of international network copyright law with the second approach as supplementation.<sup>338</sup> Different countries have diversified copyright advantages and various international trade positions. The construction of the legal system for a nation's internet copyright should be law localization instead of law globalization, which adjusts global laws so as to make them adaptable for their own nations.<sup>339</sup> The convergence of internet copyright law must be accompanied by interest games among nations, and the relationship between law globalization and national interests has to be appropriately dealt with in order to obey the global legislative trends and to protect national politics and economic benefits, namely when it comes to abiding by global thought and local focus. China has stronger technical measures scheme than America and Japan, which is apparent in the conditions that there are few statutory exemptions and open terms and forbidding exceptions.<sup>340</sup> Obviously, legislators for the anti-circumvention law of technical measures do not take the status of China in International Copyright Trade System into consideration, and do not fully use the principle and ambiguity of internet treaties to draw up anti-circumvention provisions

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<sup>336</sup> Paul Goldstein, Joseph Straus, 'Intellectual Property in Asia: Law, Economics, History and Politics', Springer, 2009. p.18.

<sup>337</sup> Miguel A. Quintanilla, Tolerance and Technological Culture, *Philosophica* 66, (2),2000,pp.65-71.

<sup>338</sup> Val Dusek, *Philosophy of Technology: An Introduction*. New York: Paragon House, p.50, 1993.

<sup>339</sup> Ibid 347;

<sup>340</sup> Mikko Välimäki and Ville Oksanen, 'DRM Interoperability and Intellectual Property Policy in Europe', SSRN Electronic Journal, Aug, (2006)

adapted to national interests in the premise of fulfilling international obligations; they only conduct a simple and cursory imitation of America's laws with absolute superiority in terms of information technology and the knowledge economy.<sup>341</sup>

#### **2.3.4.3 The Path in China**

The earliest anti-circumvention technological measures in the laws and regulations in China can be seen in the *Interim Measures on Software Products Management*, issued by the Ministry of the Electronics Industry in March 1998, the 18th clause of which stipulated that actions like producing and decoding pirated software, as well as software whose main function was to decode technological protective measures, were forbidden. With the limitation of domestic, economic and technological development then, there were no protective clauses regarding technological measures in the Copyright Law issued in 1991. On October 27, 2001, the new Copyright Law was put into effect, which stipulated in Article 47 (1) item 6 that it was an infringing act for a person to avoid or destroy technological measures that were adopted by rights holders to protect their copyrights, or relevant rights on their works, videos and audio records without permission.

In addition, the Regulations for the Protection of Computer Software were issued on January 1, 2002, and stated that the protection of computer software in (Article 24 (3)), which cited that acts avoiding and destroying technological measures adopted by rights owners to protect their software copyright with no permission were infringing, aside from specific stipulations in the *Copyright Law of the P.R.C* and other laws and administrative regulations; and people committed the infringement must assume civil, administrative and criminal liability, according to the situation. Meanwhile, in terms of restrictions and exceptions of technological measures protection, some other new exceptions were specified through administrative laws and regulations besides stipulations in the new Copyright Law.

Compared to the DMCA, the laws and regulations in our country have the following characteristics: 1. the fault principle was adopted for the affirmation of infringement against technological measures, while the DMCA adopted the non-fault principle; 2.

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<sup>341</sup> Ibid;

the laws and regulations in our country place emphasis on avoiding technological measures, while the DMCA focuses on the prohibition of technological measures circumvention; and 3. technological measures stipulated in the laws and regulations of China only referred to measures preventing the application of copyright measures for access control, while the DMAC included the two of them. Furthermore, the prohibition of technological measures and device circumvention in relevant laws of our country is not as wide as that of the DMCA, which is more beneficial to the development of the information industry. Meanwhile, relevant laws in our country handle the balance between public interest and rights of copyright owners, which safeguards the rights of the public to obtain information to some extent. However, the protection of our current legal system from technological measures has some problems, including weak operation-ability, narrow protection objects, and a shortage of corresponding terms of sanction to manufacturing and selling equipment cracking technological measures, or providing decoding services, which both need improvement.

In February 2010, China revised the Copyright Law for the second time, and it realised its protection from technological measures of DRM by endowing copyright holders an exclusive right, which was declared in Article 48 (6) and (7) in the Copyright Law. General protective clauses to technological measures allow rights holders to adopt measures protection that protect their copyright and relevant rights, and punish violators, although their practical application is difficult and uncertain to a certain degree. The over-general stipulations regarding the legal protection of technological measures in our country was caused by the legislative passivity of China's DRM, and compared to the Copyright of Information Societies Directive 2001/29/EC of the DMCA and the EU, the Copyright Law of China does not have a detailed and specific illustration of technological measures, rights management information<sup>342</sup> and relevant prohibiting and circumventing actions. Although Article 36 of Enforcement Regulations of the Copyright Law states that punishment for infringing acts<sup>343</sup> — including circumventing and destroying technological measures,

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<sup>342</sup> Article 7(2), Directive 2001/29/EC.

<sup>343</sup> The following acts are target by article 7(1): (a) the removal or alteration of any electronic RMI; (b) the distribution, importation for distribution, broadcasting, communication or making available to the public of works or other subject-matter protected under this Directive and Directive 96/9/EC from which electronic RMI has been removed or altered without authority.

as well as deleting and changing rights management information — still has no specific application rules to protect technological measures.

With the improvement of the socialist law system in China, and the laws and regulations of copyright, the nation issued and implemented a series of laws and regulations successively, including Regulations for the Protection of Computer Software, Implementation Measures for Administrative Punishment of Copyright, Collective Management of Copyright, and Explanation of the Supreme People’s Court on Several Issues of Law Application in Computer-Network Related Copyright Cases. In July 2006, China started to carry out Regulations for the Protection of Information Network Transmission Rights,<sup>344</sup> which involved technological clauses of DRM, and became a contracting party of the two Internet treaties — namely, WCT and WPPT — which further strengthened protection of anti-circumvention of DRM technological measures.

Regulations for the Protection of the Information Network Transmission Right had a specific statement for the definition of “technological measures” and “electronic information of rights management” in Article 2 (2) (3). The Regulations laid a solid foundation for anti-circumvention legal protection of DRM in China. And from the aspect of the definition of technological measures — although China did not divide technological measures into control type and rights protection type clearly — we knew that the laws of China provided protection to the two types from expressions like “avoiding browsing works with no authority” and “preventing providing works to the public without permission”. The Regulations stipulated corresponding protective legal provisions for technological measures and electronic information of rights management regarding digital works specifically. For the legal protection of technological measures, the Regulations had an all-sided prohibition that covered everything from direct infringement acts like circumvention and destruction to indirect ones like manufacturing, importing and providing equipment, components and services with the major purpose of avoiding and destroying technological measures. Regarding the electronic information of rights management, the Regulations also had specific regulations for the direct deletion or change of rights management measures, and the illegal supply of works that can delete and change the

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<sup>344</sup> 《中华人民共和国信息网络传播权保护条例》；

electronic information of rights management. Thus, we see that compared to the legal protection of the Copyright Law to digital rights technological measures, which only had overly general rules for infringing acts and accountability, the Regulations are more objective, specific and operable.

For accountability and punishment of avoiding technological measures of digital works or deleting electronic information of rights management, the Regulations also had specific application rules. For direct infringing acts like avoiding or destroying technological measures, deleting or changing electronic information of rights management, and providing works whose electronic information are deleted or changed, infringers must assume not only civil liabilities, but also administrative responsibilities such as the confiscation of illegal gains and a huge sum of penalty according to illegal business transactions if they harm public interest; what's more, if circumstances are serious, criminal liability is possible. For indirect infringing acts regarding technological measures, the Regulations had detailed and specific protective rules, which stipulated that people who manufactured, imported or provided equipment or components that were mainly used to avoid and destroy technological measures or provide technological services to others to avoid or destroy technological measures must assume all corresponding legal liability.

Compared with Article 48 of the Copyright Law, which stipulates direct infringing acts only from the level of accountability, the Regulations are more specific, standard, applicable and practical on provisions for the legal protection of technological measures regarding digital works. In addition, Article 24 of the Regulations for the Protection of Computer Software, and Article 6 of Explanation of the Supreme People's Court on Several Issues of Law Application in Computer-Network Related Copyright Cases, had specific regulations, as well as legal protection for technological measures of computer software and digital works. Since computer software is a special digital work, and it has characteristics like universality, infringement is more than possible; and so the Regulations offered clear legal protection for the technological measures and electronic information of rights management of computer software. Furthermore, it had a higher upper limit for the penalty of infringing compared to other infringement acts, which further illustrates the importance of

technological measures protection.<sup>345</sup> With a flourishing digital network and increasing of infringement of network service providers, the Explanation had stipulations on direct infringement acts of network service providers, which further expanded the coverage of legal protection to technological measures.<sup>346</sup>

The revised draft of the Copyright Law issued at the end of 2013 had many modifications and adjustments to accommodate the current Copyright Law of China. The revised draft for approval of the Copyright Law would be an independent chapter from clauses related to technological measures and rights management information, which protected DRM with detailed and specific stipulations for the legal protection of technological measures from four aspects; namely, definition, rights of right holders, limitation of rights and liability for tort based on absorbing and learning from the Regulations for the Protection of Information Network Transmission Right. In the definition, application objects of technological measures in the revised draft for approval added in broadcasting and TV programs and application goals added in duplication, operation and adaptation. In addition, application objects of the electronic information of rights management added in broadcasting and TV programs and stations, as well as rights holders of broadcasting and TV programs. The law further clarifies that the legal protection of technological measures covered the two types — namely, access control and rights protection. In the protection of rights holders, the revised draft for approval still followed the detailed and specific rights contents, being highly consistent with the Regulations. In liability of tort, the revised draft of approval stated liabilities for tort specifically, such as avoiding and destroying technological protective measures, and deleting and modifying rights management information. Compared to the *Regulations*, it did not only integrate liability terms of direct and indirect infringement, but also expanded indirect infringing means of electronic information of rights management with actions including duplicating, issuing, renting, performing, playing and transmitting works to the public through network, while knowing that rights management information was deleted or changed. Although the revised draft for approval was not legally valid, as was the first revised draft of the Copyright Law, it could be official copyright law. We know that the legal protection of technological measures among DRM is getting complete, due to that legal

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<sup>345</sup> Ke Steven Wan, 'Managing Peer-to-Peer Traffic in Mainland China and Hong Kong', *John Marshall Review of Intellectual Property Law*, Vol. 11, No. 3, p. 548, (2012)

<sup>346</sup> Solum Lawrence B., "Models of Internet Governance", in: Bygrave/Bing (eds), *Internet Governance: Infrastructure and Institutions*, Oxford 2009, 48-91.

protection of technological measures as an independent chapter, making the definition of technological measures specific, and clarifying rights holders' rights — and taking the liability of tort in a harsher manner. On January 16, 2013, the executive meeting of the State Council's modification on the fine of the four administrative laws and regulations including the Enforcement Regulations of the Copyright Law, the *Regulations for the Protection of Information Network Transmission Rights* and the *Regulations for the Protection of Computer Software*; the meeting further strengthened the force against circumvention and damage of technological measures of DRM, and deepened the protection of digital copyright. Furthermore, in 2013m before the two national sessions, the center of the China Association for Promoting Democracy organized some members of the national committee of CPPCC to conduct a thorough investigation of digital piracy, and submitted the proposal On Strengthening DRM and Constructing an Unified State-Level Public Service Platform for Digital Copyright. The center of the China Association for Promoting Democracy proposed to perfect legislation on digital publishing, perfecting the system of informing and deleting, relieving rights safeguarding loan on copyright holders, further protecting the rights and interests of rights holders and more. Thus, protection of digital copyright has attracted much attention, and before long, China will establish a more educational and sound system for DRM.

## **2.4 Exceptions and Limitations under Digital Rights Management Regulatory Model**

There is a strong conflict in many aspects between the DRM and Fair Use, which makes it possible for the copyright holder to strengthen the control of his works under his consent and it even makes it harder for the continuity of Fair Use.<sup>347</sup> However, Fair Use has its own values among new digital media. First of all, there is a conflict between the legal protection of DRM and the freedom of speech covered by Fair Use. Subject to further analysis, Fair Use has its own necessity based on the freedom of speech.<sup>348</sup> Freedom of speech is a basic political right the Constitution entrusts to every citizen. From the perspective of the Copyright Law, authors have the freedom to create, publish, access and use works and communicate their ideas. The public

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<sup>347</sup> Jackson, M., Singh, S., Waycott, J., Beekhuyzen, J.; DRMs, Fair Use and Users' Experience of Sharing Music. In DRM, Alexandria, Virginia, USA, 2005.

<sup>348</sup> R. Tushnet, 'Copyrights this Journal: How Fair Use Doctrine Harms Free Speech and How Copying Serves It', 114 Yale L.J. 535-589 (2005).



accessibility to read about these works and to acquire ideas and information to further develop new ideas is part of the legal way to realize their freedom of speech. In order to achieve the real value of digital works, it is necessary to entrust the public with the rights to access and use the works while protecting the rights and interests of copyright owners.

#### ***2.4.1 Rationality Analysis of Exceptions and Limitations***

The overemphasis on protecting the interests of the copyright holders not only distorts the balance of interests of the Copyright Law, but also goes against the legislative purpose of the Copyright Law. With respect to the legal protection system of DRM, it gave a biased and unilateral comprehensive copyright protection to the digital copyright holder. It offered digital copyright owner with powerful rights, which could even go against the public. If the public wanted to access and to fairly use the digital works subjectively, they ought to be restricted by not only the DRM system, but also the circumvention acts which are strictly forbidden in Copyright Law. Such double barriers make it difficult to realize the freedom of speech in the field of Copyright Law. Therefore, the existence of Fair Use is indeed necessary to safeguard freedom of speech in the copyright industry.

From the perspective of the Western Classical Economics, the legal protection of DRM has corrected the market failure on the resources allocation, which is indeed necessary in its very existence. However, it is believed that the reason why the TPMs is feasible due to the integrity of information, the zero transaction cost and the rationality of the act of party.<sup>349</sup> In practice, all three conditions are difficult to achieve, so not all market failures may be corrected by the TPMs. The market information is asymmetric and incomplete. Given that the DRM gives excessive rights to the copyright holders, which makes the other party unaware of information related to works, and puts them in a disadvantageous position before the completion of the deal.

This results in difficulties of evaluating the work. Furthermore, it is hard to realize the conditions precedent of the zero transaction cost. The transaction cost in the

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<sup>349</sup> Carolin Latze, "Towards a Secure and User Friendly Authentication Method for Public Wireless", Logos Verlag Berlin GmbH, p.71.2010.

traditional field mainly includes the expenses required to discover the work, to negotiate and make a contract, and to execute the contract. Under DRM system, the transaction cost mainly includes the expenses needed: to identify the system, to acquire the permission from the holder and to conduct the TPMs, and those expenses are inevitable in the new digital media. While not all market failures can be corrected by the DRM system, the existence of Fair Use is also required for interplaying with other potential supporting mechanism.

Finally, the need of public interests further clarifies the necessity and rationality of the existence of Fair Use. There is a strong conflict between the legal protection of DRM and the public interests involved in the use of Fair Use. The main reason is that traditional Copyright Law is always aiming to safeguard public interest except copyright protection. The formulation of laws and the modification of provisions require us to fully estimate the interests of others while protecting our own simultaneously.<sup>350</sup>

New laws are formulated or modified to not create new rights, but to achieve another equilibrium state of interests on the basis of the original balance of interests. The public interest mainly embodied in the right of public access to information, which is different from the freedom of speech as previously mentioned. From the public's general point of view, public interest aimed to safeguard the social and cultural order as sharing of social information can be interpret as cultural progress.<sup>351</sup> The legal protection of DRM has overemphasized the private rights of individual digital copyright holders. It either focused on "promoting" the prosperity and development of the new digital media to narrow the gap among developed countries; or it aimed at "expanding" the interests of the new media service providers so that new medias can rapidly be spread and quickly replace traditional copyright. Whatever the purpose is, the biased protection given by DRM to the digital copyright owner has over-compressed the application of Fair Use, which has seriously damaged public interests.<sup>352</sup>

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<sup>350</sup> Wolfgang, Fikentscher and Philipp Hacker, Rupprecht Podszun, "Fair Economy: Crises, Culture, Competition and the Role of Law", Springer-Verlag Berlin Heidelberg, 2013.

<sup>351</sup> Ibid;

<sup>352</sup> Henry M. Gladney, "Digital Dilemma: Intellectual Property: Synopsis and Views on the Study by the National Academies' Committee on Intellectual Property Rights and the Emerging Information Infrastructure", IBM

#### ***2.4.1.1 Based on the Theory of Copyright Benefit Balance***

Benefit balance is a relatively compatible equilibrium status under a certain benefit system that not only is a legislative but also a judicial principle. From the perspective of theoretical jurisprudence, benefit balance is referred to the "reasonable optimized state of the benefit of the parties involved on the basis of coexistence and compatibility, which is achieved by the legal authority to coordinate the conflicts in all aspects."<sup>353</sup> In fact, the benefit interests balance is a dynamic regulating process in which the holders select and allocate the interests according to certain rules. It is accompanied by the conflicts of interest regulated by multiple autonomous acts under the admissible conditions of the law. Although balance is the ultimate goal everyone, the real world the interest is one-sided that nobody will "pay attention to the interests of the whole" or "think over carefully." Hence, it inevitably caused imbalance and conflict.

The law focuses at safeguarding the general security of society, and its primary purpose is to recognize the benefits of all parties at the minimum cost, including personal interests, social interests and public interests. It also tried to clarify the boundaries of various interests many follow, which enabled the balance of interests as effective as possible in regards to safeguarding the interests recognized above within the jurisdiction. It is the so-called theory of benefit balance sought on jurisprudence and philosophy. Derived from the game theory, balance is a game that equally distributes power among all party participants. The legislation of laws can be related to a game for the interests of various parties, and the will of the interests community embodied the decision process to establish strong legal values and legislative result. However, if the legal orientation is completely depended on the power of game parties, it will certainly make the interest scale tilt to the stronger party. The party that received more interests will further develop favorable laws for themselves and disregard the other, thus, leading the society into a vicious circle. Henceforth, the perfect rules are required in the gaming process to provide security, which is known as the theory of benefit balance. The equal interests of the parties involved referred in

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Almaden Research Center, D-Lib Magazine, Volume 5 Number 12, December, 1999.

<http://www.dlib.org/dlib/december99/12gladney.html>.

<sup>353</sup> Katarzyna Gracz, Primavera De Filippi, 'Regulatory failure of copyright law through the lenses of autopoietic systems theory', *International Journal of Law And Information Technology*, 2014, p.1 - 33.

the law will only be realized if the game parties play under the premise of transparent and efficient argument orders and debate efficiency.

With the creative expression as the target, copyright makes up the intellectual property rights.<sup>354</sup> The purpose of copyright law is to enhance knowledge and learning, to preserve the copyright system in the public realm and to facilitate the public in accessing works. The realisation of the purposes above requires a great balance of rights between the author and users, and a balance between monopoly and sharing.<sup>355</sup> The key of the balance mechanism is that granting proprietary rights by the copyright law to the author and other copyright owners is determined at an appropriate level. Although the international community and countries overseas consider copyright a private right, it is also the legislative foundation of copyright law; the protection of the private rights of the owner is the direct purpose of copyright law, namely, the superficial benefit protected by copyright law. The basic requirements and the final goals of copyright law are to expand the diffusion of knowledge information, to promote cultural innovation and to develop cultural industry by protecting the private rights of the copyright owner. As the law continues to dominate the subject acts of all interest activities and allocates social resources, the copyright law redistributes social resources in related fields by clarifying the profit distribution. All articles and modes stipulated by the copyright law are for the allocation of resources (such as setting the specific protection type of rights for the copyright owner, setting the Fair Use system, etc.) This makes the interests of all parties balanced, which achieves the ultimate goal of laws.

In the legislative purposes of copyright law and in the connotation of the benefit balance system, the main reason for the conflict between the legal protection of DRM and the Fair Use. This is the contradiction of exclusive rights of the rights holder and the legitimate concern of the public with regard to the knowledge.<sup>356</sup> If the rights granted by copyright law to the copyright owner are too broad, it will cause an adverse effect on the rights and interests of the public to access digital works, making the fundamental aim of the copyright system unachievable. Similarly, if the rights

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<sup>354</sup> Laurence R Helfer, 'Regime Shifting in the International Intellectual Property System', Vol.7, *Perspectives on Politics*, 2009, p.39-44.

<sup>355</sup> Reto M. Hilty, Sylvie Nérisson, 'Balancing Copyright - A Survey of National Approaches', Springer, 2012, p.819.

<sup>356</sup> David Price and Alhanoof AlDebasi, 'The Development of Intellectual Property Regimes in the Arabian Gulf States', Routledge, 2009, p.114.

granted by copyright law to copyright owners were overly constricted, it would inhibit the author's creativity. Such inefficiency would fail the direct purpose of the copyright system; therefore, the conflict must be coordinated with the principle of copyright benefit balance at the core.

There is a great benefit balance system in traditional copyright law for the conflict between the protection of private rights for the copyright holder and public interests. From the perspective of the overall copyright system, the interests of all parties in the copyright field of copyright are broadly considered balanced, namely between the original author and the secondary owners; the real authors and the service providers; the copyright owners and users; and the authors and investors at the transformative level. The interests of the representatives of all parties involved are in a dynamic balance.<sup>357</sup> The introduction of the legal protection system of DRM undoubtedly moved the balance point from the rights of the copyright owner and the public interests to the angle of the whole legal system of copyright law. Although the copyright law covers the rights given to the copyright holder with relevant terms and conditions are written in the international copyright convention, the benefit adjustment mode is outside the realm of the copyright system. In the digital era where the new media develops rapidly, basic principle of benefit balance maintained by the copyright law shall not be changed furthermore in order for the legal premise of copyright to continue taking effect. Under the legal protection of DRM, the principle of benefit balance is intended to promote the development of social and cultural industries while maintaining the balance between the individual interests of the copyright holder and public interests.<sup>358</sup> On the one hand, it maintained an incentive mechanism by protecting the exclusive rights of the creators of digital works within a certain period to further promote innovations and creations whilst generating of more knowledge. Whereas on the other hand, it restricted the rights of the copyright owner to promote the widespread influence of its intellectual achievements, to allow the public access and fairly use the digital works, and to maintain the public interests.<sup>359</sup> This discord would reduce the progress of the whole social economy, culture, and the overall development of new digital media.

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<sup>357</sup> Preamble of WIPO Copyright Treaty, [http://www.wipo.int/treaties/en/text.jsp?file\\_id=295166](http://www.wipo.int/treaties/en/text.jsp?file_id=295166). Access date:06/01/2016.

<sup>358</sup> Ibid 364;

<sup>359</sup> Ibid 364;

#### 2.4.1.2 *Oriented by the Coordination of Rights and Obligations*

The law often adjusts people's objective behavior by setting the rights and obligations of the counterpart. The legal performance of the interest coordination mechanism is a relationship between rights and obligations.<sup>360</sup> Rights specified by the law are actually the interests protected by the law, which induced people to change their own self-centered motives within legal premise. The interest motivation guaranteed mechanism acting on people's behaviors, so as to generate the interests most conducive to themselves. The obligations established by the law are actually meant to restrict the interests in a particular object. The balance of interests referred in the law is the result of the dual direction and balance set by the rights and obligations in law.<sup>361</sup>

In the field of traditional copyright law, rights and obligations are often paired together. Based on traditional copyright law that provided various rights to copyright owners as a way to safeguard the interests of the holder for his intellectual labor, and regulate the corresponding obligations while promoting the innovation and recreation of works, such as obligations without permission of statutory license, and the obligations unable to ban fair use from the public. It is beneficial to promote the works and to spread of the author's thoughts for greater social progress.<sup>362</sup> Therefore, the copyright rights and obligations are complements in the process of interests balancing. While establishing various rights for the copyright owner, the traditional copyright law also regulated the obligations from another side that the public shall never infringe the private rights of the copyright owner. The fair use right of the public regulated by the copyright law also implied the obligation that the copyright holder shall not prohibit the public from exercising their rights.<sup>363</sup> No rights will exist if there is no obligation, and *vice versa*. Under the new digital media environment, all countries are formulating new laws for DRM. Currently there is a biased legal protection towards the digital copyright owner via contact, right protection, right

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<sup>360</sup> Erik Jones, Anand Menon, and Stephen Weatherill, 'The Oxford Handbook of the European Union', Oxford University Press, 2012. p.738.

<sup>361</sup> Marcella Favale, 'The Right of Access in Digital Copyright: Right of the Owner or Right of the User?', The Journal of World Intellectual Property, Vol.15, no.1, p.1-25,(2012).

<sup>362</sup> Dana Beldiman, 'Functionality, Information Works, and Copyright', Yorkhill Law Publishing 2008, p.55.

<sup>363</sup> Jennifer E. Rothman, 'Copyright's Private Ordering and the 'Next Great Copyright Act' 29 Berkeley Technology Law Journal, Loyola-LA Legal Studies Paper No. 2015-10, 1595 (2014).

management information protection, and other aspects. However, there are only enumerative and limited provisions completely unmatched with rights in the "exception" with respect to the obligations to be undertaken by the users. The rule that blindly emphasized the unilateral rights of digital copyright owners ignored the social obligations to be undertaken.<sup>364</sup> It would affect the rights of both the digital copyright owners and the public and result in conflicts of interest.<sup>365</sup> For this reason, conflicts may be settled with the coordination of the rights and obligations as guidance in order to realize the legislative purpose of the copyright law.

#### ***2.4.2 Exceptions: in Light of Technological Protection Measures***

Before the advent and introduction of TPMs and widespread application of anti circumvention rule, original works were completely reliant on the efficacy of copyright protection legislations to prevent unauthorized use and distribution by the public. Copyright gives to the creator of an original work exclusive right for its usage and distribution. However, exclusive rights are not absolute but limited by limitations and exceptions. It becomes imperative to take cognizance of the fact that copyright protection laws are designed to provide exclusive rights to the creator of an original work while granting certain exemptions that allows for fair use of protected works by the public.<sup>366</sup> Against this backdrop, it could be asserted that traditional copyright laws existed to create a sense of balance between the interests of rights holders and the extent of exceptions by the public. In subsequent paragraphs we shall closely examine the interplay between of TPMs, anti circumvention rules and traditional copyright legislation and its accompanying ramifications on the world of copyright protection as well as how it influences the dynamics of conflicting interests between the content industry and public's need for fair use of protected work.<sup>367</sup>

Technological protection measures (TPMs) which is only applicable and relevant in digital environments refers to the use of technological mechanisms as a means of

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<sup>364</sup> U.S. Copyright Office, 'Report on Copyright and Digital Distance Education', 1999.

<sup>365</sup> Ibid;

<sup>366</sup> Patricia Keogh, Rachel Crowley, 'Copyright Policies', College Library Information Packet Committee, 2008. p.233.

<sup>367</sup> Ibid 371 p.320.

protecting original works from unauthorized use.<sup>368</sup> TPMs encompass the use of passwords, encryption measures, time access controls, and payment systems to restrict public's access to protected works. The pervasive use of TPMs measures has created a major shift in the balance of power and interest, giving copyrights owners' uncompromising power of restriction over protected works.<sup>369</sup> With the globalization of anti circumvention rule which prohibit the circumvention of technological barriers for using a digital good in certain ways which the rights holders do not wish to allow, coupled with an incremental push by content industry for the application and enforcement of anti-circumvention laws, there has been an alteration of the pre-existing balance of interest that was maintained by traditional copyright laws, giving rights holders unrestrained control over protected works in a way that encroaches significantly on the extent of fair use of protected works by the public.<sup>370</sup>

The use of TPMs coupled with the effective application of anti-circumvention rule would inevitably obstruct the provisions of the fair use doctrine in a digital environment. TPM offers unfair advantage of protection to content industries in completely digital circumstances. When the protected work is in digital form, TPMs and anti-circumvention rules can completely incapacitate the provisions of the fair use doctrine.<sup>371</sup> Making what was considered 'fair use' in an analogous environment completely inaccessible to the public in the digital world.

It is not misplaced therefore to assert that anti circumvention rules negate and jeopardizes the fair use doctrine, to a large extent. With this being established, a quick analysis of the anti circumvention framework gives insight into two models of exemptions the EUCD model and DMCA model.<sup>372</sup>

## ➤ U.S

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<sup>368</sup> Copyright World, Intellectual Property Pub, Vol.136-145, 2003.p.190.

<sup>369</sup> Brian R. Fitzgerald, 'Edelman v. N2H2: At the Crossroads of Copyright and Filtering Technology', Brooklyn Law Review, Vol. 69, Summer 2004.p.1491

<sup>370</sup> Roger Brownsword, Karen Yeung, 'Regulating Technologies: Legal Futures, Regulatory Frames and Technological', Bloomsbury Publishing, Hart Publishing, 2008.

<sup>371</sup> Liu Wenqi, Zheng Gu, 'Delineating the Scope of Protection for Technological Protection Measures in an Equitable Way: Approaches of US & EU - A Frame of Reference for China's Legislation', Journal of Intellectual Property Rights, Vol 18, January 2013, p.33.

<sup>372</sup> Ibid;



Generally speaking, the DMCA pattern specifies some exceptions to the legal responsibility for circumvention or transaction for circumvention. By contrast, the EUCD does not specially include exceptions to the anti-circumvention framework, 'but rather introduces a unique legislative mechanism which foresees an ultimate responsibility on the right holders to accommodate certain exceptions to copyright or related rights.'<sup>373</sup> What the DMCA has done is creating a new controlled technology that significantly restricts public's access and usability of protected work.<sup>374</sup> Restriction in DMCA makes usability so narrow that writing any kind of tool that can copy files is a potential violation of the act. The DMCA explicitly forbids reverse-engineering or otherwise circumventing a copy protection mechanism which has a direct impact on inventiveness, directly impeding innovation and competition and directly interferes with computer intrusion laws.<sup>375</sup>

The supposedly unintended consequences of the DMCA anti-circumvention rule has had unprecedentedly far reaching effect Since they were enacted in 1998, the "anti-circumvention" provisions of the DMCA ("DMCA"), codified in section 1201 of the Copyright Act, have not been used as Congress envisioned. Congress meant to stop copyright infringers from "defeating anti-piracy protections added to copyrighted works and to ban the "black box" devices intended for that purpose".<sup>376</sup> In contrast and in practice, the anti-circumvention provision has consequently, suppressed a wide array of legitimate activities, rather than stopping copyright infringement. As a result, the DMCA has developed into a serious threat to several important public policy priorities.<sup>377</sup>

From an historical perspective and in connection with the legislative background of the DMCA, it is noteworthy to consider that DMCA provisions were enacted in reaction to the imminent challenge of unchecked piracy that would become increasingly pervasive in the digital world.<sup>378</sup> This threat was consequently met

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<sup>373</sup> Nora Braun, 'The Interface Between The Protection Of Technological Measures and The Exercise Of Exceptions To Copyright And Related Rights: Comparing The Situation In The United States And The European Community', 11European Intellectual Property Review Vol.25(11), 2003.p.499.

<sup>374</sup> Two categories of circumvention actions set by DMCA, which are "Access Control" and "Use Control";

<sup>375</sup> Ibid 381;

<sup>376</sup> Practising Law Institute,'Understanding the Intellectual Property License', Practising Law Institute, 2002.

<sup>377</sup> Giovanni Ziccardi, 'Resistance, Liberation Technology and Human Rights in the Digital Age', Springer Science & Business Media,2012.

<sup>378</sup> 'Unintended Consequences: Twelve Years under the DMCA',March 2010, <https://www.eff.org/wp/unintended-consequences-under-dmca>, Access date:19/02/2015.

with ban on the distribution of tools and technologies that could be used for circumvention of digital protected work.

The DMCA act set out to prohibit the unlawful prohibition of technological measures used by copyright owners to control access to their work. Quintessence of the effects of the DMCA act could be illustrated using DVD and encryption control mechanism. While the DMCA act stipulates that it is illegal to bypass the encryption system used on DVDs. It does not make any provision that allows for the circumvention of DVDs when the purpose is otherwise legitimate and in line with the fair use doctrine. As contained in preceding paragraphs, DMCA model has a number of exceptions for certain limited activities, which includes reverse engineering software, encryption research, security testing, and law enforcement.<sup>379</sup> However these exemptions are too limited and do not offer required freedom that adequately accommodates public right to fair use.<sup>380</sup> Unarguably, it is devastatingly evident that DMCA does not have a comprehensive list of stipulated conditions under which there could be exemptions to the DMCA act allowing for legal and productive use of protective work to be suppressed owing to fears that actions such as researching a software for example may be in direct contravention of the DMCA section 1201 thus distorting the equilibrium between the need to protect holder's right and the extent of public's fair use.<sup>381</sup>

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<sup>379</sup> See 17. USC § 1201(a)(1); 17 USC § 1201(a)(2); 17 USC § 1201(b)(1).

<sup>380</sup> Peter Jaszi, 'Fair Use Challenges in Academic and Research Libraries', 01/12/2010.

[http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1002&context=pijip\\_copyright](http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1002&context=pijip_copyright). Access date: 18/12/2015.

<sup>381</sup> Ibid 381;

	Exceptions & Limitations (DMCA): In Light of Technological Protection Measures (TPM)		
	Circumvention of Access- Control	Transaction: Using Devices on Access Control	Transaction: Using Devices on Control Exploitation
<b>A: Nonprofit Libraries, Archives, and Educational Institutions</b>	*	*	
<b>B: Law Enforcement, Intelligence, and Other Government Activities</b>	*	*	*
<b>C: Reverse Engineering</b>	*	*	*
<b>D: Encryption Research</b>	*	*	
<b>E: Minors</b>	*	*	
<b>F: Protection of Personally Identifying Information</b>	*		
<b>G: Security Testing</b>	*	*	

### 2.3 Exceptions about Circumvention of TPMs under DMCA<sup>382</sup>

DMCA anti circumvention provisions have the propensity to restrict very many aspects of human endeavors in relation to the use of a protected work. DMCA can drastically stifle legitimate scientific research that could be done on an original work in the bid to create better versions or improved modifications. DMCA can be used as an instrument by big corporations to suppress innovation and kill competition.

In the bid to cushion the unsavory effects of the DMCA act there are exceptions allowing the circumvention of access control technologies released by the Library of Congress.<sup>383</sup> In order to address the concerns and challenges that the DMCA legislation would have on legitimate and non-infringing use of the digital protected works, the Library Congress is obliged to review the act every three years to determine whether users of certain categories of works would be affected in their ability to undertake legitimate uses. The Library congress is equally charged with the responsibility of periodically publishing categories of works that would be granted right of circumvention.<sup>384</sup> After series of amendments, the Library congress in their

<sup>382</sup> Ibid 381.

<sup>383</sup> Ibid 381;

<sup>384</sup> § 1201. Circumvention of Copyright Protection Systems, Copyright Law of the United States of America and Related Laws Contained in Title 17 of the United States Code. (C) During the 2-year period described in subparagraph (A), and during each succeeding 3-year period, the Librarian of Congress, upon the recommendation of the Register of Copyrights, who shall consult with the Assistant Secretary for Communications and Information of the Department of Commerce and report and comment on his or her views in making such recommendation, shall make the determination in a rule-making proceeding for purposes of

most recent rule making proceeding publicized six legitimate and non infringing uses of works that would not violate anti circumvention provisions. These classes of works include: DVDs, mobile phone networks, mobile phone software applications, video games, dongles, and e-books. In deciding these exceptions, some factors that the Library of Congress should seriously examined:

*“(1) the availability of copyrighted works, (2) the availability of works for nonprofit archival, preservation, and educational purposes, (3) the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research, and (4) the effect of circumvention of technological measures on the market for or value of copyrighted works.”*<sup>385</sup>

However it is noteworthy to state that all of these exemptions do not adequately dispel the restrictions that are imposed by the DMCA legislation in a digital environment that employ the use of TPMs for work protection.<sup>386</sup> In fact most of the aforementioned exemptions are very narrow and are constrained to very specific purposes.<sup>387</sup>

## ➤ E.U

The method adopted by the EUCD model differs contrastingly with the DMCA approach.<sup>388</sup> While the latter is heavily dependent on the use of legislation with an exhaustive proscriptions and multifaceted exemptions, relying primarily on legislation

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subparagraph (B) of whether persons who are users of a copyrighted work are, or are likely to be in the succeeding 3-year period, adversely affected by the prohibition under sub-paragraph (A) in their ability to make noninfringing uses under this title of a particular class of copyrighted works. <http://copyright.gov/title17/92chap12.html>, Access date: 18/12/2015.

<sup>385</sup> See original from Comments of Electronic Frontier Foundation Before the U.S. Copyright Office Library of Congress, in the matter of Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies Under 17 U.S.C. 1201, Docket No.RM 2008-8, <http://transformativeworks.org/projects/eff-comment>. Access date:24/12/2015. And also Liu Wenqi, Zheng Gu, 'Delineating the Scope of Protection for Technological Protection Measures in an Equitable Way: Approaches of US & EU - A Frame of Reference for China's Legislation', Journal of Intellectual Property Rights, Vol 18, January 2013, p.33.

<sup>386</sup> Ewa M. Davison, 'The Dangers of the Digital Millennium Copyright Act: Much ado About Nothing?', William & Mary Law Review, Volume 50, Issue 2.2008.

<sup>387</sup> Ibid;

<sup>388</sup> 'Implementing the EU Copyright Directive ', <http://www.fipr.org/copyright/guide/eucd-guide.pdf>. Access date: 18/12/2015.

as a protection mechanism for TPMs.<sup>389</sup> the former adopts a dual approach that is targeted at the requiring the rights holders to take active part in the creation of positive mechanism and policy that can effectively protect the rights holders work from unauthorized use while creating ample opportunity for protected work to be used in line with the provisions of fair doctrine in ways that do not contravene copyright laws. Under EUCD model, the right holders first are encouraged to use voluntary measures which include agreements between right holders and interested parties, to make the limitations and exceptions available to users.<sup>390</sup> In absence of the voluntary measures, Member States are required to guarantee the right holders to provide the exceptions through domestic legislation without preventing these uses permitted under Article 5 with respect to copyright exceptions.<sup>391</sup>

The EUCD defines the effective technological measures as any technology that in the course of its operation restricts act unauthorized by the right holder'. In a more precise fashion the EUCD act gives a clear prescription prohibiting the trafficking and commercialization of anti-circumvention technology.

A brief excerpt from EUCD is contained as follows : “Member States shall provide adequate legal protection against the manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services which: (a) are promoted, advertised or marketed for the purposes of circumvention of, or (b) have only a limited commercially significant purpose or use other than to circumvent, or (c) are primarily designed, produced, adapted or performed for the purpose of enabling or

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<sup>389</sup> Ibid;

<sup>390</sup> Article 6(4)(1) states, “Notwithstanding the legal protection provided for in paragraph 1, in the absence of voluntary measures taken by right holders, including agreements between right holders and other parties concerned, Member States shall take appropriate measures to ensure that right holders make available to the beneficiary of an exception or limitation provided for in national law in accordance with Article 5(2)(a), (2)(c), (2)(d), (2)(e), (3)(a), (3)(b) or (3)(e) the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter concerned”.

<sup>391</sup> See Article 6(4), which rules, “Notwithstanding...to the protected work or subject-matter concerned...A Member State may also take such measures in respect of a beneficiary of an exception or limitation provided for in accordance with Article 5(2)(b), unless reproduction for private use has already been made possible by rightholders to the extent necessary to benefit from the exception or limitation concerned and in accordance with the provisions of Article 5(2)(b) and (5), without preventing rightholders from adopting adequate measures regarding the number of reproductions in accordance with these provisions. The technological measures applied voluntarily by rightholders, including those applied in implementation of voluntary agreements, and technological measures applied in implementation of the measures taken by Member States, shall enjoy the legal protection provided for in paragraph 1.....When this Article is applied in the context of Directives 92/100/EEC and 96/9/EC, this paragraph shall apply mutatis mutandis.”

facilitating the circumvention of, any effective technological measures.<sup>392</sup> Rather than employing administrative measures, the EUCD places responsibility for the protection of an original work in the hands of the rights holders to exercise in ways that do not restrict what is regarded as fair use by the public.

Indisputably, the criticism of the DCMA and EUCD legislative approach to TPMs mechanism are not entirely misplaced.<sup>393</sup> While TPMs offer considerable advancement in the fight against all forms of piracy and illegal use of protected work there are still innumerable loopholes in the legislative framework that administers the TPMs. Firstly, the DCMA and EUCD legislative framework provides insurmountable flaws that can infringe on exemptions contained in the copyright legislation threatening free speech and that these legislations can stifle competition and technological innovation. In other words, the provisions of the DMCA and EUCD act can be manipulated and leveraged upon by bigger corporations to slow down research in their area of specialization so as to maintain competitive edge in the market. This could easily be achieved when restrictions to research dissuades researchers from researching and modifying protected works because of fear of violating the provisions contained in the DMCA and EUCD.<sup>394</sup>

### ➤ **China**

Very little focus on this matter under the existing Copyright Law in China other than papers, which generally describes that “*any person shall be liable for the conduct of intentionally circumventing or destroying the TPMs by the right owners of works for the purpose of protecting legitimate interests...without the permission from the right owners, except in circumstances where laws or administrative regulations provide otherwise.*”<sup>395</sup> Nevertheless, it seems less specific on which actions of circumventing TPMs can be exempted from liability.

Though there are limitations and exceptions in copyright law of China, it is far from enough since the balance between the general public and the right holders has been

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<sup>392</sup> Cook, Trevor, 'Exceptions and Limitations in European Union Copyright Law', *Journal of Intellectual Property Rights*, Vol 17(3), 2012, p.243-245.

<sup>393</sup> *Ibid* 381;.

<sup>394</sup> *Ibid*;

<sup>395</sup> Article 48 (6), Copyright Law of People's Republic of China.

challenged in digital environment. The demand of the users/public can not be met by those exceptions and limitations set in the analog world.<sup>396</sup> While there are certain provisions made by the *Regulation on the Protection of the Right to Network Dissemination of Information* (China), as regards exceptions to anti circumvention rule, the application of these provision is restricted to very limited types of cases. Published written work for purpose of classroom teaching or scientific research through network published written work for the blind through network, fulfilling official duties, and testing of computer systems or the safety capability of the network. Given the above, it becomes imperative to design a comprehensive list of various exceptions to the anti circumvention rules, since it contains a very general TMPs should be made to comply with exceptions that embrace fundamental civil liberties. However this may not be sufficient to assuage the restrictive inclinations of anti circumvention rule. Alternatively, we might be relieved for the ongoing process of the Copyright Law Revision in China,<sup>397</sup> which indicates this issue has been put more attention gradually.

## 2.5 The Impact of Anti-circumvention Legislation

Although the wording is sort of accepted that anti-circumvention legislation in various countries have been passed as a means of implementing their own obligations under WCT and WPPT, however, the irony is that these new laws on anti-circumvention were merely made to accommodate the stipulations of these world treaties, and are not necessary at all. In fact, the core of anti-circumvention legislation is anti-device rules, which substantially weights the liabilities of devices providers. It is precisely based on this character of anti-circumvention legislation that the rights holders may not only strengthen their protection through the combined approach of private remedy and new legal provisions, but also potentially put a premium on another capability for their exclusive rights, extending to the related technology and products market.<sup>398</sup> The possibility of anti-circumvention legislative abuse restrains the new disseminating technology at its embryonic stage, and moreover, increases the costs for the general public. As put it, “A government copy protection mandate passes the cost of

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<sup>396</sup> Margaret Jane Radin, John Rothchild, Gregory M. Silverman, 'Internet Commerce: The Emerging Legal Framework : Cases and Materials', Foundation Press, 2002.

<sup>397</sup> See The Draft for Examination and Approval of Copyright Law of People's Republic of China(05/2014).

<sup>398</sup> Keith E. Maskus, 'Intellectual Property Rights in the Global Economy',Institute for International Economics, July 2000.

intellectual property protection to all taxpayers, in the form of enforcement costs for new criminal and civil laws accompanying the mandate.”<sup>399</sup>

According to the legislative background of the famous DMCA, we could probe into it as the result of the American copyright industry that politically influenced nearly the entire world copyright regime. The rights holders would prefer to choose anti-circumvention legislation to protect their TPMs. Numerous attentions of copyright owners simply put on their own benefits in the digital copyright environment (*ab ovo usque and mala*), rather than these harmful impact on public users.<sup>400</sup>

TPMs are regarded as “private remedy” tools, which emerged for the sake of stopping massive internet piracy since the advent of new technology times. In addition, existence of anti-circumvention legislation confirms the lawful position of this so-called “private remedy” from copyright owners. In this regard, anti-circumvention legislations are normally considered part of the copyright law system nowadays, which sounds ridiculous to the majority. As the essence of protection provided by anti-circumvention legislation for technological measures or DRM is entirely alien from the exclusive rights protection under the copyright law system. It is blind of anti-circumvention legislation to provide protection of TPMs as a private remedy, which has aggravated interest in an unbalanced manner.<sup>401</sup>

Provisions of anti-circumvention legislations in different countries center around detailed technological measures protection, instead of rights holders’ possible abuse of the system that could affect the general public. This has triggered a legal loophole in light of related restrictions on DRM.

As a matter of fact, any private right could be abused in the perspective of theoretical analysis, while a sequence of corresponding limitations in the legal rights regime should be an inseparable element. Anti-circumvention legislation undoubtedly

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<sup>399</sup> James Plummer, *‘Expanding the Market’s Role in Advancing Intellectual Property’*, Issue Analysis from Competitive Enterprise Institute, March 29, No.4. 2005 available at <http://www.cei.org/pdf/4452.pdf>, at 12.

Access date: 19/12/2015

<sup>400</sup> *Ibid* 317, p.143.

<sup>401</sup> Carlos M. Correa, *‘Fair Use in The Digital Era’*, [www.webworld.unesco.org/infoethics2000/.../paper\\_correa.rtf](http://www.webworld.unesco.org/infoethics2000/.../paper_correa.rtf). Access date:19/12/2015.



enhances copyright owners' controlling force on both their copyrighted works and the development of digital technologies, which have initiated another dramatic evolution of copyright law nature from "concept of law" to "concept of technology".<sup>402</sup>

## 2.6 Anti-Circumvention Legislation Analysis and Evaluation

Anti-circumvention legislation reflects the contradiction between copyright owners and the general public. Take the United States as an example: internet piracy had hit the Hollywood market from all over the world. Producers and investors have already become advocates and supporters to the legalization of anti-circumvention.<sup>403</sup> While the information industry has been among the high-speed growth entities in American economic development, it has conflicted with the requirements of anti-circumvention legislation.<sup>404</sup> Anti-circumvention legislation forbids producing the devices used for circumvent TPMs, so it's no wonder the elite of Silicon Valley boosted the morale of anti-circumvention legislation as part of the DMCA. Another saying of the legalization process of anti-circumvention measures is mocked as a kind of "war between Hollywood and Silicon Valley".<sup>405</sup>

Regardless of the American DMCA and the EU Directives, the regulations related to anti-circumvention are out of crucial economic influential consideration.<sup>406</sup> America expected reduced adverse balance of trade with the aid of its dominate position in the copyright industry in order to convert the current economic development's main direction from the manufacturing industry to the information industry. The EU, conversely, would like to decrease the trade barrier inside of the whole union so that it can build the European United Market through legislative integration with regard to TPMs. The common intention of the US and the EU both attempted to pass their own anti-circumvention legislation first, and then enforce the legislation model as soon as possible — or at least press other countries to keep in line with their legislative logic. This act probably would be encouraged to leave enough space to update the

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<sup>402</sup> Matt Jackson, 'Using Technology to Circumvent the Law: The DMCA's Push to Privatize Copyright', 23 *Hastings Commerce & Entertainment Law Journal*. 608. 2001.

<sup>403</sup> Pamela Samuelson, 'Intellectual Property and The Digital Economy: Why The Anti-Circumvention regulations Need to be Revised.Vol.14. Berkeley Technology Law Journal,1999.

<sup>404</sup> Diane Rowland, Uta Kohl, Andrew Charlesworth, 'Information Technology Law', Routledge, 2013.

<sup>405</sup> J. D. Lasica, 'Darknet: Hollywood's War Against the Digital Generation',Wiley, 2005.

<sup>406</sup> Daniel P. Homiller, 'The Digital Millennium Copyright Act and the European Union Copyright Directive: Next Steps', <https://web.law.duke.edu/cspd/papers/nextsteps.doc>, access date:19/01/2016.

technology after copyright amendments, to expand copyright owners' specific rights and to control each act type of copyrighted works access caused by innovative and valuable technology in the digital copyright system. However, the fundamental aim of copyright protection is to ensure and promote intellectual works created and disseminated so as to benefit the general public. As John Locke has demonstrated in the well-known statement of property as labor's "just desert", intellectual property is deemed as "a suitable reward for intellectual labor".<sup>407</sup> The purpose of copyright law should remain as it was, whether at the national or international level. Both developed countries and developing countries are closely related and mutually dependent on one another, especially economically speaking. "TPMs" are developed countries' gunboat diplomacies for increasing their gross national product (GNP), which not only induces unprofitable creations, but is also harmful to the development of world harmonization.<sup>408</sup>

Nevertheless, balance of interests are the indispensable constraints in the protection of private rights, which define that copyright owners are unable to achieve their goal beyond the balance of interest purpose in both the physical and digital copyright worlds.<sup>409</sup> The preface parts of copyright treaties or related conventions in WIPO structure state clearly that one of their objectives is maintaining the balance of interest between "authors' rights" (including performers' and phonogram producers' rights) and "the general public interest", especially the interest balance among "education", "research" and "access information". This principle similarly applies to "TPMs". In other words, protection of "TPMs" cannot collide with this significant rule of the copyright system. Provided that we say yes to right holders' monopolistic acts and prohibition of authorized works appropriately got or used by eligible ones via technological measures, there will be another intensively severe situation encountered with the copyright law system. A new private area hereupon will come out and trigger numerous infringements in the public area. Regulations concerning DRM and anti-circumvention may cause a mega-passive influence on developing countries'

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<sup>407</sup> Christopher, *A Global Political Economy of Intellectual Property Rights: The New Enclosures?*, Routledge Taylor & Francis Group, May, 2000, p.7.

<sup>408</sup> Cong, Xu, 'Redefinition of Current Legal Measures' Role as "Panaceas" in Digital Rights Management Play', Vol.11, No. 2. February 2014.p.143.

<sup>409</sup> Alison Jones, B. E. Sufirin, 'EC Competition Law: Text, Cases, and Materials', Oxford University Press, 2008, p.566.

innovation.<sup>410</sup> According to the American experience of DRM exploitation, it has proved that if the copyright owners inappropriately explore the rules with respect to the DRM mechanism, and anti-circumvention technology to limit market competition that could indirectly lead to monopolies. Simply put, small companies are confronted by the hazardous situation brought about by the inappropriate exploitation of DRM technologies and survival-of-the-fittest market choices.<sup>411</sup>

In fact, technology in the DRM system does not inevitably shape obstacles for the balance of interest in the copyright regime. Technological neutrality implies various ways for technology to reflect of social values. Therefore, it is possible for the DRM system to find an updated form that is more beneficial for end users.<sup>412</sup>

TPMs are the kernels of the DRM system, and copyright holders' technological means to protect their copyrighted works, and to evaluate a legal approach for protecting these TPMs (Anti-Circumvention Rules). Anti-circumvention rules, as the new content in copyright systems, have been legislated worldwide, despite their unreasonable features. As the influence of digital technology on the copyright system has not completely revealed itself, the copyright system has not yet fully responded to these impacts.<sup>413</sup> The existing situation is that unbalanced interest in the copyright system and the chaotic applicability of copyright provisions are treated as the requisite stages toward a perfect copyright world.

## **Interim Conclusion**

The progress of digital technologies accelerates dissemination of copyright works. In order to impede rampant piracy, copyright owners widely adopted TPMs to restrict unauthorized access to and use of their works. When the TPMs were circumvented by hacking technologies, the copyright owners had to urge to issue new legislation which

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<sup>410</sup> Paul Ganley, 'Access to the Individual: Digital Rights Management Systems and the Intersection of Informational and Decisional Privacy Interests', p.241-293.2002, available at <http://ijlit.oxfordjournals.org/cgi/content/abstract/10/3/241>,

<sup>411</sup> Nancy Willard, 'Cyber Savvy: Embracing Digital Safety and Civility', Corwin Press.2011.

<sup>412</sup> Caroline Pauwels, 'Rethinking European Media and Communications Policy', Asp/Vubpress/Upa .2009.p.87.

<sup>413</sup> Deborah Tussey, 'Complex Copyright: Mapping the Information Ecosystem', Ashgate Publishing, Ltd, 2013. p.26.

could safeguard the technological measures against circumvention actions. Anti-circumvention rules were introduced to meet copyright owners' demand for copyright protection in the digital environment. Anti-circumvention architecture is the shield for sustaining DRM infrastructure which technically defend copyright owners' exclusive rights in digital era.

Pushed by the pressure of being constructed the domestic anti-circumvention lawmaking, China assimilated the DMCA and EUCD construction to establish anti-circumvention laws by transplantation, although anti-circumvention regulations in the United States, the European Union and China differ ostensibly in a number of ways. In regard to the classic legislative model of anti-circumvention regulation, DMCA has been accepted by various jurisdictions through bilateral or multilateral free trade agreements and treaties. The anti-circumvention rules in the DMCA primarily reflect copyright industries' interests.<sup>414</sup> The relevance of anti-circumvention rule is unarguably crucial in the fight against unauthorized use of protected works.

The strengthening of TPMs and the incremental push for legislation that facilitates its widespread application and efficacy is quite imperative given the exponential growth of technological advancement and its consequent implication on the proliferation and popularization of technology that circumvent protection measures of various protected works.<sup>415</sup> However, the remix culture in the digital network environment requires substantial tolerance of unauthorized uses.<sup>416</sup> Careful consideration and adequate provisions has to be made in the of legislation with particular emphasis on exceptions that helps foster the interest of public within the parameters of the fair use doctrine.

Similarly, careful consideration has to be given to the restrictive role of anti-circumvention rule and its attendant ramifications in distorting the pre-existing balance of interest that existed between exclusivity of rights holders and acceptable extent of public fair use.<sup>417</sup> Also noteworthy is the need for a detailed documentation of various exceptions that would assuage the unfavorable downsides of anti circumvention rule, allowing for provisions that does not jeopardize fair use by the

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<sup>414</sup> Ibid 19, p.71.

<sup>415</sup> Ibid 420;.

<sup>416</sup> Ibid 19, p.166.

<sup>417</sup> Ibid 420;

public, promotes lawful research that produces innovation, encourages healthy competition that is necessary for inventiveness and that does not interfere with computer intrusion laws.

It is therefore imperative to incorporate new exceptions to TPMs to allow for extensive usability of protected works in ways that do not infringe on the rights holders exclusivity. Creating more exemptions would dramatically facilitate technological advancement through research and healthy competition that produces cutting edge innovation. Furthermore, the incorporation of new exceptions would facilitate the reestablishment of pre-existing balance that existed between rights holders and the extent of fair use of protected work by the public,<sup>418</sup> creating a dynamics that satisfies and protects the interest of both parties.

## **Chapter 3**

### **Digital Rights Management Regulatory Model in China: The Untold Story**

#### **Section 1. Undesirable Digital Rights Management Regulatory Model in Chinese Context**

##### **3.1 International Intellectual Property System: Chinese Version**

International Intellectual Property Rights have developed for more than one hundred years. The earlier Paris Convention, Berne Convention and nowadays TRPIS are the results of international cooperation and competition, which are definitely led by western countries with a western centrism-style legislative pattern. Correspondingly, the international academic mainstream, such as popular western thinking model, values and theoretical systems, are widely known in International Intellectual Property Rights.<sup>419</sup> From an extreme perspective of intellectual property fundamentalism, intellectual property laws in developed countries are the only way to

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<sup>418</sup> Roberto Caso, Federica Giovanella, 'Balancing Copyright Law in the Digital Age: Comparative Perspectives', Springer.2015.p.89.

<sup>419</sup> Jianqiang Nie, Keisuke Iida, "The Enforcement of Intellectual Property Rights in China: Implications of Good Governance, the Rule of Law and Legal Culture", Cameron May, 2006.

promote the development, and misappropriation of intellectual property amounts to territorial boundary. In international discourse system communication, we have to make a Chinese style declaration and voice to modify this western centrism trend so as to construct a more just reasonable intellectual property international order. The international protection system of intellectual property is the same as other laws and provisions, which should be a global legal mechanism and internal rule, and recognized to connect various countries. What's more, it should be an organic solidarity of adjustment rules, created by different countries based on their experiences, which indicates the universally historical rules of legal practice and reflects legal wisdom as well — as the pursuit of rationality. It can be seen from these that the theoretical foundation of international intellectual property rights should not focus on western centrism or national chauvinism,<sup>420</sup> but rather on common legal values and faith, which at the same time help realize the interactive development of diverse legal cultures and ideas. When referring to the achievements of legal civilization and advanced legal philosophy, Chinese intellectual property circle has to focus on local theoretical innovation and independent thought, making tireless efforts to search for property-rights theories that are suitable for the Chinese environment and cultural background, including the legal interpretation rules and policy use methods. The final aim is to construct a discourse system for China in terms of intellectual property. For the theoretical system of International Intellectual Property Rights, it is both critical and constructive.<sup>421</sup>

The research on the theoretical system of intellectual property should not be satisfied with the academic requirement constructed by basic content; rather, it should revolve around intellectual property's career construction to form a Chinese pattern based on the thinking of Chinese matters, Chinese experiences and Chinese roads. Most of Chinese matters arise from the special conditions of China.<sup>422</sup> The peculiarities of Chinese matters in intellectual property rights manifest themselves in a big rise. As an intellectual property powerhouse and a major developing country, its large-scale population and industry size, the economic scale is unprecedented, which will

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<sup>420</sup> Denis Twitchett and John K Fairbank (eds), 'The Cambridge History of China', Cambridge University Press,1991.

<sup>421</sup> Gregory Feder, 'Enforcement of Intellectual Property Rights in China: You Can Lead a Horse to Water, but You Can't Make It Drink',37 Virginia Journal of International Law 223, p.230. 1996.

<sup>422</sup> Daniel A. Bell, 'Confucian Political Ethics',Princeton University Press 2008, p.102.

inevitably exceed other former rising countries without imitation.<sup>423</sup> This significant rise contains powerful innovation abilities with unprecedented challenges. Besides, the recognition of different groups on intellectual property and special attention paid by western countries make the intellectual property problem have both internal confusion and external divergence;<sup>424</sup> what's more, there are developmental differences, too. An outstanding problem of Chinese economy and society is imbalance. Rural-urban differences, differences between western and middle regions as well as industrial differentiation determine the situation that the development of Chinese intellectual property rights career cannot be rigid uniformity or synchronized development. Here, balance urban and rural development, regional development and economic and social development; harmonious development between human beings and nature; opening and domestic development are large-scale issues that China has to face in the course of development.<sup>425</sup> Furthermore, it is the leap-transition — as an emerging industrial country, China only took twenty years to change its intellectual property rights system from low-level to high-level, completing the transition from localization to internationalization. In the new international environment of intellectual property protection, China does not undergo the long preparation and transition construction period. As a result, the governance on the institutional environment is not enough, and enterprises lack experiences in applying systems.<sup>426</sup>

There is a general concept accepted that at the beginning of making legislation for intellectual property rights, China did not take the social economic phase and the acceptability of traditional people into consideration, which ought to have been ahead of time.<sup>427</sup> It is in a state of ultra-protection, and may even be used as a tool for western countries to carry out a technological monopoly and curb the development of Chinese copyright legislation.<sup>428</sup> Besides, it does not help to promote the cultural

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<sup>423</sup> Susan Tiefenbrun, 'Piracy of Intellectual Property in China and the Former Soviet Union and its Effects upon International Trade: A Comparison' 46 Buffalo Law Review 1, p.11.1998.

<sup>424</sup> Daniel A. Bell, 'Confucian Political Ethics', Princeton University Press 2008, p.102.

<sup>425</sup> Tony Saich, 'China on the Threshold of a Market Economy', 2001.

<http://www.hks.harvard.edu/fs/asaich/China-on-the-Threshold-of-a-Market-Economy.pdf>, access date:20/01/2015.

<sup>426</sup> Sarah A. Hinchliffe, "Mediating Foreign Norms and Local Imperatives—Intellectual Property 'Law' as between the East and the West: From Imperial to 'Modern'" Comparative Legal History, Volume 1, Issue 2, p.155-185,(2013).

<sup>427</sup> Tony Saich, 'China on the Threshold of a Market Economy', 2001.

<http://www.hks.harvard.edu/fs/asaich/China-on-the-Threshold-of-a-Market-Economy.pdf>, access date:20/01/2015.

<sup>428</sup> Ke Shao, 'What May Validate Intellectual Property in a Traditional Chinese Mind? Examining the U.S.-China IP Disputes through a Historical Inquiry'. [http://www2.warwick.ac.uk/fac/soc/law/elj/jilt/2006\\_1/shao/shao.pdf](http://www2.warwick.ac.uk/fac/soc/law/elj/jilt/2006_1/shao/shao.pdf), access date:20/01/2015.

development and economical benefits, but increases the developmental cost. This statement has observations with rationality. The level of a country's intellectual property rights protection abilities is determined by cultural prosperity, economic development levels, legal attitudes and international positions.<sup>429</sup>

Take the United States as an example — as the most prominent intellectual property country, its protection ability is developed step by step.<sup>430</sup> It is because of the clear recognition of different development phases that America joined the Berne Convention in 1989. The US guarantees the adaptation of social culture, world economics, and legal traditions to the international environment in the premise of safeguarding national interests. Comparing it to the legislation and implementation process of Chinese copyright law, it is not hard to see the plagiaristic and passive characteristics. It does not take any of above elements into consideration, especially the influences of the differences in terms of Chinese legal culture and western legal culture on copyright protection abilities.<sup>431</sup> As a result, it is in a state of ultra-protection to some extent. In addition, the ultra-protective state leads to a so-called passable effect. Ultimately, China has always fallen into a passive position when it comes to intellectual property protection, compared to western countries.

The Chinese legislation really wants to display national conditions and features while implementing international treaties and referring to the legislation of other countries, and they are trying their utmost to do so. However, the copyright law, as a result of the development of human civilization, has its own rules, which are widely accepted worldwide.<sup>432</sup>

Therefore, if people want to modify the copyright law based on the unique features of national conditions, they have to fully understand the legislative purpose with sufficient reason, or it will not be easily changed. After all, the copy law has existed in China for twenty years.<sup>433</sup> So in the third revision, legislators should carefully study and refer to the concrete rules of developed countries in terms of copyright

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<sup>429</sup> Ibid;

<sup>430</sup> Ibid;

<sup>431</sup> Fiona Macmillan, 'New Directions in Copyright Law', Edward Elgar, 2006, p.336.

<sup>432</sup> Ashraf, Tariq, 'Developing Sustainable Digital Libraries: Socio-Technical Perspectives', Information Science Reference, New York, 2010, p.236.

<sup>433</sup> Xuan-Thao Nguyen, 'The China We Hardly Know: Revealing the New China's Intellectual Property Regime', St. Louis University Law Journal, Vol.44, p.907,(2012).



legislation. To summarize this point, in a developing country without a history of copyright legislation, it is hard to avoid — or even to have positive meaning to refer to or imitate — international treaties so as to quickly establish copyright laws in line with international norms. However, after twenty years since the issuance this copyright law, the simple reference leads to outstanding logical contradictions; and besides, it is hard to achieve the legislative purpose without deepening the general understanding of popular international rules.<sup>434</sup> The task to modify the copyright law is underway in a relaxed international environment, which provides good conditions to reasonably refer to international treaties and foreign laws. It is an ineluctable historical responsibility for legislators to seize this opportunity and establish logical and refined rules that are in line with the habits of Chinese expression.<sup>435</sup>

### **3.2 Adaptive Development of Chinese Copyright Law in Network Age**

By comparison, the development of Chinese network copyright is a matter of self-reconstruction due to external pressure. The development of network technology has instigated new challenges for copyright protection, so international treaties, bilateral agreements and domestic laws in each country have all made adaptive adjustments since the 1990s. Copyright law in our country is not only struggling to meet domestic demands in the network age, but it's also constantly readjusting itself to accommodate international demands. Therefore, we made *two amendments to the Copyright Law* in 2001 and 2010, respectively. The first amendment, in 2001, was out of direct need after joining the WTO; some articles in the Copyright Law were inconsistent with those in the Intellectual Property Agreement Related to Trade of WTO; and so they were revised and supplemented. Compared to the two previous passive amendments (due to external pressure), the third amendment launched in July 2011 was an active choice based on national conditions, aiming to enhance the operability of law so as to adapt to the constantly changing network environment. On March 31<sup>st</sup>, 2012, the Copyright Law of the People's Republic of China, a draft amendment, was issued on the official websites of the State Copyright Bureau and the GAPP, soliciting suggestions and proposals from all walks of public life.<sup>436</sup> It perfects

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<sup>434</sup> Jack Goldsmith, Tim Wu, 'Who Controls the Internet?: Illusions of a Borderless World', Oxford University Press, 2006.

<sup>435</sup> Ibid;

<sup>436</sup> State Administration of Press, Publication, Radio, Film and Television of The People's Republic of China

protective measures for technology and rights management information systems with the addition of practical artistic works and a “three-step test”,<sup>437</sup> perfecting the definitions of information network broadcast rights and broadcast rights in general. It defines the attribution of audiovisual works and copyright works, establishes administrative mediation for copyright disputes, as well as improves the standards for infringement compensation, etc.

It has been over thirty years since China’s reform— since the nation opened up — and the Copyright Law was issued over twenty years ago. Now the Chinese social economy has developed into a brand new stage, so we shouldn’t be satisfied with the role of “world factory” anymore, especially after issuing the Outline of National Intellectual Property Strategy in 2008,<sup>438</sup> which elevated intellectual property issuance to a national strategic high for the first time, with the clear goal of building an innovative country by protecting intellectual property rights. Since then, “intellectual property” entered the mainstream discourse of contemporary Chinese society. The issuance of the Outline of National Intellectual Property Strategy was not by accident. On the one hand, the original values of the Chinese people evolved once Chinese society developed to a particular stage; on the other hand, after over twenty years of communication, with the promotion of globalization and deep educational exchanges, copyright law has been accepted gradually by the Chinese people — a subtle integration with traditional Chinese discourse. For example, the Chinese people have changed their views on “merchants” and “interest” with the replacement of a planned economy with a market economy.<sup>439</sup> The change of Chinese values makes it possible to recognize the property value of “works”; and besides, with the development of network technology and material life, the Chinese people are capable of satisfying their spiritual lives, which has promoted the innovation of works of various types, and changed the traditional cautious attitude to one of gradual “expression”— this is suitable for the idea of “expression” regarding copyright protection. People’s knowledge of the copyright system has been affected subtly by a

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<sup>437</sup> The Berne three-step test is a clause that is included in several international treaties on intellectual property. Signatories of those treaties agree to standardize possible limitations and exceptions to exclusive rights under their respective national copyright laws. Article 9(2) of Berne Convention states that, “(1) Authors of literary ...in any manner or form. (2) It shall be a matter for legislation in the countries of the Union to permit the reproduction of such works in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author.”

<sup>438</sup> Ibid 444;

<sup>439</sup> 《2008 年国家知识产权战略纲要》；

series of cases with social influences.<sup>440</sup>

After joining the WTO, China has had negotiations, conversations and conflicts with western countries. Through propaganda, the common people's awareness of protecting intellectual property has gradually strengthened. So, sincerely speaking, social changes in contemporary China have changed the Chinese people's traditional way of thinking to a large extent, which has gradually improved the environment in which to implement the copyright system. The intention is not to deny the correctness of protecting copyright in China in order to recognize the conflict between traditional Chinese culture and copyright culture; instead, the deep cultural element behind a series of difficulties needs to be interpreted objectively, so as to determine a copyright protection level that is suitable for the current Chinese situation, and with a proposal of localization for Chinese copyright laws.

At present, it is generally considered that at the very beginning of the Chinese intellectual property legislative process, the government didn't give full consideration to Chinese socioeconomic development and traditional Chinese cultural acceptance. Therefore, the legislation went overboard with an "over-protection" state for intellectual property, so that Chinese intellectual property legislation has become a tool for some western countries to monopolize technology and contain Chinese development.<sup>441</sup> The intellectual property system has not promoted Chinese economic and cultural development in an earnest manner. On the contrary, it has greatly increased developmental costs. Such an idea has its rationality, since it has experience and observation basis. The level of a nation's copyright protection is determined by many factors, including cultural prosperity, economic development, traditional legal concepts and the current international environment. Take U.S for example — as an intellectual property powerhouse, the determination and improvement of copyright protection in the nation is gradual rather than occurring all at once.<sup>442</sup> It is effective because America had clear knowledge about the different needs of copyright in different development stages, and so the nation didn't join the Berne Convention until 1989. Thus it guaranteed the adaptability between copyright protection level and social culture, as well as among the economy, legal traditions and international

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<sup>440</sup> Peter K. Yu, 'The Copyright Divide', MSU-DCL Public Law Research Paper No.01-21,(2003).

<sup>441</sup> Deli Yang, 'Intellectual Property and Doing Business in China', Elsevier Science, 2003.

<sup>442</sup> Ibid;

climate. However, as for the legislative and implementation phases of Chinese copyright law, the "Take-ism" and passive feature of legislation means that it did not give those factors listed above the full consideration they deserved, especially the effects of legal and cultural differences between China and the West on the copyright protection level. Therefore, Chinese legislation is in favor of advancement to some extent, which leads to a poor implementation effect.<sup>443</sup> Moreover, during the conversation and negotiation phase with western countries (regarding intellectual property, of course), our country tends to gravitate toward an awkward and passive situation.

Law is about the social norm with objective content, although it is subjective in form; while technology is one social norm with both objective form and content, it can be employed subjectively. Special technology has always been mastered by few people, and those who master that particular technology have utilized it to its ultimate, so as to damage the legitimate rights of the common people who possess or master no particular technology. However, law needs to embody the requirements of justice.<sup>444</sup> That is to say, everyone should obtain what they deserve. No one is allowed to gain more than he deserves, nor is anyone allowed to gain less than he deserves. Therefore, law must restrain the abuse of technological advantage out of the need for justice. A legal state should give top priority to its rule under the law.<sup>445</sup> Within the whole social system of norms including morality, laws and technology, the role of law as the ultimate norm shouldn't be challenged, while technology as a norm must be restrained by law; otherwise, the legal state should give way to a state dominated by technology, which is obviously impossible and irrational in the foreseeable future.

The law always lags behind the development of technology. The powerful impact brought about by the technical progress to the Fair Use has broken the benefit balancing mechanism in the field of traditional copyright law. It is just the claim of the public for the Fair Use and the demand on the development of the socio-cultural industry that urges us to go into a relationship between the DRM and the Fair Use, and to coordinate the conflicts between the two by improving all relevant legal

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<sup>443</sup> Ibid 441, p.907,(2012)

<sup>444</sup> Janell Kurtz and Jim Q. Chen, 'Rimage: Safeguarding Intellectual Property in China', Asian Case Research Journal (ACRJ), 2009.

<sup>445</sup> Roxana Radu, Jean-Marie Chenou, and Rolf H. Weber, ", The Evolution of Global

Internet Governance: Principles and Policies in the Making", Springer-Verlag GmbH Berlin Heidelberg 2014.

systems.<sup>446</sup>

Based on the objective data and typical cases, through the comparative study on the anti-circumvention protection and prohibition exception laws for DRM at home and abroad, and through the comprehensive grasp and the latest follow-up of the essential root of interest conflict between the technical measure and the public (and the conflict coordination theory), this analysis has concluded that: 1. The legal protection of DRM has its necessity in existence; 2. The Fair Use also its own rationality under the environment of new digital media; 3. The key for the benefit balance between the digital rights holder and the public is to coordinate the conflicts between the two with the benefit balance theory of copyright law as the foundation, and to match rights with obligations. This analysis proposes a variety of scientific and practical coordinative approaches from the perspective of a digital technological solution, as well as judicial practice and administrative law enforcement.<sup>447</sup> In addition, combined with the status quo of the construction of a relevant legal systems in China, it is believed in this dissertation from the perspectives of direct and indirect coordination of conflict between the DRM and the Fair Use that the key to coordinating the conflict between the two is to define the effectiveness principle of the technical measure, to expand and refine the prohibition exceptions on circumvention, to introduce a copyright validity system for the technical measure, to develop the protection system of personal privacy involved in the technical measure and to extend the applicable scope of the Anti-Unfair Competition Law and the Antitrust Law.<sup>448</sup>

### **3.3 Unsatisfactory Situation of Digital Rights Management Regulatory Model in China**

#### **3.3.1 *Legal Protection of Digital Rights Management in China***

The *Copyright Law*<sup>449</sup> was revised for the second time in February 2010 in China, which introduced an exclusive right of the copyright holder to protect the DRM, namely Article 48 (6), (7) of the *Copyright Law*. The general protection clauses of

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<sup>446</sup> Ibid;

<sup>447</sup> Christopher T. Marsden, "Internet Co-Regulation: European Law, Regulatory Governance and Legitimacy in Cyberspace", Cambridge University Press.

<sup>448</sup> Sommer Joseph H., "Against Cyberlaw", Berkeley Technology Law Journal, Vol. 15, 2000, 1145-1232.

<sup>449</sup> 《中华人民共和国著作权法》;

DRM only allow the holder to take the technical measure of protecting his copyright and other relevant rights, or he will be punished, and there is a certain difficulty and uncertainty in the application of these clauses in practice. The general provisions on the legal protection of DRM are, to some extent, caused by the passivity of relevant legislations on the DRM in China, when compared with the *DMCA* and the *EUCD*. The *Copyright Law* in China does not specifically describe the technical measures in detail, nor does it describe the rights management information and the relevant circumvention in as much detail as it could. Further detailing the punishment for the infringement acts, including the circumvention and destruction of the technical measures, and the deletion and change of the rights management information in Article 36, the *Copyright Law Enforcement Regulations*., we see no specific application rules for the protection of the technical measures.

With the constant improvement of socialist legal systems and the continuous perfection of copyright law systems, China has successively published and implemented a series of laws and regulations, such as the *Regulations for the Protection of Computer Software*,<sup>450</sup> the *Measures for the Implementation of Copyright Administrative Penalties* and the *Explanation on Some Issues of Laws Applicable to the Trial of Copyright Disputes Involving Computer Network by the Supreme People's Court*.<sup>451</sup> In July 2006, China began implementing the *Regulations for the Protection of the Right of Communication Through Information Network*, containing the terms and conditions of the DRM system. In June 2007, China became the contracting state of the *WIPO Copyright Treaty* and the *WIPO Performances and Phonograms Treaty*, thus further strengthening the protection of anti-circumvention legislation for the DRM in China. In Article 26 (2) and Article 26(3) of the *Regulations for the Protection of the Right of Communication Through Information Network (Regulations)*, the meanings of "technical measure" and "electronic rights management information" of digital works are described in detail. Starting with the definition, *Regulations* has laid a solid foundation for the protection of anti-circumvention legislation for DRM in China; from the perspective of the technical measure — although the technical measure is not specifically classified as the contact control type and the rights protection type — it can still be seen from the expressions of "prevent unauthorized browsing work" and "prevent unauthorized

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<sup>450</sup> 《计算机软件保护条例》；

<sup>451</sup> 《最高人民法院关于审理涉及计算机网络著作权纠纷案件问题的若干解释》；

provision of works to the public".<sup>452</sup>

*Regulations* has stipulated the corresponding protection articles for the technical measures and electronic rights management information of digital works. Among them, with respect to the legal protection of the technical measures, *Regulations* comprehensively forbids the direct infringement acts of circumvention and destruction, and the indirect infringement acts of manufacturing, importing and providing the public with the devices, components and services mainly used to avoid or destroy the technical measure.<sup>453</sup> With respect to electronic rights management information, *Regulations* also regulates, in detail, directly deleting or changing rights management information, and mistakenly providing the works with deleted or changed electronic rights management information. Therefore, compared to the legal protection of DRM in the *Copyright Law*, *Regulations* is more objective, more concrete and more operational, only in terms of the general provisions of the infringement acts and the responsibilities to be undertaken. With respect to the responsibility and punishment for avoiding the technical measure of digital works or deleting the electronic rights management information, *Regulations* also specifies all applicable specifications.<sup>454</sup> Among them, with respect to a series of direct infringement acts, such as the deliberate circumvention and destruction of technical measures, the intentional deletion and change of the electronic rights management information, and the mistaken provision of the works with deleted or changed electronic rights management information, the infringers shall bear not only the civil liability but also the administrative responsibility, such as the confiscation of illegal gains and the penalty in its entirety, as per the illegal business revenue, if the interests of the public are compromised, or even the criminal responsibility in case of gross violation.<sup>455</sup> *Regulations* also specifies the detailed and concrete protection rules for (a) the indirect infringement acts of technical measure, and (b) those who purposely manufacture, import and provide the devices mainly used to avoid or destroy the technical measure, or who intentionally provide technical services for others to avoid or destroy the technical measure, shall also bear the corresponding legal consequences. Compared to Article 48 of the *Copyright Law*, the provisions on the legal protection of DRM in *Regulations* are more specific, more standard and boast a stronger

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<sup>452</sup> 《中华人民共和国保护信息网络传播权条例》第 26 条（2）（3）；

<sup>453</sup> 《中华人民共和国保护信息网络传播权条例》第 26 条。

<sup>454</sup> *Ibid*；

<sup>455</sup> *Ibid*；

applicability and practicality, only in terms of the direct infringement acts stipulated from the responsibility to be undertaken.

In Article 24 of the *Regulations for the Protection of Computer Software* and Article 6 of the *Explanation on Some Issues of Laws Applicable to the Trial of Copyright Disputes Involving Computer Network by the Supreme People's Court*, the detailed specifications have been given for the legal protection of computer software and digital works in general. Computer software is the universal digital work, well-received and easy to infringe, so *Regulations* has given concrete legal protection to the technical measure and the electronic rights management information of the computer software, and has raised the upper limit of infringement penalties compared to other infringement acts, further clarifying the importance of protecting the technical measure. With respect to the booming digital network and the increasingly serious infringement phenomenon among network service providers, the *Explanation* has specified from the directly mistaken infringement acts by network service providers, further expanding the coverage of legal protection for the technical measure.

The *Copyright Law (Revised Draft)*<sup>456</sup> released at the end of 2013 has greatly modified and adjusted the existing copyright law in China. The *Copyright Law (Revised Draft for Approval)*<sup>457</sup> has established separate chapters and made detailed and specific provisions for the paragraphs related to the technical measures and rights management information. On the basis of absorbing and mirroring the *Regulations for the Protection of the Right of Communication Through Information Network*, the *Copyright Law* manuscript has formulated more specific provisions for the legal protection of the technical measure from its definition, the interest scope of the holder, the limitation of rights and the liability for tort. In terms of the definition, the "radio and television programs" have been added to the use object of the technical measure in the *Manuscript*; the "reproduction", "operation" and "adaptation" have been added to the use purpose of the technical measure in the *Manuscript*. The "radio and television programs, radio and television stations" and the "holder of radio and television programs" have been added up to the use object of the electronic rights management information in the *Manuscript*. The access control type and the rights protection type technical measures covered in the legal protection have been further

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<sup>456</sup> 《中华人民共和国著作权法》（修订草案）；

<sup>457</sup> 《中华人民共和国著作权法》（修订草案送审稿）；



specified. In terms of the protection scope of rights for the holder, highly consistent with the *Regulations*, the *Manuscript* still follows the detailed and specific rights contents. In terms of the liability for tort, Article 78 in Chapter 7 of the *Manuscript* specifically describes the liabilities for tort, such as the circumvention and destruction of technical protection measures, and the deletion and modification of rights management information. Compared to *Regulations*, the *Manuscript* not only integrates the liability clauses on direct and indirect infringement acts, but also expands the indirect infringement manner of electronic rights management information to behaviors including the "copy, distribute, lease, show, broadcast, spread through the network to the public the rights management information even if aware of that the information is deleted or changed".<sup>458</sup>

Although without legal effect, the *Deliberation* is likely to be the formally launched copyright law as the first draft of the copyright law modification draft. It can be seen from the substantial measures to define the rights of the holder, and to define the liabilities for tort by setting separate chapters for the legal protection of technical measures, and specifying the concept of technical measure—that the legal construction is increasingly perfected for the legal protection of DRM. At the executive meeting of the State Council on January 16, 2013, the penalty amounts was modified in the four administrative regulations, including the *Regulations for the Implementation of Copyright Law*, the *Regulations for the Protection of Right of Communication through Information Network* and the *Regulations for the Protection of Computer Software*, which has further strengthened the intensity of the crackdown on the circumvention and destruction of DRM, thus further protecting the digital copyright. In addition, before the National People's Congress and the Chinese People's Political Consultative Conference in 2013, the Democratic Progressive Central had organized some members of the national committee of the Chinese People's Political Consultative Conference to carry on the thorough investigation and research of the digital piracy, and submitted the *Proposal on Strengthening the Digital Copyright Protection and Constructing the National Unified Public Service Platform for Digital Copyright*.<sup>459</sup> The Democratic Progressive Central proposed to perfect the legislative

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<sup>458</sup> Paul Petrick, 'Why DRM Should be Cause for Concern: An Economic and Legal Analysis of the Effect of Digital Technology on the Music Industry', Berkman Center for Internet & Society at Harvard Law School Research Publication. No. 2004-09.

<sup>459</sup> 《关于加强数字版权保护构建国家级统一数字版权公共服务平台的提案》，全国政协十二届一次会议提案第 0123 号；

works for digital publishing laws and regulations, to complete the "notice" and "take-down" systems, to lighten the burden on the rights of the copyright owner, to further protect the rights and interests of the holder, to clarify the tort compensation standard of the copyright law, and to strengthen the administrative law enforcement and focus on the publicity and education of digital copyright.<sup>460</sup> Therefore, the protection of digital copyright has attracted considerable attention, and China is certain to establish a more complete and perfect protection system for digital copyright in the near future.

In Article 48(6) and Article 48(7) of the *Copyright Law*, and Article 4(2) of the *Regulations for the Protection of Right of Communication through Information Network*, there is a restriction that "except as otherwise specified by laws and administrative rules and regulations" while entrusting legal protection to the holder for the technical measure. This exception is similar to the exceptions in Section 1201(d)-(J) of the *DMCA*, and the restriction on technical measures and rights of the EUCD. Article 12 of the *Regulations for the Protection of Right of Communication through Information Network* also specifies the exception clauses on prohibiting the circumvention of technical measures. From school teaching or research, provision of works for the blind, performance of official business by state organizations and computer safety performance tests, *Regulations* has made exceptions for the anti-circumvention legal protection, and there is a strong limitation on its application: it is not allowed to provide any technology, equipment or other components used to avoid the technical measure; it is not allowed to infringe upon others' rights; the first exception is only applicable when the relevant works are provided through the information network; and the first two exceptions are only applicable to the works acquired through the information network. Article 71 of the *Copyright Law (Manuscript of Revised Draft)* has extended and supplemented six aspects on the basis of the exception clauses of in *Regulations*: on the basis of extending and complementing the six aspects: 1. the broadcast and television programs are supplemented as the exceptional objects for classroom teaching and scientific research; 2. the works provided to the blind in the manner they can perceive are not limited to written works, and not for the purpose of making profits; 3. the restricted condition that the works involved in the above two exceptions "can only be acquired through

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<sup>460</sup><http://wenku.baidu.com/link?url=0VwDSgQZXZndls2QzCSBbOX-3cadFMhIXMZqWe49C71RbIK8mqrrkU2rbhub8xnasog0T7nJ3KBQ2dTgQD0jmL-iF2j0fPiqfxL9Hfw1QPi>, access date: 14/09/2015.

information network” is modified to be “are unable to be acquired in normal way”; 4. the provision is deleted that the works involved in the above two exceptions can only be provided “through information network”; 5. the restrictive provision that “by the institution with security testing qualification” is added to the safety performance test of the computer and its system or network; 6. item (5) shall be added, namely the exception of encryption or reverse engineering research of computer program regulations that compared to the United States, Germany and other western countries with developed digital media industries, although not specific or concrete in terms of the application rules and the exception clauses in the legal protection of DRM in China. Although it is actually the substantive progress of the construction of the legal system from the perspective of the integrity of copyright protection law,<sup>461</sup> it seems far from enough for coordinating the unsatisfactory situation of DRM regulatory model in China.

Faced with various stresses from the growing competition of intellectual property rights by the western developed countries after joining the WTO, the biased and strict copyright protection system implemented by the United States and other developed countries, failure of the DRM regulatory model construction in the developing countries to keep pace with the integration of the global digital network and the rapid development in new digital media industry, China has actively performed the duties of the developing countries, formulating the domestic copyright legal system, strictly conforming to the WCT and WPPT, comprehensively considered from various angles the legal protection of DRM, strictly formulated anti-circumvention legislation provisions for the technical measure, and improved the exception clauses for the wider adaptability and practicality of the rules. Yet, the rough or ambiguous regulations and the incongruous regulatory order under DRM legislative architecture has still caused annoyance on effective implementation.

### ***3.3.2 Technological Aspect: Types of Consultation Mechanism***

The using permission of DRM should be based on the contract signed between copyright holders and the consumers/users.<sup>462</sup> However, the current using permission

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<sup>461</sup> Hamideh Ramjerdi and Anthony D’Amato, ‘The Intellectual Property Rights Laws of The People’s Republic of China’, (1995) 21 North Carolina Journal of International Law and Commercial Regulation 169, p.172.1995.

<sup>462</sup> Ibid;

is only customized by copyright holders . Technically speaking, it is indicated that the following DRM mechanism, which should be proposed is not available in China: it allows end users to raise objections and make modifications to relevant items and conditions issued in the using permission. Zhang suggests that the current rights expression language has limitations that cannot allow consumers to demonstrate their appealing.<sup>463</sup> At the same time, when the current RMS grants permission to users, it does not clarify which segment users should go through to show their appealing.<sup>464</sup> Consequently, it is necessary to negotiate while designing and constructing protocols and rights expression language in order to promote communication between consumers and copyright holders. The aim is to enable consumers to communicate with copyright holders about relevant items of using permission to further meet the fair and reasonable principle and demand of copyright law.

Usually, there are two participants in the using permission mechanism: copyright holders and end users. This paper adopts the popular “request-respond” model, which can be divided into the following steps: First, end users make a request to use their copyright and make modifications; second, copyright holders comment on the above requests, and check applicant validation; moreover, copyright holders provide users with service life; and finally, users can choose one privilege set or make a request that the provided permission package be perfected.<sup>465</sup> This processing mode provides a new business model — namely, users with different using permission rights should pay different costs, which allows for flexibility. Garcia<sup>466</sup> puts forward the demand analysis of consultation mechanism systems — namely, that there should be a certain language to describe the rules during the communication process.<sup>467</sup> Meanwhile, the language can also be adopted to correctly show negotiate willingness. Garcia, conversely, does not come up with concrete implementation plans and strategies. <sup>468</sup>

Negotiation steps refer to the process used to reach a certain contract. Negotiation

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<sup>463</sup> Zhang Jiang, Li Bin, Yang ShiQiang. FLMP: A Flexible License Management Protocol for Digital Rights Management, Proceedings of SPIE - The International Society for Optical Engineering, Beijing, China: International Society for Optical Engineering, 2005.

<sup>464</sup> Ibid;

<sup>465</sup> Ibid;

<sup>466</sup> Garcia Roberte, Gil Rosa. An OWL Copyright Ontology for Semantic Digital Rights Management. In: Lecture Notes in Bioinformatics, Montpellier, France: Springer Verlag, 2006

<sup>467</sup> Ibid;

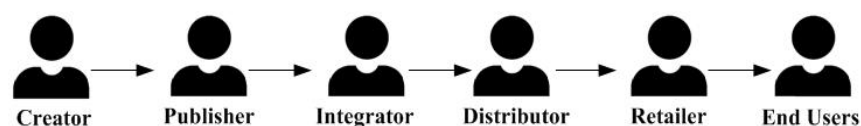
<sup>468</sup> Ibid;

mechanisms can be divided into the following types, according to the actual operation and possible business models of DRM:

**1. Tendering manner:** also known as the offer price, which is a way of purchasing. Bidder is the buyer (end users), who releases announcements or sends invitations to specific suppliers and contractor with the bid nature, quantity, quality, technical requirements, time of delivery and procurement qualifications of other suppliers and contractors; tenders are sellers (copyright holders) who can provide products, engineering, and services with refunds and rewards. In this mode, users search for services or products that they are interested in online, and put forth inquiries on suppliers' product pricing.<sup>469</sup> Users can choose one or more suppliers based on comparison. At present, current DRM cannot support this model in China.

**2. Auction:** a reverse process of the first type with sellers acting as bidders (copyright holders), submitting the products and conditions, while buyers (end users) act as tenders to compete the buying. Then sellers will select the buyers based on the consideration of credit and their own demands. Afterward, they will sign a contract. Selling at marked price is similar to auctions, as both activities are competitive transactions launched by a certain party. However, there are obvious differences between the two. At present, most DRM systems are able to control the dealing course with prices as the leading factors.

**3. Bargaining:** the most flexible and comprehensive negotiation mechanism, allowing all participants to conduct dynamic amendments and satisfy their own demands.



Creators and publishers always have the copyright of digital content, as they are

<sup>469</sup> Ibid;

<sup>470</sup> M. Stamp, 'Digital rights management: The technology behind the hype', *Journal of Electronic Commerce Research*, vol.4, no.3, 2003. <http://www.csulb.edu/web/journals/jecr/issues/20033/paper3.pdf>. Access date: 14th/08/2015.

owners and providers of that content. Integrators act as service providers during the content spreading process; they are responsible for collecting the digital content of content providers, and then selecting and arranging the content so as to provide support and services for digital products. Publishers and retailers belong to content service providers. Publishers are responsible for the publication of digital products, while retailers oversee marketing. It should be noted that in real content spreading, not all of these roles will necessarily exist. In different spreading models, the roles involved are different, and many roles can be assumed by a single entity.

### ***3.3.3 Judicial Aspect: Cases in China***

#### ***Jiangmin Company "Logic Lock" Case***

Jiangmin Company was a domestic enterprise that specialized in software development, and its “KV300” anti-virus software was welcomed by foreign markets. However, the encryption measures of the software were cracked by a website called “China virus-island forum”, which provided users with “MK300V4” software that was exclusive to cracking encryption measures of “KV300”. Losses of the Jiangmin Company were substantial. To cope with the cracking software, Jiangmin Company had to set a “logical key” in the newly developed software. Thus, once someone applied the “decoding key” provided by “China virus-island forum” to duplicate the pirated software and run it on the computer, the “logical key” would be automatically started immediately and crashed user devices. However, the action of Jiangmin Company was merely charged with endangering computer systems by the Public Security Bureau of Beijing, and was imposed with administrative penalty. There were no actions based on DRM regulatory legislation from the court.

#### ***Beijing Jingdiao Technology Ltd. v. Shanghai Naikai Electronic Technology Ltd.***

In the case,<sup>471</sup> the plaintiff claimed that he developed the CNC engraving system, which mainly consisted of three parts; namely, CAD/CAM software or JDPaint software, an engraving CNC system and a basic machine. The application of the system relies on two computers; one is used to process and programme computers,

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<sup>471</sup> 上海市第一中级人民法院民事判决书 2006 年沪一中民五（知）初字第 134 号，<http://china.findlaw.cn/chanquan/zhuzuoquanfa/zzqal/20316.html>, access date: 14/09/2015.

and the other is a numerical control computer. The two computers, which run two different procedures, need to exchange data, or data files, more specifically. In other words, JDPaint software generates Eng data files by processing and programming computers, and then the data files are received by the control software run in numerical control computers and turned into processing commands. The plaintiff has copyright to the above-mentioned JDPaint, which is not sold to the public, but equipped in digital engraving machines produced by the plaintiff. In the early days of 2006, the plaintiff found that the defendant advertising the NC—100 CNC engraving and milling machine could fully support all engraving Eng files on his website.

The aforementioned Ncstudio software in the CNC can read Eng data files output from JDPaint, but the plaintiff had encrypted the Eng format.<sup>472</sup> Therefore, the defendant did circumvent or destroy technological measures adopted by the plaintiff to protect his software copyright by illegally decoding the encryption of the Eng format. Thus, the defendant did infringe the copyright of the plaintiff. The action of the defendant allowed other NC engraving machines to receive Eng files illegally, reducing the sales volume of engraving machines of the plaintiff, and causing economic losses. Thus, the plaintiff requested the court to make the following judgments<sup>473</sup>: 1. the defendant must stop the development and marketing of the CNC system that supported various Eng formats of JDPaint; 2. the defendant must extend an apology in non-advertising space, except the center part of Xinmin Evening News and Strait News; and 3. the defendant must pay for the economic loss of 485,000 Yuan.

The defendant argued that:<sup>474</sup> 1. the Ncstudio software developed by the defendant was control software of the engineering industry, which had be applied for copyright protection in December 6 2001,<sup>475</sup> while the JDPaint software whose copyright was possessed by the plaintiff was graphic software of the industry of arts and crafts manufacturing; and the two were different in interface, function and application environment; and 2. Ncstudio software can read Eng data files output by DJPaint software because Eng data file and Eng format used by the file was not under the protection of computer software; and thus, the action of the defendant was not an

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<sup>472</sup> Ibid;

<sup>473</sup> Ibid;

<sup>474</sup> Ibid;

<sup>475</sup> Ibid;

infringing act, and did not need to assume compensation liability appealed by the plaintiff. The plaintiff made it clear that JDPaint software and Ncstudio software were not identical, since Eng files output by JDPaint software were data files of Eng format.<sup>476</sup>

In April 2006, the entrusted agent of the plaintiff applied for evidence perpetuation of relevant information on the internet to the Notary Office of the Mentougou District of Beijing. The agent used the computer and other internet facilities in the Notary Office to search and log onto [www.weihong.com.cn](http://www.weihong.com.cn), open columns including company news, product introduction, activities and news, and hot news in the home page of the company and printed related reports as well under supervision of notaries.<sup>477</sup> The Notary Office of Mentougou District of Beijing proved it with notarization.<sup>478</sup> The reports in the columns mentioned above included the following: in December 2005, Naiky released the NC-1000 engraving and milling machine, which fully supported various Eng files, and was developed due to users' appreciation for the software JDPaintV5.19.<sup>479</sup>

Moreover, officials realised that Ncstudio software can read Eng files output by JDPaint software of the plaintiff; that's to say, Ncstudio software was compatible with Eng files output by JDPaint software. The court thought the focus of the dispute for this case was whether the Ncstudio software of the defendant was compatible with Eng files of JDPaint software of the infringed software copyright of the plaintiff — in other words, whether Eng files under encryption protection that were the output of the plaintiff's JDPaint software were within the protection scope of computer software.<sup>480</sup>

The plaintiff believed that since JDPaint software, whose copyright was possessed by the plaintiff, was mated with his engraving machines, and it was not offered to the public, and what else, the plaintiff adopted a three-level encryption to the Eng file output from JDPaint software so that it could not be directly read through other control systems other than engraving control systems, and that Ncstudio software of the defendant reading Eng files was an act of circumventing or destroying

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<sup>476</sup> <http://www.lsbar.com/caseContent/5141>, access date: 14/09/2015.

<sup>477</sup> *Ibid*;

<sup>478</sup> (2006)沪高民三(知)终字第 110 号,

<sup>479</sup> *Ibid*;

<sup>480</sup> *Ibid*; and also see: [http://www.pkulaw.cn/fulltext\\_form.aspx?Db=pfnl&Gid=117529046&EncodingName=](http://www.pkulaw.cn/fulltext_form.aspx?Db=pfnl&Gid=117529046&EncodingName=), access date: 14/09/2015.



technological measures adopted by the plaintiff to protect his software copyright, thus infringing the software copyright of the plaintiff. When the defendant argued that the Eng format was a method to record geometric data imported by users after procedures of JDPaint software were performed by computers, and it was not a software program but a treating process of JDPaint software to data and its thought of describing mathematical concepts. Furthermore, Eng data file was not a software program and could not be operated and executed by computers. The data file was not included in mediums released by JDPaint software, or in installation directory of the software after software was installed.<sup>481</sup> Therefore, both Eng files and Eng format were not under the protection of computer software.

According to relevant regulations in the *Copyright Law of the People's Republic of China*, the court believed that computer software was under the protection of that law. Article 2 of the *Regulations for the Protection of Computer Software*<sup>482</sup> stipulated that computer software referred to computer programs and related documents, and Article 3 stated, a computer program is a coding instruction sequence that can be run by devices with information processing capabilities, like computers, with the purpose of realising certain results, or a signifying instructional sequence or signifying statement sequence that could be converted into a coding instruction sequence automatically. The source program and target program of a same computer are the same entity; and files are literal data and charts used to describe the content, constitution, design, functional specification, development, test results and application methods, such as design instruction of programs, flow charts and user manuals. Therefore, we can know that the current laws only protect programs and files of computer software. In this case, the copyright registration certification of computer software provided by the plaintiff proved that he possessed the copyright of JDPaint software, whose programs and related files should be protected by law. Then, the plaintiff claimed that Ncstudio software of the defendant reading Eng files output from JDPaint software had infringed the software copyright; and thus, whether Eng file was a part of JDPaint software that was under legal protection was the focus of this case.

After the investigation, the Eng files' output from JDPaint software became data files, and their output format (Eng format) was the result of a JDPaint software target

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<sup>481</sup> Ibid;

<sup>482</sup> Ibid; 《计算机软件保护条例》;

program executed by computers, while the data files of this format were not a coding instruction sequence or signifying instruction sequence — or coding statement sequence — and could not be run or operated by computers. In addition, according to the statement of the plaintiff, Eng files were data files generated from JDPaint software run in processing and programming computers. It is known that data recorded by the files was not exclusive to JDPaint software of the plaintiff, but was generated from engraving processing information input by software users. Therefore, data and document formats included in Eng format data files were not programs of JDPaint software. Rather, they were not under protection of computer software, and should not be protected by law. Accordingly, the plaintiff argued that Ncstudio software's capability of reading Eng files was a matter of software and data file compatibility. It lacked the legal basis that the plaintiff sued the defendant of software copyright infringement, since his software received Eng files when the plaintiff did not market JDPaint software to the public, and encrypted data files of Eng format. As such, the court did not give its support. Also the judgment sustained by the first trial and the appellate court that the protective measures used by the plaintiff do not belong to "TPMs" regulated in Copyright Law. As the requirement of TPMs should be "effective" under China's DRM regulatory model, but it is legislatively ambiguous. It seemed no way out for solving the part related to TPMs in light of the pre-existing anti-circumvention provisions under China's DRM regulatory model, but anti-unfair competition law.

## **Section 2. Mismatch with Local Conditions: Socio-cultural Exploration on Digital Rights Management Regulatory Model Transplantation Failure in China**

The ideological base of copyright comes from the theory of natural rights, and the protection of copyright is actually the respect for human creation. In the early days, copyright protection aimed to protect the rights and interests of authors and publishers; while in recent years, with the expansion and communication of knowledge, the public has an increasingly greater need for knowledge; and then the relationship between copyright owner and user has developed over the course of the copyright protection system. Besides, copyright development trends aim to find a balance between copyright owners and public appeal, which involves the penetration of more sociological aspects of law into the copyright system.

Cultural globalization is the concomitant of economic globalization. “Cultural globalization does not mean global integration of culture only, but it is also accompanied by cultural conflict.” The national cultural security and world cultural diversity are expressions of social risk in the cultural field. In modern society, which boasts cultural globalization and cultural industry globalization, we are facing “an era of risk culture”.<sup>483</sup> Scott Lash once warned people that “unexpected risk and danger will be new risks and dangers coming from the information field, biological technology field, communication and software field; instead of risks and dangers produced from material production process in industrial society”.<sup>484</sup> The “cultural risk” in contemporary society manifests in the weakness of national culture and the marginalization of traditional culture. Traditional culture, as well as the so-called mainstream culture (or powerful culture) of many tribes and nationalities, has always had certain tensions worldwide, which not only exist between Eastern and Western cultures, but also within European and American cultures. Cultural globalization, the concomitant of economic globalization, cannot eliminate the nationality and diversity of culture. In fact, there are over ten thousand different social groups living in about two hundred countries; and so each country consists of multiple cultures — and perhaps, for many, multiple nations. Protecting cultural diversity is mainly a means of respecting the rights of minority groups. However, as for international society, cultural diversity implies differences in language, religions and ways of life.

To admit the existence of cultural diversity is to admit the independence and autonomy of cultural sovereignty in different countries. It is a theoretical matter, to understand the extent of cultural diversity, and the legal requirements of national cultural sovereignty principles to “respect equal status, diversity and rich vitality of different cultures, and to respect their different development routes”.<sup>485</sup> The systematic deficiency of the international protection system, focusing on TRIPS, lies in that it manages to protect the originality and novelty of cultural forms while the diversity of cultural forms has been overlooked. We can see that the world has

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<sup>483</sup> <http://www.riskcultureinsights.com/>, and also see Barbara Adam & Ulrich Beck & Joost van Loon, "The Risk Society and Beyond: Critical Issues for Social Theory", 2000, SAGE Publications Ltd.

<sup>484</sup> Scott Lash, "Risk Culture", Chapter II of *The Risk Society and Beyond: Critical Issues for Social Theory*, Barbara Adam & Ulrich Beck & Joost van Loon, ", 2000, SAGE Publications Ltd.

<sup>485</sup> [http://portal.unesco.org/culture/en/ev.php-URL\\_ID=34321&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/culture/en/ev.php-URL_ID=34321&URL_DO=DO_TOPIC&URL_SECTION=201.html).

essentially been dominated by European and American cultures, which are characterized by their “modernity”.<sup>486</sup> From the perspective of culture, while assimilating native cultures and traditional cultures all over the world, European and American cultures have also nibbled world cultural diversity in a gradual manner. From a legal perspective, the legal spirit and systematic principles advocated by western countries have become guidelines for the ideal international, social life. In the domain of intellectual property, intellectual products of European and American cultural types have been perfectly protected in various forms of “intellectual innovation” by international intellectual property systems indexed by European countries during modern production. On the contrary, the system of intellectual property rights lacks the necessary legal conservation for “intellectual sources” of different cultural types. The system can “only protect property rights of intellectual property without extension to the coexistent cultural interest.”<sup>487</sup>

### 3.4 Culture Perspective

Admittedly, DRM technology is simply thought of as a response to the emerging features of digital copyright architecture. Technology itself, under the DRM system, has no admissibility of copyright law. As it has already been suggested, however, the whole scheme of DRM acts as part of a comprehensive copyright protection system, and is especially a crucial element in the digital copyright world. If we had the chance to explore the nexus of copyright and culture, no matter apparent or elusive, industry traits could be summed up as follows:

Above all, the fundamental purpose of copyright law, which aims to spread and encourage knowledge and cultural communication, has been acknowledged. The prosperous development of "culture" is regarded as a typical incentive of copyright law. The Statute of Anne in Britain, from 1710, is considered the first modern copyright statute in the world, which incited "learning" as its goal.<sup>488</sup> The French copyright laws in Revolutionary times [*French Playwrights Decree*], issued in 1791,

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<sup>486</sup> Anthony Giddens, ‘The Consequences of Modernity’, Wiley Publishing, 25, April, 2013.

<sup>487</sup> Ibid 78;.

<sup>488</sup> c.19, Anne Act. The original title of this statute, known as "An Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned".

made for a classic article that is often cited in Europe<sup>489</sup>: "[T]he most sacred, the most legitimate, the most unassailable, and, if I may say so, the most personal of all the properties is the work, fruit of the thought of the writer."<sup>490</sup>

Second, the object of copyright law is the "work". Works are essentially the outcomes to which authors or creators devote their intellectual efforts, while the source material of intellectual creation mainly stems from culture knowledge. What knowledge creation constitutes reflects various cultural elements. For example, a work of art was likely produced several centuries ago. It may contain plenty of historical information and cultural background. And cinematographic works — one category of "works" protected by copyright law — ordinarily show characteristics related to culture, such as local manners or customs in comedy, or a wildly romantic one. "Literature and the fine arts might make us more conscious of the world as well as delight us".<sup>491</sup> Different cultural styles are embedded in diverse types of copyrighted works. During the Enlightenment, terms such as "learning" and "science" were often associated with culture.<sup>492</sup>

Moreover, the context in which copyright lawmaking and law enforcement came to be relies on certain cultural and environmental factors corresponding to copyright law. As culture is located in the realm of the superstructure, law is also considered a part of the superstructure. The intersection of culture and copyright law, in this regard, is inevitable. Besides, culture and copyright are indeed linked to each other.

Culture was represented by concrete forms of "technology". Alternatively, the previous types of culture can be showed by specific technologies. Since technology has been regarded as a mirror of human beings' intelligence, it significantly retroacts culture. With the development of technology, the relationship between technology and culture has become more momentous than ever, not to mention diffusely acknowledged. Technologies interact with a social, economic and cultural matrix in

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<sup>489</sup> Paul Edward Geller: Copyright History and The Future: What's Culture Got To Do With It ?" , Journal, Copyright Society of the U.S.A. Vol. 47, 2000, p.256.

<sup>490</sup> Ibid; Also see Justine Pila, "Pluralism, Principles and Proportionality in Intellectual Property", Oxford Journal of Legal Studies, p.4. <http://ojls.oxfordjournals.org/content/early/2013/10/21/ojls.gqt029.full>, access date: 31/12/2013. (Original quoting from *Archives Parlementaires de 1787 à 1860*, Recueil complet des débats législatifs et politiques des Chambres françaises (vol xxii, Paris 1887) 210.

<sup>491</sup> Ibid 138, p.257.

<sup>492</sup> Ibid;

various aspects, and what matters is that cultures have been differentially treated somehow — this is known as "cultural bias". There hence shaped a cultural misunderstanding that advanced technologies were commonly associated with so-called "superior" cultures. The elements contained in these technologies interplayed with each other directly and indirectly.<sup>493</sup> Present technologies had broken through the old socio-cultural ranges, by way of updating knowledge information globally.<sup>494</sup> Since technologies have become competitive instruments of economic progress, the influence on technologies from culture diversity has also reduced quite drastically.<sup>495</sup>

From the machine age in the Industrial Revolution to modern times, technologies ranging from hardware to software have turned into a crucial material basis of cultural evolution. Even this type of culture, was coined as "technological culture" or "tech culture".<sup>496</sup> Technological culture is new and popular jargon used to describe a social phenomenon in which technologies and culture act mutually. Similar (or the same) techniques could be embedded in the culture in various ways. It gestures disparate things related to cultural practices under different cultural contexts. Likewise, diverse technologies may serve the same purpose.<sup>497</sup>

In ancient times, Anglo-Saxon peoples and African tribes likely used a variety of wooden or metallic tools for hunting animals. In this regard, cultural elements are not determined by the same technologies or techniques. On the contrary, minor groups of people utilized the same methods, instead of owning the systematic technologies or "complex" techniques — what would seem to be a "minimal" technological culture in other countries. Actually, there is an entity involved in the embed-ability of technological culture. This ensemble affords both mainstream culture and alternative culture. Therefore, issues about cultural exports and discrimination thereupon came up. Our civilization has been a culture comprised of massive technologies, which is quite different from our previous culture from both qualitative and quantitative

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<sup>493</sup> Willem H. Vanderburg, "Technology, Society, and Culture, A Framework for Understanding", *Technology in Society*. Vol.7, 1985, p414.

<sup>494</sup> *Ibid* 138, p.412.

<sup>495</sup> *Ibid*;

<sup>496</sup> *Ibid* 347. p.65-71.

<sup>497</sup> Val Dusek, *Philosophy of Technology: An Introduction*. New York: Paragon House, p.50, 1993.

standpoints.

<b>Pre-Modern Technological Culture</b>	<b>Modern Technological Culture</b>	<b>Contemporary Technological Culture</b>
Production Development under Primitive Environment	Machinery Lifestyle	Technological Monopoly Existence
Human—Nature Symbiotic Relationship	“Unidirectional” Material Society	Highly Competitive “Deformed” Society
“Nature-Centered” Values	“Technical Products” Focused	“Non-human” Centered Values System

**Figure 3.2 Main Paradigms of Technological Culture** <sup>498</sup>

Even in another opinion, the DRM system can be regarded as an alternative approach to intellectual property protection and the implementation of intellectual property law.<sup>499</sup> The DRM system allows technology and legislation to supplement each other, and it has been a heated and controversial topic in the context of technological culture. Nonetheless, cultural background dissecting behind technologies explores a comprehensive and integrated way for the thorough acquaintance of DRM.

### **3.4.1 Cultural Background**

It's no secret that over time, human beings have evolved drastically. We've witnessed the rapid development of society, which provides a platform for people's evergreen concern about the relationship between their intellectual output and economic income. The increasingly growing focus on private property interest was originally meant to safeguard the feudal hierarchy. At the beginning of the intellectual property system development, the nobles spared no efforts to strive for their private benefit in all fields, especially in the culture and knowledge area, which is accepted by the general public to be the origin of the intellectual property regime.

<sup>498</sup> Ibid.

<sup>499</sup> Ibid 86;.

“Culture”, as an elusive word, is regarded as “one of the two or three most complicated words in the English language”.<sup>500</sup> Previous studies in the past decades have observed that the interrelationship between intellectual property and culture has been a characteristic of increasing frequency and emphasis in a large number of fields.<sup>501</sup> The protection of intellectual property is the accompaniment of intellectual property acculturation, which accordingly flourished the intellectual property legal system. If culture in intellectual property, or copyright, had been in retrospect, officials might have discovered — by way of historical data — that copyright culture was a primarily oral culture, a literal culture and a networks copyright culture.

A certain number of created works improvised by bards and other artists became the main resource of oral culture,<sup>502</sup> which was occasioned by the primitive idea of recording historic habit and customs in extenso. Also, elements of oral culture can "vary flexibly in response to an open-ended scope of social variables", unlike written culture.<sup>503</sup> Literal culture, introduced the copyright culture area, was deemed as a contribution to the categorized objects system under copyright culture. It is in this literal culture period that copyright shaped its traditional and classical architecture upon which novel copyright culture relied. When copyright met technologies, a new cultural base on allied elements came out, acknowledged as "network copyright culture". This type of copyright culture came along with technical evolution, and three kinds of copyright culture are also divided by their medium types. Networks copyright culture developed on the basis of literal culture, which created a copyright scheme with the intermarriage of technology and culture.

Compared to more traditional means of communication, networks, along with the revolution of technical means and the dissemination of information, are on the one hand intended to spread knowledge rapidly, establishing extensive web technological backgrounds with the emergence of the Knowledge-Economy era upon the

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<sup>500</sup> Raymond Williams, *Keywords: A Vocabulary of Culture and Society*, 1985, Oxford University Press, USA. Patent, Trade-mark, and Copyright Foundation of the George Washington University, and also see *Proceedings of the annual public conference of the George Washington University*. Vols.1-7. 1958.

<sup>501</sup> Peter K. Yu. *The Confucian Challenge to Intellectual Property Reforms*, WIPO Journal, Vol. 4, Drake University Law School Research Paper No. 12-37, 2012.

<sup>502</sup> Ibid;

<sup>503</sup> Ibid 497. p.93-94, 1963.



proliferation of speed and density. Profoundly, the knowledge and technological innovations changed. Intellectual property rights, regionality, timeliness and other traditional features, gave rise to an enormous impact and overall innovation.<sup>504</sup>

Cultural progress has driven the prosperous development of the copyright industry, and copyright mediums innovation as well. Similarly, technologies regarding the improvement of copyright protection and mediums advances accelerated the copyright culture a step forward. What both of them have been in response to each other, in essence, reflects the veritable relationship mapping of technology and culture. Cultural analysis on copyright issues, especially in the digital world, has been thought of as an indispensable method for the research of copyright matters.<sup>505</sup>

### ***3.4.2 Traditional Value System***

There exists a claim from intellectual property system's advocators that its unique character is bound to promote cultural knowledge as well as social innovation indispensably and irreplaceably. They somehow are able to automatically treat intellectual property protection system by a logical extension of this point as suitable mechanism for every nations and local citizens since it sufficiently accords with this universal value. China, as one of the most important developing countries in the world, has been struggling with its uncomfortable intellectual property protection system for parallel benefit relationship between international legal obligation and the domestic public.

Previous researches have explored the relationship between developed countries' intellectual property practice and China's intellectual property protection trends as well as its poor environment against intellectual property infringements, but little attention has been paid to the part of local culture or intellectual property acculturation in diverse nations. Chinese traditional civilization, distinct from westerns' culture system, has wielded an immense influence upon Chinese people over a long period of time.

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<sup>504</sup> Ibid 497;

<sup>505</sup> Cong Xu, 'Comparative Analysis of Intellectual Property between China and the West: A Cultural Perspective', *Journal of Intellectual Property Rights*, Vol.19, May 2014,p.202-208. p.207.

While numerous studies of Chinese culture mainly centers around the reason for juristic divergence from others', its historical developments driven by political consideration and legal instrumentalism, very few touches upon what roles Chinese culture plays in intellectual property protection and plunging China into an awkward circumstances where wrongs and contumelies spread.<sup>506</sup> Another sequential tough situation caused by Chinese featured intellectual property culture was found in the aspect of legal execution system deficiency. China's intellectual property regulations which are more or less incongruous with its national condition and some provisions even surpass its endurance capacity.

These findings highlight the potential difficulties encountered by Chinese intellectual property protection and the current recognition of intellectual property system in people's mind affected by deep-rooted Chinese culture. Based upon Chinese culture background introduction as well as comparative analysis of various culture characters and piths between China and the West, in conclusion, the author inclines to explain, not to seek so-called "excuse" for better comprehending to this matter that why China's intellectual property protection got here. Better understanding on cross-culture intellectual property protection system construction will very raise new direction and avenues related to a brilliant intellectual property world.

#### ***3.4.2.1 The Concept of Intellectual Property Acculturation***

Although it is widely acquired as a proverbial trend that acculturation is a significant part of cross-culture area, consent is hardly reached on defining and measuring it. The concept of acculturation given long time ago has been treated as classic, which defined that "acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups".<sup>507</sup> What this typical definition suggests that acculturation is a mutual and multidimensional synthesis as an outcome of interaction between two different cultural groups which

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<sup>506</sup> Pitman B. Potter, "The Chinese Legal System Globalization and local legal culture", Taylor and Francis e-Library, 2005.

<sup>507</sup> Robert Redfield, Ralph Linton, and Melville J. Herskovits. *Memorandum for the Study of Acculturation*, American Anthropology, 1921-1945: Papers from the American Anthropologist. University of Wisconsin Press, 1936.

brings about changes of public beliefs, social values and material traits.<sup>508</sup> The process leading to acculturation was progressive, irreversible and contributed to the ethos of dominant culture group.<sup>509</sup> Nevertheless, acculturation research is more complicated and not only the result of culture groups being interactive with each other.<sup>510</sup>

In current surroundings, the acculturation of various legal cultures is inevitable. Increasing trend of globalization makes it impossible that still some communities are absolute seclusion of others in the world.<sup>511</sup> The term intellectual property was introduced in the 19th century,<sup>512</sup> but not until the twentieth century, its importance was realized in the United States. In Great Britain, the Statute of Monopolies 1623 and the Statute of Anne 1710 are accredited with the introduction of the patent laws and copyright respectively.<sup>513</sup> As John-Locke has demonstrated in the well-known statement of property as labor's 'just desert', intellectual property is deemed as "a suitable reward for intellectual labor".<sup>514</sup> Regarding intellectual property acculturation, especially the relationship between the Western culture and Chinese intellectual property culture, it seems convincing that intellectual property acculturation should be more accepted as intellectual property enculturation. According to Padilla (1980, 1987), Keefe and Padilla (1987)'s new perspective on defining acculturation based "cultural awareness" and "ethnic loyalty", the social culture integration was inclined to be a supra-constructs synthesis.<sup>515</sup>

#### ***3.4.2.2 Chinese Traditional Culture and the West's Ideology***

The Western intellectual property culture is based on individualism, liberalism and rationalism, which have been regarded as the humanity basis and the spirit values of the Western modern legal development. The impact on Chinese history inertia and

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<sup>508</sup> Cabassa, L. J. Measuring Acculturation: Where We Are and Where We Need to Go. *Hispanic Journal of Behavioral Sciences*, 25 (2), 2003.

<sup>509</sup> Amado M. Padilla, William Perez. "Acculturation, Social Identity, and Social Cognition: A New Perspective". *Hispanic Journal of Behavioural Sciences*, Vol. 25 No. 1, 2003.

<sup>510</sup> Ibid.

<sup>511</sup> Dusan Nikolic, Legal culture and Legal Transplant, Serbian Report, *Isaidat Law Review* Volume 1, Special Issue 1. 2011.

<sup>512</sup> Ibid;

<sup>513</sup> Proceedings of the annual public conference of the George Washington University, 1958.

<sup>514</sup> Ibid 128.

<sup>515</sup> Ibid 143.

social cognition from its traditional civilization and actual barrier in the process of legal transplantation ultimately posed the influence to intellectual property law localization in China.

Intellectual property culture is a type of culture that is multi-dimension, comprehensive and exoteric, which is characteristic of individual unit emphasis, spirit of liberty, and reasonable aspiration embedded in private law culture. Intellectual property culture, specifically divisive from modern legal culture, is the culture more emphasizing consciousness, which differs from legal culture itself that is focusing on social sense and institutional system.

Modern legal culture indicates the attitude, belief and evaluation showed by social citizens towards legal institution and legal mechanism. The emergence of intellectual property law in Western countries has undergone the period of “feudal franchise” from late phase in middle ages to “private property” in initial stage of capitalist times.<sup>516</sup> During the fierce social transformation process, the growth of political, economic, and technological elements afford social condition for the burgeoning legal regime.

#### ***3.4.2.3 Values in the West: Individualism, Liberalism and Rationalism***

The individualism philosophy has been considered to be the consequence of social revolution of modern law and vicissitudes of social regime. Chinese traditional cultural psychology and the thinking mode of Chinese people are the obstacles for individualism development. Chinese traditional culture, dominated by Confucius philosophy, asserts the social ethic based on family unit should be the core of society rather than individual right based on the citizen unit.

The pith of individualism concept is centered on “individual”. The philosophy of individualism affords the culture basis in a way for the modern private law construction. Autonomy of private law comes into being through imbibing the essence of individualism. In this regard, intellectual property right as crucial part of private rights stresses specific private right belongs to particular subjects, in other words,

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<sup>516</sup> Ibid 162;

intellectual property rights are merely affiliated to particular civil subjects, not the rights enjoyed by the general public.

Individualism leads the progressive trend that public authoritative power has been not allowed normally interfering in affairs relevant private rights, which exists seemingly to arouse the right cognition under private law sphere; whereas liberalism principle has been regarded as the kernel of modern private law.<sup>517</sup> Free thinking and economic liberty, which should be the prerequisites of knowledge innovation and knowledge capitalization,<sup>518</sup> since the Renaissance, have long been the existence from cultural consciousness and cultural policy. The significant contribution of liberalism to modern private legal culture was “discovery of human”, which advocated “personality liberty” and “individual capability development”.

Statute of Anne in 1709 (An Act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned”) in U.K, which abandoned feudal franchise of publication and feudal publication censorship, to some extent, indicating the liberalism in intellectual property law system, profoundly promoted the dissemination of works.<sup>519</sup> Liberalism, on the one hand, is deemed to provide the ideology foundation for modern law’s systematization and codification. On the other hand, the “fair use” doctrine under intellectual property system reflects the “Liberalism Philosophy” full of fairness and justice, which the general public’s benefit should be taken into account. While there is little historical connection between the existence of Chinese feudal franchise of publication and the emergence of modern intellectual property law, therefore China had failed to complete the historical change.

Rationalism more reflects the character of human beings in nature that Man is a reasoning creature and all humans have to be restrained by potential rationalism power. In previous theoretical research, a law embodying justice values can be proved once it would accord with nature and reason. Modern Rationalism stressed the unification of laws and attributed rights regarding justice, equality and freedom et

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<sup>517</sup> Zheng Chengsi, *Intellectual Property Law: A Number of Research Focal Points at The Beginning of The New Century*, 2004.

<sup>518</sup> Liang Zhiping. *The Past, Current and Future of Chinese Law*, China University of Political Science and Law Press, Beijing. 1999.

<sup>519</sup> Michael Spence, "Intellectual Property", Clarendon Law Series, Oxford University Press, 2007.

cetera as the basis of this unification. In this respect, legal reformers and jurists had been striving to seek for an ideal legal system in order to incorporate types of principles and rules under natural law as one code. Rationalism was in a way, like Liberalism, deemed to lay foundation for further law systematization. Generally speaking, besides social progresses and developments, harmony between man and nature shall be implication of Rationalism in law.

### **3.4.3 Confucianism as the Dominant Philosophy in China**

When the vintage attitude was rashly disseminated in most Western scholar's comments that the concept of intellectual property indeed did not develop in China at all, <sup>520</sup> even Chinese people themselves, some tenable specific viewpoint towards the critiques neither much felicitous nor ambiguous more than it seems. Late Chinese intellectual property expert Zheng Chengsi ever pointed out straight that a researcher on Chinese intellectual property law might be blind when they have no idea about Chinese history.<sup>521</sup>

The Confucianism has governed the whole Chinese society for thousands of years, which emphasized the "Social Ethic" and "*Lun Chang*" (*Lun Chang* means Feudal Order of Importance or Seniority in Human Relationships). Confucian spirit, which is incompatible with what Western traditional culture advocates.<sup>522</sup> Although the Confucian school was discriminated in *Qin Dynasty* and earlier days in *Han Dynasty*, also was challenged by the Metaphysics the Buddhism around Six Dynasties. Nevertheless, experiencing the unprecedented adversity, the Confucianism has been continuous hereunto, depending on its "self-regulation" for accommodating social changes. Therefore, the Confucianism has rooted deeply in implicit Chinese value system.<sup>523</sup>

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<sup>520</sup> Marquette University Law School Legal Studies Research Paper Series, Research Paper No.09-03."What Plagiarism Was Not: Some Preliminary Observations On Classical Chinese Attitudes Toward What The West Calls Intellectual Property", Marquette Law Review. 2009.

<sup>521</sup> Ibid 150.

<sup>522</sup> Luo Li, "How Has Chinese Traditional Culture an Impact on China's Intellectual Property Legal System? Would this Influence Be a Problem in the Protection of Folklore by the Intellectual Property Legal System? ". International Journal of Interdisciplinary Social Sciences, Volume 5. 2010.

<sup>523</sup> Ibid 33;

Among these values Confucianism admires, “*Li*”, as the conduct principle in traditional Chinese society, inherently dominated the spirits embedded in the Confucianism regarding the social relationship between individuals and society. The essence of “*Li*” has been regarded to negate “individuality”, which deviates from the innovation spirit, creation capability and speculative ability of human beings. Accordingly, spiritual benefit under Confucianism hierarchy, beyond all doubt, has seldom been taken into account, even been despised or ignored. It is understandable accepted by the whole Confucian culture that the intellectual creation should be the enlightenment from ancestors or the God without consideration of self-improvement relying on intellectual effort.<sup>524</sup> In traditional Chinese Confucian environment, intellectual creations and noetic outcome are promoted or required to share by each social member unconditionally, which seems more than what creators deserved in Chinese view so far. Consequently, what impact that Chinese traditional culture posed on its social values appears impenetrable to modern intellectual property culture notwithstanding, the significant unshakable influence from Confucianism school to Chinese intellectual property development cannot be underestimated.<sup>525</sup>

- ***Legal Transplantation: The Abortive Intellectual Property Transplantation in China***

Historical experience has expounded that moderate protection on intellectual property right is necessary. In the 18th, 19th century, Britain, France and Germany were the main technical culture export countries in the world. Concurrently, modern intellectual property laws originated from the three countries and developed significantly subsequently.<sup>526</sup> As a consequence, these countries naturally became the great puissance on intellectual property protection that first appeared in history. However, other European countries, American and Japan, in contrast, belonged to the technical culture importation and legal transplantation countries.<sup>527</sup> While in the 20th century, the U.S., Western Europe and Japan turned into the main forces of intellectual property protection. Technical culture importation countries were replaced by vast majority of nations which included China and other developing regions, in the next round.

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<sup>524</sup> Ibid 497, p.211

<sup>525</sup> Ibid.

<sup>526</sup> Wu Handong, *Essential Issues Research on Intellectual Property*, Renmin University Press, p.64, 2005.

<sup>527</sup> Ibid;

Observed by technical culture exportation countries' practices, from coetaneous historical perspective, it was noticeable, that intellectual protection level in those areas were higher than the importation countries.<sup>528</sup> In addition, the former group actively intensified international intellectual property legislation as well. For example, in the 19th century, France and Germany jointly push forward the treaty "Paris Convention for the Protection of Industry Property" and "Berne Convention for the Protection of Literary and Artistic Works".<sup>529</sup> Then, TRIPs (Agreement On Trade-Related Aspects of Intellectual Property Rights ) was promoted by the U.S-led developed countries in 20th century. As it showed, there has been a "stable" historic association between technical culture exportation entities and its powerful intellectual property protection.

Montesquieu declared his famous opinion in his book, "[Laws] should be in relation to the climate of each country, to the quality of its soil, to its situation and extent, to the principal occupation of the natives, whether husbandmen, huntsmen, or shepherds: they should have relation to the degree of liberty which the constitution will bear; to the religion of the inhabitants, to their inclinations, riches, numbers, commerce, manners, and customs".<sup>530</sup> Also as Mr Robert M. Cover stated, "law must be meaningful in the sense that it permits those who live together to express themselves with it and with respect to it...".<sup>531</sup> In this regard, we can conclude that law only can exist in suitable environment. The potential ideological collision between the original transplanted legal system and the receiving system has been regarded seriously with increasing requirement of social recognized acceptance and localization of receiving legal society.

The acceptance of western civilization, including legal rules for Asian countries, should be regarded as the passive acceptance of legal transplantation. Asian countries

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<sup>528</sup> Ibid;

<sup>529</sup> Paris Convention for the Protection of Industry Property (1883) ; Berne Convention for the Protection of Literary and Artistic Works (1886).

<sup>530</sup> Montesquieu, *The Spirit of the Laws*. Cambridge University Press, 1989. Robert M. Cover. *Narrative, Violence, and the Law: The Essays of Robert Cover*. University of Michigan Press, 1993.

<sup>531</sup> Robert M. Cover. *Narrative, Violence, and the Law: The Essays of Robert Cover*. University of Michigan Press, 1993. Also see Ni Zhu, "A Case of Legal Transplant: The Possibility of Efficient Breach in China". *Georgetown Journal of International Law*, Vol. 36. 2005.



had transplanted western legal system since latter half of 19 century, when western countries pressed onward colonization in Asian area. Chinese scholars in intellectual property are convinced the course of Chinese intellectual property development is more than a process of sinicizing the west.<sup>532</sup> They are preferring to believe the whole history of Chinese intellectual property development actually witnesses itself vicissitudes from “forced use” stage to “positive adoption” stage, which was a legal transplantation history as well. Intellectual property law localization through rational selection in China per se reveals how to “root” and “absorb” the essence of Western intellectual property law.<sup>533</sup> China has built its considerable advanced intellectual property system yet since establishment of new China.<sup>534</sup>

Regarding the cultural base of modern private law from the aforesaid, Western individualism claim prepared the ground for subsequent intellectual property culture belonging to part of private legal culture. However, the kernel of old Chinese social tradition had been focused on self-sufficient nature economy culture and patriarchal clan family unit.<sup>535</sup> There was infertile culture soil for intellectual property legal transplantation because of incapable affirmation of human beings as the subjects in the society. Confucianism, uplifting influence on Chinese traditional culture over several thousand years, which was inimical to Western culture, corroborates that it is difficult for China to succeed in transplanting intellectual property culture containing a hefty dose of Western civilization.<sup>536</sup> Hence, it seems predestined for Chinese intellectual property transplantation’s failure. Or, rather we might say, China has merely transplanted the outer form of intellectual property legal structure, not entirely the psyche of this culture.<sup>537</sup>

To sum up, there is no consensus on the observation that Confucianism has outright influenced Chinese intellectual property system.<sup>538</sup> Although it is a debated proposition that China has attributed massive infringements to Confucianism, we still have to recognize that Confucianism, as the predominant one of three main philosophies (Confucianism, Buddhism and Daoism) in Chinese traditional

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<sup>532</sup> Ibid 526;

<sup>533</sup> Ibid 526;

<sup>534</sup> Ibid 526;

<sup>535</sup> Ibid 516;

<sup>536</sup> Ibid 516;

<sup>537</sup> Ibid;

<sup>538</sup> Ibid;

civilization, affords the most convincing and widespread cultural explanation for Chinese intellectual property current dilemma left much to be desired. Furthermore, the spirit value of Confucianism, clashing with the basic principle and original intention of intellectual property system, has been long regarded as the most irreconcilable feature which militates against Chinese, or even other Asian countries' intellectual property reforms.<sup>539</sup>

Even countries in Europe, had encountered with such intellectual property protection dilemmas under similar values. No matter domestic copyright matters or transnational copyright distributes, it also appeared to European countries a challenge that was not smooth to solve. Thriving fiction market in England developed with media industry rising in 19th century,<sup>540</sup> but it got bogged down in piracy trouble in American sales market since there was no global copyright protection system for foreign works protection.<sup>541</sup> Before a uniform code or at least a legislation on intellectual property protection establishment, some European countries faced this knotty intellectual property protection problems across borders, like France and Belgium. There happened a large number of pirates of French publications in Belgium in 19th century.<sup>542</sup> Therefore, the pressing issue that Chinese intellectual property development encounters is time shortage if the whole society cognition would accept intellectual property acculturation as its future destiny.

Obviously, elements contained in Chinese traditional culture have not simply posed influence, but even osmosis on Chinese intellectual property protection field. Should those people who eagerly criticized Chinese intellectual property protection development or estimated intellectual property's miserable destiny in China withdraw their unsound words after rigorous consideration?

Intellectual property system, as an exotic, is not able to grow up in unaccustomed climate or infertile soil when sown in various countries. In this regard, the foremost challenge for setting up intellectual property protection system and promoting its further development should emphasize how to realize the localization of intellectual

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<sup>539</sup> Ibid 125.

<sup>540</sup> Ibid 497, p.233. Original resource see William Briggs, "The Law of international Copyright" 40-41, 1906.

<sup>541</sup> Ibid 128. p.58-59.

<sup>542</sup> Ibid 128, p.233.

property protection system in China. No matter how reasonable the western statement that China has long been treated as the “exceptionally creative and inventive” country is,<sup>543</sup> or what an obstinate comment is that China has not hitherto established an intellectual property protection system yet. The Western tone towards current Chinese intellectual property climate should start from the objective evaluation and clear-cut recognition to China’s continuous five thousand years civilization. Otherwise, the conclusions speculated in no doubt will be in vain proved nonsensical.

### **3.5 Social Perspective**

#### ***3.5.1. Culture Lag Theory***

If the cultural aspect of the intellectual property protection panorama is regarded as one important part of philosophical analysis, then the social angle discussion would be another essential part in philosophy treatment.

When the relationship of technology innovation and social change was mentioned, we might work out "Lag Culture" theory. "Lag culture" was expressed by Ogburn, American sociologist, in 1920s: "Where one part of culture changes first, through some discovery or invention, and occasions changes in some part of culture dependent upon it, there frequently is a delay in the changes occasioned in the dependent part of culture".<sup>544</sup> Or "When the material conditions change, changes are occasioned in the adaptive culture. But these changes in the adaptive culture do not synchronize exactly with the change in the material culture. There is a lag which may last for varying lengths of time, sometimes indeed, for many years."<sup>545</sup>

The essence of culture lag mirrors the unsynchronized relationship of the novel technologies adoption and the homologous non-material culture. Material culture transition occurs currently before material technologies change, by and large, in culture lag world. Whereas it also did happen that transformations on non-material

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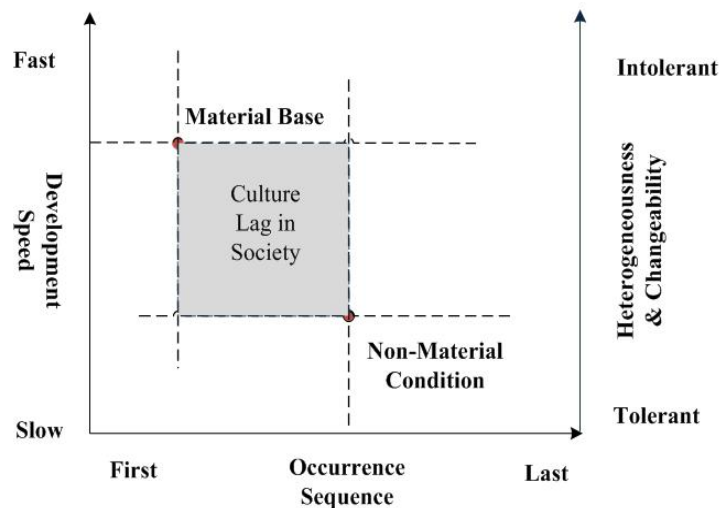
<sup>543</sup> John R. Allison and Lianlian Lin, 'The Evolution of Chinese Attitudes toward Property Rights Invention and Discovery'. *University of Pennsylvania Journal of International Economic Law*, 20. 1999.

<sup>544</sup> James W. Woodard, "Critical Notes on the Culture Lag Concept " *Social Force*, Vol. 12, No. 3, Mar., 1934 p. 388, original resource from William Fielding Ogburn, "*Social Change*", p.201.1922.

<sup>545</sup> Ibid.

adaptive culture took place ahead of material culture variation frequently. According to Marxism, material culture was the determinant of non-material culture. Yet, one vital element of non-material culture would be relatively stable and independent once it comes into being.

In the course of social transition, the development of non-material culture has been lagging behind the progress of material culture and technologies advances all times precede the social perception transformation. According to Ogburn's "culture lag" theory,<sup>546</sup> regarding the change sequence of objects in non-material culture transition, social regime would first vary, then customs and social morality, and last the social values.



**Figure 3.3 General Overview of Culture Lag in Society**

Ogburn used the term of "culture lag" to sum up the time lag of social transition between material culture and non-material culture. Interdependent components under the culture architecture, showed the various development tempos in social progress. Lopsided and incongruous circumstance was triggered by the unsynchronized development of different social culture elements. China has been situating constant and significant social revolutions at this stage, which was the same as what most developing countries had undertaken. In consequence, the conditions of culture

<sup>546</sup> "The role played by material inventions, that is, by technology, in social change probably received most emphasis in the work of William F. Ogburn. It was Ogburn, also, who was chiefly responsible for the idea that the rate of invention within society is a function of the size of the existing culture base. He saw the rate of material invention as increasing with the passage of time. Ogburn believed that material and non-material cultures change in different ways. Change in material culture is believed to have a marked directional or progressive character.....culture lag is defined as the time between the appearance of a new material invention and the making of appropriate adjustments in corresponding area of non-material culture.", <http://www.sociologyguide.com/basic-concepts/Cultural-Lag.php>, access date: 14/09/2015.

maladjustment or culture lag in China has been highlighted thoroughly.<sup>547</sup> For instance, a few regions in China, though, brought in advanced equipment as its material foundation. However, in contrast, material culture and economy evolution had been restricted by technical information, people qualities and social values.<sup>548</sup>

The information technology development has provided a stage for culture communication and progress, which nudges human beings down an unforeseen platform. Cyber culture was also occasioned in information technology growth and its variation. Cyber culture is the outcome of information technology evolution which strikes the traditional culture paradigms. Cyber culture is, as it were, the precondition of culture paradigms conversion. Internet culture has been a double-edged sword so far. Internet culture has crippled traditional culture's predominant position in culture architecture, although it initiated a new culture form.<sup>549</sup>

Information technology enhances the utilization percentage of information resource, however, ironically, cyber culture helped cause a new round of "culture invasion. English-dominated western countries disseminated their ideology, thinking mode and other aspects to non-English speaking regions.<sup>550</sup> Western culture, especially internet culture in the west, in virtue of communication language advantage that it relies on, permeates worldwide.<sup>551</sup> In other words, Western culture failed to spread traditional culture and essence of traditional morality in China through internet. In this regard, it is a great controversial matter that responds to any challenge incurred by cyber culture, which is regarding socio-culture advances.<sup>552</sup>

The heavy burden carried by China historically was expounded under so-called "Sealed China". In 1978, China's reform and opening-up policy was first contemplated and then launched. It was regarded as the real step that China moved forward to meet the western world. Massive obstacles in managing mechanism and property rights system previously has been replaced by culture gap although economy disparity reduced.<sup>553</sup>

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<sup>547</sup> Richard L. Brinkman, June E. Brinkman, "Cultural lag: conception and theory", *International Journal of Social Economics*, Volume 24, Issue 6, p.609-627, (1997).

<sup>548</sup> *Ibid*;

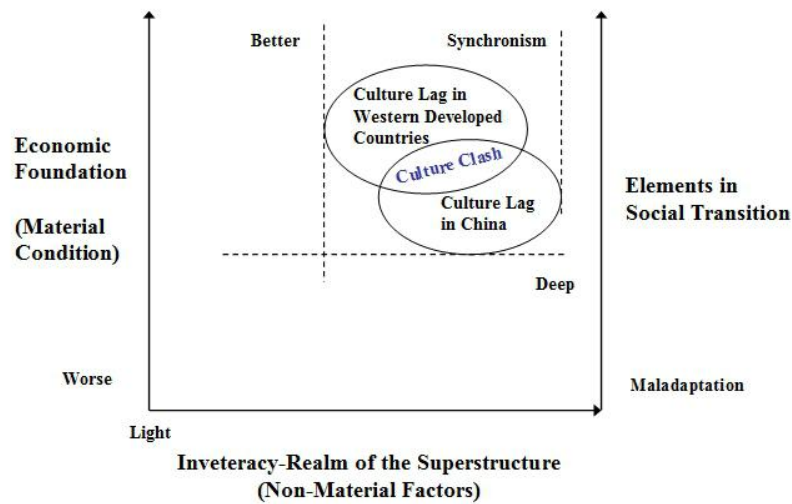
<sup>549</sup> *Ibid*;

<sup>550</sup> *Ibid*;

<sup>551</sup> *Ibid* 497;

<sup>552</sup> *Ibid* 497;

<sup>553</sup> *Ibid* 497;



**Figure 3.4 Culture Lag Architecture between China and the Western Countries**

Inter-sectional part of two "culture lag" objects reveals the underlying "culture clash", which I mentioned above. Then a consequential round of culture lags would take place subsequently in the culture conflict course.<sup>554</sup> What discussed under "culture lag" theory corroborated the theme of cultural analysis section. Culture lag, in a way, aggravates rough intellectual property protection situation. Traditional culture value has posed an important influence to people's identical construction on intellectual area. Even in the digital times, this impact would be more significant.

### **3.5.2 Reciprocal Determinism Theory**

Behavior has been deemed as the most essential factors of human beings, handling merely with what might be observed and could be expressed as a function of individuals and environment.<sup>555</sup> People's behavior has been primarily developed through observation, imitation and modeling,<sup>556</sup> and, is on the basis of constant

<sup>554</sup> Sahay, "Cybermaterialism' and the Invention of the Cyber-cultural Everyday", *New Literary History*, Vol.28, N03, Summer (1997).

<sup>555</sup> Sansone, C., Morf, C. C. & Panter, A. T. *The Sage Handbook of Methods in Social Psychology*, Sage Publications, Inc. 2004.p.119. Lewin's Equation (1939).

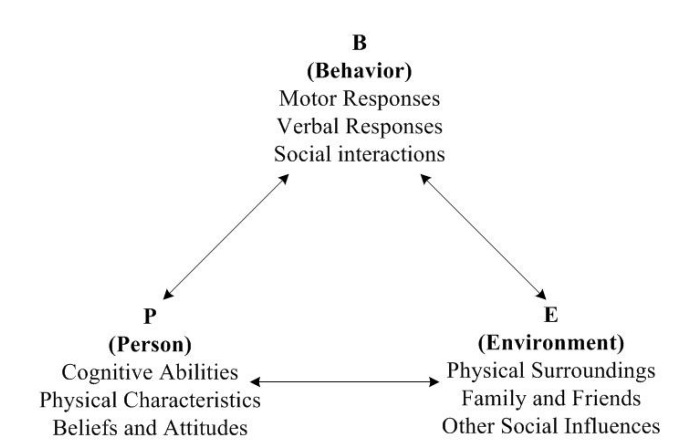
<sup>556</sup> Karen L. Williams Middleton, "Developing Entrepreneurial Behavior, Facilitating Nascent Entrepreneurship at the University", p.23.

[http://vcplis.com/wp-content/uploads/2013/11/Doctoral-Thesis-Developing-Entrepreneurial-Behavior\\_Karen-Williams-Middleton.pdf](http://vcplis.com/wp-content/uploads/2013/11/Doctoral-Thesis-Developing-Entrepreneurial-Behavior_Karen-Williams-Middleton.pdf).

"interaction between the individual and the environment where they manipulates – a phenomenon described as Social Learning Theory".<sup>557</sup>

In a social circumstance, based on Albert Bandura's concept of reciprocal determinism<sup>558</sup>, the surrounding environment of human beings could be affected by their behavior, which in turn can influence actions (and vice versa), "expectations regarding outcomes within certain situations can influence individuals' decisions and intention to change actions, thus impacting self-efficacy"<sup>559</sup>.

The core principle of Reciprocal Determinism theory illustrates "how what we do and who we spend time with our behavior impacts upon and changes the Life Conditions in the environment we experience and how we respond cognitively and emotionally as a Person to the environmental signal we then receive."<sup>560</sup> The environmental feedback's status will cause different and variable reaction of people's behavior, for instance, beliefs, thoughts and manners. Normally, what people will do is based on what sense they obtain from the feedback.<sup>561</sup>



**Figure 3.5 Reciprocal Determinism Theory Architecture** <sup>562</sup>

<sup>557</sup> Bandura, A. 1977. Social Learning Theory, New York, NY, General Learning Press.

<sup>558</sup> Bandura, A. 1978. The self system in reciprocal determinism. American Psychologist, 33, p.344-358.

<sup>559</sup> Bandura, A. 1982. Self-efficacy Mechanism in Human Agency. American Psychologist, 37, p.122-147.

<sup>560</sup> Jeffrey Nevid, 'Essentials of Psychology: Concepts and Applications', Wadsworth, 2012. p.400

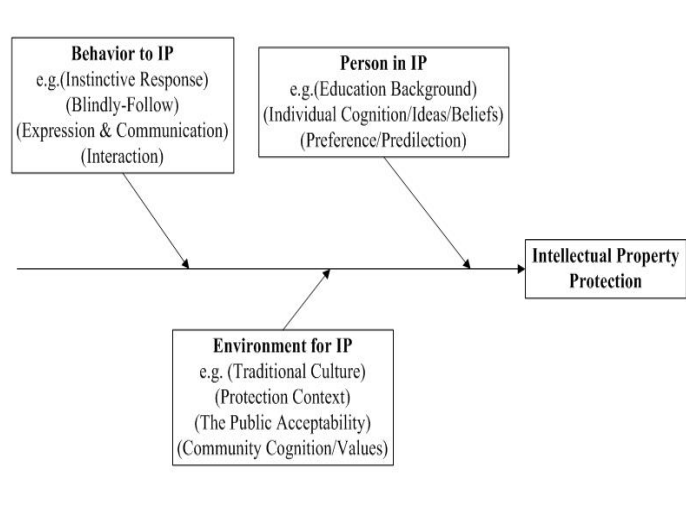
<sup>561</sup> Ibid.

<sup>562</sup> Ibid.

Therefore, in this regard, an individual cannot be completely free, and get his own way totally. As people's behavior is under the control of environment and society, meanwhile, human beings are not the reactors whom are entirely and passively impacted. The interaction between individuals and the society promotes the inner self-regulated system in which cognition is treated as the intermediary agent. They decide mutually and interactively.

For intellectual property architecture in China and Western countries, it is stronger of intellectual property protection awareness in most western countries than that in China. From Reciprocal Determinism Theory perspective, it would be explained that early capitalism initially burgeoned in certain countries in Europe, where people's thinking was molded with local condition. Conversely, China's economic system was fully liberated after 1978, "the Reform and Opening-up Policy".

Certainly, the outer context that would pose an influence on individuals' behavior and cognition was poorer than that in western countries.<sup>563</sup> Till now, the economic and civilized development in China has lagged behind those western nations, although it stepped much faster than those countries. We might observe from the current intellectual property protection situation in China, that the external environment at present, has not been so helpful for shaping their ideology of intellectual property protection.



**Figure 3.6 Reciprocal Determinism Theory-Based Intellectual Property Protection System**

<sup>563</sup> Ibid;



### 3.6 Imitate or Innovate: How Far From Reaching the Goal

Since 1978 (Reform & Open-up Policy),<sup>564</sup> China has had a additional adaptable political surrounding that supported the improvement of its IP framework. In any case, its IP improvement has been beneath a sorry excuse for conventional lawful instrumentalism.<sup>565</sup> At the point when China provides an idea of IP insurance amazingly, its inspiration is not to confirm IP itself.<sup>566</sup> Besides, exchange sanctions by Western nations likewise forced China to think about its IP security level.<sup>567</sup> Thus, "[t]here is an inclination in enactment, locale and even by the educated community, which is making an attempt to enhance Chinese IP assurance models but very much like may well be expected to accomplish [W]estern countries' demands."<sup>568</sup> Moreover, the Chinese culture has emphatically affected open qualities, which is the reason current IP law is as yet confronting trouble in transplanting its cultural qualities.<sup>569</sup>

Provincial protectionism could also be another obstruction for China on the way to executing IP law. Provincial protectionism originates from Chinese standard Provincial political society. The solid regulative force of authorities provides a chance to make provincial protectionism. provincial protectionism is a immense hindrance for IP security.<sup>570</sup> The close government unquestionably underpins its neighborhood endeavors to add to the near economy and in this method permits the neighborhood government to get additional expense pay and different benefits.

Nearby ventures have likewise manufactured a good relationship system with neighborhood government authorities to amass bound comforts in their financial exercises. At the purpose once these endeavors have presented any wrongdoing to

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<sup>564</sup> The process of new policies was from rural reform to urban reform, from reform of economic structure to structures in all fields, and from internal vitalization to external opening-up. Deng Xiaoping was the major leader and chief architect of Chinese reform and opening-up policies.

<sup>565</sup> Chao Xi, "Corporate Governance and Legal Reform in China", Law in East Asia series, Wildy, Simmonds & Hill Publication, 2009, p.15.

<sup>566</sup> Qu Sanqiang, 'One hundred years: Passive Legislation: Chinese intellectual property history'. Peking University Law Journal, Vol.2, 1999.p.122.

<sup>567</sup> Luo Li, 'Intellectual Property Protection of Traditional Cultural Expressions: Folklore in China', Springer, 2014. p.96.

<sup>568</sup> Ibid 573;

<sup>569</sup> Ibid;

<sup>570</sup> 'The IP Commission Report', This report was published on behalf of The Commission on the Theft of American Intellectual Property by The National Bureau of Asian Research. May, 2013. [http://www.ipcommission.org/report/ip\\_commission\\_report\\_052213.pdf](http://www.ipcommission.org/report/ip_commission_report_052213.pdf). Access date: 20/01/2015.

others outside the neighborhood, near government is their best defensive umbrella. This can be the rationale it's exhausting to require trans-provincial execution actions. In an exceedingly few districts honing solid provincial protectionism, it's exhausting to execute the legal call. It clarifies why the rights holder is reluctant to bring a claim against the infringers within the spot wherever the intrusive things area unit made.

Chinese intellectual property records is a transplanting procedure of ruining things through unreasonable eagerness.<sup>571</sup> China has never owned an IP law generally. External pressure has urged China to end the transplantation method in a transient span. Some couple of researchers express the supposition that Chinese IP advancement is a procedure of progress from uninvolved to positive transplantation,<sup>572</sup> but this positive transplantation has been driven by impacts and affectations from abroad.<sup>573</sup>

Ordinarily the procedure of transplanting a legitimate framework is as per the following: at first, fixing a framework, then authorization, then slowly liquefying this into the social and open qualities lastly finishing the procedure of localization. Indeed, a reason of the above procedure is general society psychology of positive acknowledgment, joined with a comparative social environment for both the beneficiary and supplier.<sup>574</sup> Hence, there is a difficulty known with the legitimacy of transplanted law wherever the law is transplanted utilizing a coercive and outside methodology, or wherever the transplanted lawful society breaks down into neighborhood society.<sup>575</sup> Chinese IP law has solely transplanted the legitimate system, although the IP lawful culture still includes a profound Chinese tradition. This is a reason why the Chinese IP framework is less powerful than the Western IP framework.<sup>576</sup>

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<sup>571</sup> NP Stoianoff, 'The Influence of the WTO over China's Intellectual Property Regime', Sydney Law Review, Vol.34-65, 2012, [https://sydney.edu.au/law/slr/slr\\_34/slr34\\_1/SLRV34no1Stoianoff.pdf](https://sydney.edu.au/law/slr/slr_34/slr34_1/SLRV34no1Stoianoff.pdf). access date:01/01/2016.

<sup>572</sup> Wu Handong, 'Intellectual Structure and Cultural Explanation on Transplanting', China Legal Science (Chinese Version), Vol.6, 2007, p. 55.

<sup>573</sup> Hu Chaoyang, 'On the social adaptability of IPR system', Legal Forum(Chinese Version), Vol.3, 2007, p. 85.

<sup>574</sup> Luo Li, 'Intellectual Property Protection of Traditional Cultural Expressions: Folklore in China', Springer, 2014. p.91.

<sup>575</sup> Ibid;

<sup>576</sup> Ibid 579;

Lawful transplantation could also be separated into two sorts: one is passive transplantation; the opposite is sure transplantation.<sup>577</sup> Passive transplantation insinuate that the procedure of transplanting a law is a forced procedure. The immediate or basic force of this sort of transplantation is outer weight. The transplanted nation or area has virtually no chance to choose whether to transplant or not. Rather, positive legitimate transplantation depends on the wants of society.

### **Interim Conclusion**

The unanticipated technological expansion that is marked by the advent and growth of internet and other groundbreaking innovations caught the legal system largely unprepared and has had many unintended ramifications on copyright laws creating many complications that jeopardizes the efficacy of the most comprehensive international copyright regulatory model. Regarding digital rights management architecture construction, or even intellectual property protection, western countries have primarily adopted judicial approach, whereas in China, both judicial and administrative protection ways are used.<sup>578</sup> The solid administrative interference and frail judicature gives the two-fold track framework an innate imperfection in China.

The transplantation and implementation of international copyright regulatory framework by China has lead to escalating concerns about borrowed laws from other jurisdictions. More than ever, there is an overwhelming need for careful evaluation and scrutiny of foreign regulatory model against the extent of its applicability and relevance in local context. The failure of DRM regulatory model in China indicates there is no single answer to the development of a successful policy response to the copyright challenges in the digital age, but a synergistic combination and articulation of ‘law, infrastructure, cultural change, institutional collaboration and better business model’. For developing countries, legal transplant though unavoidable in most cases, could be carefully selected and tailored to the socio-cultural and economic demands of the country.

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<sup>577</sup> Wang Lijun, ‘On the Definition of Replanting of Law, Leg Forum(Chinese Version), Vol.2, 2004, p.42.

<sup>578</sup> Ibid 155, p.101. (Judicial and administrative protection on Intellectual property rights are called “two-fold track” system or “double track” system in China)

With the progression of the network age and the incessant shrinkage of the world into a ‘global village’ which enhances, stimulates, and encourages a heightened participatory environment, developing nations like China would have to reevaluate and restructure their copyright regulatory model to reflect and accommodate local peculiarities in ways that are tailored and applicable to the Chinese context within the acceptable provisions of conventional international standards of the DRM regulatory model.

## **Chapter 4**

### **Toward An Optimal Architecture: Reconstruction of Digital Rights Management Regulatory Model in China**

#### **4.1 Suggestions on the Direct Coordination of Conflicts**

##### ***4.1.1 Establishment of Effectiveness Principle for TPMs***

The relevant laws of the United States and the European Union have defined the effective TPMs, and it is believed by the United States that only the TPMs that “may allow the copyright owners to prohibit, restrain and restrict others” are effective.<sup>579</sup> In the EU CD, it is believed that only the TPMs that “may allow the holders to control the use of the protected works” are effective. It is simply mentioned in the definition of “TPMs” in the *Regulations for the Protection of the Right of Communication Through Information Network*<sup>580</sup> (Regulations) that the TPMs shall be effective, but no specific standard is specified. With respect to the effectiveness principle for DRM, these outdated TPMs — or those too simple to be circumvented — shall not be protected reasonably, as they may lead to the abuse of the “protection of TPMs” — and even severely restrict the social and cultural development. The DRM system adopted by the copyright holders must implement a barrier in order to prevent the illegal access and use of their works, which may not be cracked by ordinary users with help of the general skills they have mastered, as well as from the general legal

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<sup>579</sup> Directive 2001/29/EC of the European parliament and the Council of 22 May 2001 on the Harmonization of certain aspects of Copyright and Related Rights in the Information Society.

<sup>580</sup> 《中华人民共和国信息网络传播权保护条例》；

tools. Therefore, I propose that a clear explanation and definition be issued to the effectiveness of technical measure in the legal provisions.

In the *Interpretation on Regulations for the Protection of the Right of Communication Through Information Network*<sup>581</sup> by the State Council Office of Legislative Affairs, it is stated that the TPMs protected by law must be legally effective from the legislative spirit of the *Regulations*. But in the *Interpretation*, the wording of "must be legally effective" only excludes the illegal TPMs, and no explanation is made to what is "effective"; in addition, the complexity of the audience determines that the standards vary among people in terms of whether the protection of the technical measure to works is effective. For example, the standards are certainly different between the ordinary users and network professionals. Therefore, in light of the provisions of U.S. DMCA, I believe that the definition of the effective technical measure shall be aimed at ordinary users rather than network professionals,<sup>582</sup> and whether the TPMs are effective shall be against the normal operation of works. The *Regulations* in China only makes provisions for the legal responsibility by deliberately evading or destroying the technical protective measures, rather than the legal responsibility of the holder, due to the abuse of TPMs, or how to undertake legal liability. The fact that rights and obligations are not well matched at the legislative level has strengthened edgewise the rights of DRM users, and has provided a "safeguard" for private business interests and the narrowing of Fair Use.<sup>583</sup>

#### ***4.1.2 Supplement of Exception Clauses to Coordinate the Conflict with Fair Use***

The appearance of digital technology only changes the resource adjustment mechanism rather than people's demands for intellectual achievements within the scope of copyright.<sup>584</sup> The essential purpose of DRM is to prevent the unauthorized use or copyright infringement of digital works in accordance with the copyright owner's intentions, so as to manage and protect the private property rights of copyright holders. The legal protection of the technical measure is in essence a kind of benefit adjustment mechanism related to the use of works, namely the conversion

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<sup>581</sup> 《中华人民共和国信息网络传播权保护条例》释义;

<sup>582</sup> George Sadowsky, James X. Dempsey, Alan Greenberg, 'Information Technology Security Handbook', The International Bank for Reconstruction and Development, 2003.

<sup>583</sup> Yafit Lev Aretz, 'The Subtle Incentive Theory of Copyright Licensing', *Brooklyn Law Review*, Vol.80, No.4, p.1357,(2015).

<sup>584</sup> Aram Sinnreich and Patricia Aufderheide, 'Communication Scholars and Fair Use: The Case for Discipline-Wide Education and Institutional Reform', *International Journal of Communication*,9, (2015).

of a direct management mode to an indirect management mode for rights.<sup>585</sup> The Fair Uses of the two are established on the configuration of intellectual achievements within the same range, but the specific adjustment mechanisms are different due to distinctions in the media of intellectual achievements. Therefore, the DRM and its legal protection can be traced to the same origin with the Fair Use in terms of the concept, and the two management modes can be regarded as jointly constituting the generalized copyright law. Furthermore, the infringement of TPMs will constitute copyright infringement in a broad sense. Therefore, I believe that it is actually in line with the true spirit of the limitation system of rights in Copyright Law, to extend the Fair Use to the anti-circumvention exceptional range of DRM on the basis of the benefit balance principle, and oriented by the coordination of rights and obligations.<sup>586</sup> *Regulations* provides only four circumvention exceptions with exception types that are too narrow, and the *Regulations* further specifies that the circumvention exceptions are only applicable to the works acquired through the information network, excluding other works that were not communicated through the information network. This severely expels the fair use right of the public. In the Article 1201(c)(1) of the U.S. DMCA, the rights of technical measure are restricted on the whole: “Nothing in this section shall affect rights, remedies, limitations or defences to copyright infringement, including fair use, under this title.”<sup>587</sup> The provisions also provide detailed exception regulations of many aspects, such as the disclaimers of the nonprofit library, archives and educational institutions, reverse engineering, the disclaimers of the protection of minors, the protection of personal information and the security testing, which has provided an important reference value for the perfection of copyright legal systems in China.<sup>588</sup> From the perspective of fair use, referring to the traditional copyright law, the anti-circumvention exception clauses shall be further complemented and expanded to coordinate the conflicts between the legal protection of DRM and public interest (in terms of individual learning, study and appreciation, the application of current events, the fair use by libraries and other utilities, the study on encryption and decryption technology for research, the law enforcement and intelligence activities, and the reverse engineering research).<sup>589</sup>

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<sup>585</sup> Michael Birnhack, 'Judicial Snapshots and Fair Use Theory', 5(3) Queen Mary Journal of Intellectual Property p.264-284.(2015).

<sup>586</sup> Ibid;

<sup>587</sup> Lydia Pallas Loren, 'Fair Use: An Affirmative Defense?',90 Washington Law Review ,Lewis & Clark Law School Legal Studies Research Paper No. 2015-12, p.685(2015)

<sup>588</sup> Ibid;

<sup>589</sup> Ibid;

## 4.2 Suggestions on the Indirect Coordination of Conflicts

### 4.2.1 Establishment of Legal Protection System of Privacy Involved in the TPMs

The analysis above on the conflict between the DRM technology and Fair Use does not rule out the capability of the technical measure to collect, store and handle consumers' personal information, so the protection of consumers' internet privacy faces great challenges and threats under the environment of widespread TPMs.

More attention is paid to the protection of personal information in more developed countries: the United States implemented the *Privacy Act* as early as 1974;<sup>590</sup> the *Federal Electronic Communications Privacy Act*,<sup>591</sup> the *Children's Online Privacy Protection Act*<sup>592</sup> and the *Computer Matching and Privacy Protection Act*<sup>593</sup> also have been added into the protection legal systems of privacy rights in the United States. In Article 57 of the Preface of the EUCD, the text reads, "The system can handle the personal data and allow the tracking of online activities, and functional design of technical measure shall be consistent with the provisions related to the protection of personal privacy in the 1995 *European Union 95/46/EC Directive on the Protection of Personal Data*." Thus, the personal information has already been protected by DRM in the United States and Europe. After the EUCD, in April 2004, the European Union also issued the *E-Privacy 2002/58/EC Directive*, which took effect in the EU member states. Meanwhile, the Japanese government enacted the *Copyright Law Amendment* in 1999, near the beginning of the Internet age and implemented the *Personal Information Protection Law* in 2005;<sup>594</sup> and more efforts to increase public awareness of the protection of personal information among Japanese citizens. China ought to follow suit, as personal information ought to be protected and safeguarded by strengthening the education and popularization of individual self-protection. Although the privacy protection laws and regulations in

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<sup>590</sup> The Privacy Act of 1974 (Pub.L. 93 - 579, 88 Stat. 1896, enacted December 31, 1974, 5 U.S.C. § 552a), a United States federal Law.

<sup>591</sup> Electronic Communications Privacy Act of 1986 (ECPA), 18 U.S.C. § 2510-22;

<sup>592</sup> Children's Online Privacy Protection Act of 1998, 15 U.S.C. 6501 - 6505;

<sup>593</sup> The Computer Matching and Privacy Protection Act of 1988 (5 U.S.C. 552a(o) et seq.)

<sup>594</sup> The Personal Information Protection Act (Law No. 57 of 2003) (hereinafter referred to as "Act") <http://mondaq-business.vlex.com/vid/personal-information-protection-law-japan-56695004>, access date : 26/09/2015

China, at this stage, have provided some principle articles and protection instructions for the protection of privacy rights, no provision has been made to protect consumers' privacy — especially in light of the DRM system. We can only hope that the existing regulations will realize their full potential.

The *Law on Protection of the Rights and Interests of Consumers* in China<sup>595</sup> has its exclusive coordination domain, so it has not been considered as an important part of privacy protection. However, it is still expected that the rules of the *Law on Protection of the Rights and Interests of Consumers* will play a role of expansion in the era of new digital media, especially when there is no specific legislation on the protection of information privacy. The extended application of the *Law on Protection of the Rights and Interests of Consumers* may establish the minimum standards that must be followed for the protection of personal privacy involved in the DRM system. In the *Law on Protection of the Rights and Interests of Consumers*, Chapter 2 stipulates the consumer's right to “know, the right to choose and the right to fair trade”, among others; while Chapter 3 also provides many obligations for the operators, such as the observation of laws, the receipt of supervision and informing consumers of the system. The infringement of DRM on the personal privacy of the consumer or user is mainly reflected in the irrational collection and unreasonable utilization of personal data.<sup>596</sup> Therefore, the extended application of the *Law on Protection of the Rights and Interests of Consumers* may be specifically considered from the following perspectives: 1. The collection and use by the digital copyright owners or providers of TPMs of the personal information from the consumers of digital works or other public shall be limited to the protection of copyright in digital goods, and the demands to complete the transaction, without expanding the collection's entire scope of information; 2. The other party shall be fully informed of the purpose and application of the collection, and the use of personal information; 3. The personal information shall not be disclosed or sold in any form without the consent of the consumer, nor shall it be used for any purpose different from the previous one; 4. The information collectors shall take reasonable measures to ensure the integrity and security of personal information, and to prevent the information from loss or disclosure; 5. The privacy rights involved in the technical measure of digital consumers shall be

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<sup>595</sup> 《中华人民共和国消费者权益保护法》;

<sup>596</sup> Aram Sinnreich and Patricia Aufderheide, 'Communication Scholars and Fair Use: The Case for Discipline-Wide Education and Institutional Reform', *International Journal of Communication*,9, (2015).



safeguarded as far as possible through rights relief measures, according to the relevant regulations of the *Law on Protection of the Rights and Interests of Consumers*, once the privacy right of consumer is threatened or infringed.<sup>597</sup> In observing more developed countries, one might conclude that it is necessary for China to develop special laws and regulations to protect personal information, which can be legislated from the following aspects:

### ***1. Distinguish Security and Personal Information.***

Collecting personal information in the network era is inevitable, as the *legislations related to the protection of personal information* shall not only allow TPMs to collect certain personal information, but also to ensure the security of the collected personal information;<sup>598</sup> the government and other organizations, in good faith, shall serve as third parties if a third-party program is adopted.

### ***2. Prevent the excessive collection of personal information.***

Although DRM is allowed to collect personal information, that information must be related to the authorization, tracking and other necessary functions of the copyright, which shall be clearly defined after developing a new personal information protection act.<sup>599</sup>

### ***3. Completely ban the bargaining transaction of personal information and promote corporate self-regulation.***

Faced with the threat of liquidation or bankruptcy, some companies sell personal information as a final struggle to stay afloat; some even make a profit by selling personal information regardless of users' wishes. The harmfulness of such phenomena is so great that it has seriously threatened personal security and social stability.<sup>600</sup> The legislation on the protection of personal information must completely ban such phenomena, and promote corporate self-regulation, so that the corporate world will

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<sup>597</sup> Cohen, M. and Murphy, J. (eds), 'Exploring Sustainable Consumption: Environmental Policy and the Social Sciences', Pergamon (Elsevier Science Ltd), Oxford, 2001.

<sup>598</sup> Ibid;

<sup>599</sup> A Cavoukian, 'Privacy and Digital Rights Management (DRM): An Oxymoron?', <https://www.ipc.on.ca/images/Resources/up-1drm.pdf>, October, 2002, Access date: 10/11/2015.

<sup>600</sup> Ibid 223;

consciously assume their relevant responsibilities.<sup>601</sup>

The *Personal Information Protection Act (Draft)*<sup>602</sup> in China was submitted to the State Council in September 2008, and the government shall promulgate and implement the draft in a timely manner after it is mature. With the development of TPMs, taking example from the Europe, America, Japan and other countries, China shall pay attention to the protection of personal information, promptly revise and update all relevant laws and regulations, and constantly improve the legislation on the protection and security of personal information.<sup>603</sup> China will lay a compacted foundation for the coordination of conflict between the legal protection of TPMs and the Fair Use.

#### ***4.2.2 Improvement on the Regulations of Anti-Unfair Competition***

It can be seen from the analysis above that users of technical measure may act on unfair competitive or monopolistic measures under the legal protection umbrella, which will further affect the legitimate rights and interests of consumers, and even infringe the fair use rights of the public. In order to limit unfair competition of some enterprises related to TPMs, while enacting the DMCA, the United States also improved its *Anti-Trust Law*,<sup>604</sup> which clearly defines that the abuse of rights by the intellectual property holder shall be regulated. In addition to the formulation of provisions prohibiting the circumvention of TPMs in the copyright law, the Japanese government also revised and enlarged in 1999 the *Anti-Unfair Competition Law*, so as to prevent any unfair competition caused by the technical measure and indirectly protecting the rights of the creators and legitimate users. In terms of the promotion of technology updates and anti-monopoly, the *Loi sur le Droit d'Auteur et les Droits Voisins dans la Société de l'Information*<sup>605</sup> was passed in France on June 30, 2006. The law requires the dealer to disclose all DRM formats to competitors, and the

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<sup>601</sup> Peter P. Swire, 'Markets, Self-Regulation, and Government Enforcement in the Protection of Personal Information', <https://www.ntia.doc.gov/page/chapter-1-theory-markets-and-privacy>. Access date: 10/11/2015.

<sup>602</sup> 《中华人民共和国个人信息保护法》(草案); At the time of writing this dissertation, it is still in the early draft stage.

<sup>603</sup> S. Narayanasamy, 'International Conference on Social Science and Management', DEStech Publications, 2014. p.231.

<sup>604</sup> Ibid 78, p.459.

<sup>605</sup> Antoine Gittton, 'Analyse du projet de loi français sur « le droit d'auteur et les droits voisins dans la société de l'information » (y compris les créations des agents publics)', <http://www.droit-technologie.org/upload/dossier/doc/106-1.pdf>, Access date : 26/09/2015.

regulations shall be set up to prevent any kind of media player system from monopolizing the digital music market.<sup>606</sup>

In the laws and regulations in the field of digital rights in China, no response has been made to the threats against competition in the new digital media caused by the DRM system and its anti-circumvention legislation.<sup>607</sup> In the judicial practice, although the judicial interpretation of the Supreme People's Court may reduce the side effects of anti-circumvention legislation to suppress industry competition, these competitive threats may not be completely settled solely by judicial interpretation; in addition, it will require a reevaluation of the legal systems for the threats to dissipate. Therefore, Chinese legislators shall actively respond to unfair competition beyond the legislative intent of the DRM system, and expand the appropriate laws and regulations.<sup>608</sup>

In Chapter 2 of the *Anti-Unfair Competition Law* in China,<sup>609</sup> detailed and specific prohibition provisions have been taken in light of unfair competition behaviors of operators of deceptive trade, mandatory transactions, administrative monopolies, false propaganda, tying sales or the addition of unreasonable conditions. In the meantime, in Chapter 2 "Monopoly Agreement" and Chapter 3 "Abuse of Dominant Market Position" of the *Anti-Monopoly Law* in China, detailed prohibitive provisions have also been taken against the market monopoly by such operators with the help of their dominant market positions. With respect to the abuse of DRM, the tying sale, mandatory and deceptive sales and media, with the help of the digital rights licence agreement and the digital matching technique, and the mandatory tying sale of digital products by the operators in digital industry with the help of their dominant market positions, the nature of these behaviors is completely consistent with the unfair competition and market monopoly behaviors, such as deceptive trade, mandatory transactions and tying sales in the commodity exchange of the traditional market.<sup>610</sup> Therefore, the application scope of the *Anti-Unfair Competition Law* and the *Anti-Monopoly Law* shall be extended, and the corresponding clauses on the abuse of

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<sup>606</sup> D Sobel, 'A Bite out of Apple - iTunes, Interoperability, and France's DADVSI Law', *Berkeley Technology Law Journal*, Volume 22, Issue 1 January, 2007.

<sup>607</sup> Christian Handke and Ruth Towse, 'Economics of Copyright Collecting Societies', *International Review of Intellectual Property and Competition Law*, Vol. 38, No.8, pp. 937-957, (2007).

<sup>608</sup> John Shaw, Sak Onkvisit, 'International Marketing: Strategy and Theory', Routledge, 2008, p.125.

<sup>609</sup> 《中华人民共和国反不正当竞争法》；

<sup>610</sup> Christian Handke and Ruth Towse, 'Economics of Copyright Collecting Societies', *International Review of Intellectual Property and Competition Law*, Vol. 38, No.8, pp. 937-957, (2007).

the DRM system are added to the unfair behaviors and the abuse of dominant market positions, so as to prevent unfair competition and market monopolies caused by the unreasonable or unlawful use of TPMs, thus further protecting the rights and interests of creators and the legitimate users of these works, and indirectly resolving the conflicts between the legal protection of the technical measure and the Fair Use.<sup>611</sup>

Based on the analytic research above, a variety of specific and practical coordinative approaches have been proposed. From a technological perspective, I believe that the conflicts of the parties may be coordinated effectively from the technology containing certain Fair Use rights and the third-party authorization mechanism;<sup>612</sup> the effective manner to coordinate the conflicts is to give full play to the copyright collective management organizations and motivate the innovation of industry associations through the intervention of national and local administrations; from the perspective of judicial practice, I believe that the key to settling these conflicts is to grant the judge discretion, to a certain degree, for the legal protection of the TPMs.<sup>613</sup>

In China, the legislation on the TPMs protection started later than other countries, and the specific provisions are still not enough for the relevant laws and regulations.<sup>614</sup> Based on the aforementioned theoretical analysis, I have explored some detailed and practical legislative proposals from the perspectives of the direct and indirect coordination of conflict between the legal protection of DRM and the Fair Use. In short, I believe that the effectiveness principle shall be further determined for the technical measure to rule out the malignant and illegal TPMs; the copyright term system shall be developed for the technical measure to avoid the "perpetuation" of the digital copyright protection term; the "anti-circumvention exceptions" shall be extended and detailed to ensure the realization of fair use rights. In terms of the latter, the legitimate rights and interests of digital consumers shall be protected to indirectly coordinate the conflicts of the two, by way of the establishment of the protection mechanism of privacy involved in the TPMs and the expansion of the application scope of the Anti-Unfair Competition Law and the Antitrust Law.<sup>615</sup>

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<sup>611</sup> Ibid 47;

<sup>612</sup> Arlene Wilson, 'DRM-an overview', Legal Journals Index, Business Law Review. Vol. 31(1), p.2-7, 2010.

<sup>613</sup> Robert C. Bird and Subhashi C. Jain (eds), Reviewed by John A. Tessensohn, 'The Global Challenge of Intellectual Property Rights European Intellectual Property', Edward Elgar publishing, 2009.

<sup>614</sup> Ibid ;

<sup>615</sup> Ibid;

### 4.3 Coordination Approach of Conflicts in China

#### 4.3.1 Technical Considerations

From the perspective of technology, DRM takes an indifferent attitude toward the Fair Use, and even the copyright law defines the Fair Use vaguely.<sup>616</sup> It can be seen from the analysis above that there is indeed a reasonability and necessity for the Fair Use under the DRM, so it is actually optimal to settle the conflicts between them from the procedures, language, machine expression and other technical means.

The authorization of the use of digital works by the traditional DRM is realized by the pre-implemented system in which the right holders adopt the Extensive Markup Language, the Open Digital Rights Language and other rights expression languages.<sup>617</sup> The rights expression languages formulate restrictions on the permission object, the permission scope, the use time and territory and the payment standards with respect to the work, according to the unilateral demands of DRM users. Although the Fair Use can be realized immediately through a certain pre-implemented system, the demand on further Fair Use of the public is difficult to be fully expressed under the condition that the exclusive rights of holders are too broad, and the system may recognize and reject any acts of the Client beyond the expressed authorized use mode.<sup>618</sup>

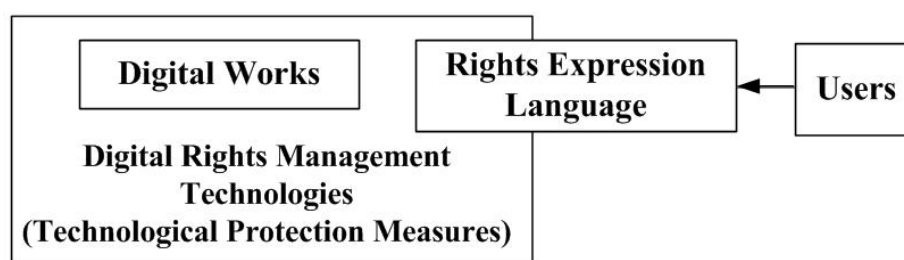


Figure 4.1 Default Mode of Rights Holders System

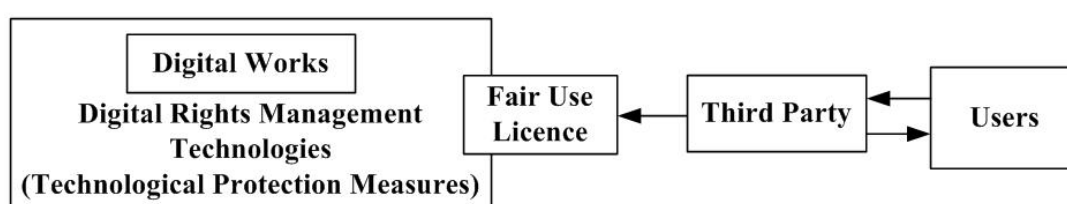
The third-party licencing mode may, to an extent, solve the disadvantages of the

<sup>616</sup> Singer, Peter, 'Mounting a Fair Use Defense to the Anti-Circumvention Provisions of the Digital Millennium Copyright Act'. University of Dayton Law Review, 28 U. Dayton L. Rev. 111 (2002-2003);

<sup>617</sup> Xin Wang, 'Rights Expression Languages in Digital Rights Management', <http://leonardo.chiariglione.org/conferences/dmsd/ipdm06/papers/Rights%20Expression%20Languages%20in%20Digital%20Rights%20Management.pdf>. Access date:10/11/2015.

<sup>618</sup> Ibid;

unilateral licencing mode by the holder. It is mainly solved by the independent third-party mechanism selected and trusted by the transaction parties to undertake the demands on the acceptance, review and approval of Fair Use,<sup>619</sup> thus avoiding the public restriction of the Fair Use for the inflexible and rigid conditions, or the abuse of permission rights by the holder of DRM, in case of only using the preset mode of Rights Expression Language. In the era of the rapid development of the information society and the industrialization of new digital media, the major defect of this mode is the delay of information utilization, caused by the extensive authorization period for the Fair Use.



**Figure 4.2 Third Party License Model**

The Fair Use mode of digital works under the protection of DRM is developed to not only allow the public to exercise the fair use rights without permission, but also to keep the digital copyright owner from losing the monitoring of public infringement acts;<sup>620</sup> this new mode is consistent with the fair use characteristics of the traditional copyright, and is defined as the mode of "fair use process control". (see Fig. 2.4) While retaining the system preset mode and the third-party licensing mode of the holder above, the mode of fair use process control has established the unilateral claim mechanism for user rights as a supplement based on a certain usage rights, so as to ensure that the public may fairly use the digital works without permission from rights holders.<sup>621</sup> Within the specified authority, the user may freely, anonymously and in real time enjoy the fair use right of the personal non-commercial use conditions preset in the DRM and automatically defaulted to be determined by the existing laws, regulations and trading habits; with respect to the fair use beyond the system preset scope, the user may obtain licences from a third party by bearing the risks of the

<sup>619</sup> Ibid 79;

<sup>620</sup> Nicolo Zingales, 'Digital Copyright, "Fair Access" and the Problem of DRM Misuse', Boston College Intellectual Property & Technology Forum, 2002, <http://bciptf.org/wp-content/uploads/2012/08/DRM-final.pdf>, Access date: 10/11/2015.

<sup>621</sup> Aram Sinnreich and Patricia Aufderheide, 'Communication Scholars and Fair Use: The Case for Discipline-Wide Education and Institutional Reform', *International Journal of Communication*, 9, (2015).

inconvenience caused by the authorization delay.<sup>622</sup>

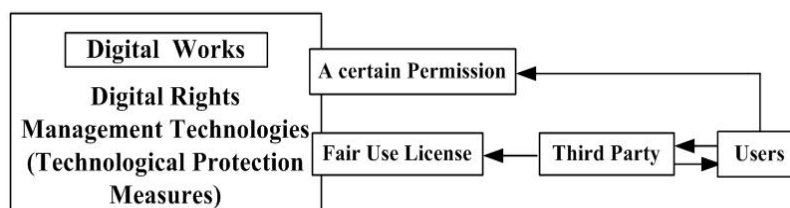


Figure 4.3 Fair Use Course Control Model

### 4.3.2 Administrative Intervention

The state and respective competent authorities shall encourage the innovation in DRM, give full play to and extend the functions of copyright collective management organizations; actively explore the new channel to establish the DRM organizations, and strive to perfect government management of digital copyrights, and coordinate the conflicts between the two from an administrative perspective.<sup>623</sup> First of all, a new mode shall be fully explored by combining the copyright collective management organizations and the DRM.<sup>624</sup> The interest conflict between the copyright holder and users is caused by the development of private reproduction technology, which is an international issue faced by many countries in the late 20th century. Many countries due to providing a thought and solution for this issue — especially the European civil copyright law countries, adopt the copyright collective management system.

At present, the copyright collective management organizations in China are the China Audio & Video Copyright Association and the China Copyright Society of Literary Works, and are mainly responsible for collecting copyright allowances from voice recording equipment, blank audio tapes, copying equipment, Karaoke and other media; and manage and assign these copyright allowances to the authors, publishers, performers, producers and other holders, which can not only compensate for the loss of the copyright holder, but also ensure that consumers have free and unrestricted access to the copyrighted works. However, these copyright collective management organizations shall not collect copyright allowances from the media copying the

<sup>622</sup> Ibid 589;

<sup>623</sup> Ibid;

<sup>624</sup> D Gervais, 'Collective Management of Copyright and Related Rights', Kluwer Law International BV, 2010.

works anymore, since the copyright holder manages his works through the DRM.<sup>625</sup> The DRM can provide a more efficient copyright management and licencing approach with lower cost and more equitable distribution, which brings into question the reasonableness and necessity of the existence of the copyright collective management system. The United States, Europe and other countries and regions have established DRM legislation, all clearly encouraging the development of DRM in order to promote the formation of a more personalized "pay as you go" business model, in which end users pay the royalty every time they acquire the work (or part of the work) on the Internet.<sup>626</sup> There seems to be a conflict between the DRM system and the practice in the copyright collective management system, but they are in fact complementary, and integrated with each other, in fact. The copyright collective management organization has a classic collection system for copyright fees, which can be used to receive licence fees, eliminate the hassle of selling to consumers, encourage the innovation and creation of copyright holders, and balance the interests between the public and the copyright owner.<sup>627</sup> The DRM system cannot only provide a good new copyright fee collection and distribution system for the copyright collective management organization, but also create favorable conditions for the healthy development of digital media. For example, the copyright fees of Karaoke entertainment industry may be collected on demand with help from copyright collective management organizations and the DRM in the network environment, so as to realize a more accurate royalty payment manner, thus making it possible for music creators to profit from their works. The administrative law enforcement departments in China shall encourage copyright collective management organizations to fully develop and use the collection technology of DRM on the basis of the original perfect collection system of copyright licencing fees, so as to give full play to the advantages of the two, which cannot only affirm the benefit balance in the field of traditional copyright, but also lay a compacted foundation for the development of new digital media, the interest protection for the copyright holders of digital works and the supply for the legitimate demands of the public on digital works.<sup>628</sup>

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<sup>625</sup> João Pedro Quintais, 'On Peers and Copyright: Why the EU Should Consider Collective Management of P2P', Munich Intellectual Property Law Center-MIPLC, Bd.14,Nomos,(2012).

<sup>626</sup> Ibid;

<sup>627</sup> BF Fitzgerald, Fuping Gao,Damien O'Brien,Samsung Xiaoxiang Shi, 'Copyright Law, Digital Content and the Internet in The Asia-Pacific', Sydney University Press, 2008.

<sup>628</sup> Vance Little, 'Audiovisual Media Services Directive: Europe's modernization of Broadcast Services Regulations', Journal of Law, Technology and Policy, Vol.2008, No.1, 2008. <http://www.jltp.uiuc.edu/recdevs/little.pdf>. Access date : 26/09/2015



Second, the establishment of industry self-regulatory organizations shall be urged, and the innovation of DRM organizations encouraged. It is clearly stated in the *Cultural Industry Revitalization Plan*, issued in 2009 in China, that, “All cultural industry organizations shall carefully perform market coordination, industry self-regulation, supervision services, rights protection and other functions in accordance with the laws and regulations, so as to promote the healthy development of the industry. China Federation of Literary and Art Circles, the Chinese Writers Association, All-China Journalists’ Association and other people’s organizations shall actively play a role of industry self-regulation and rights protection. China Radio and Television Association, the Publishers Association of China, the Books and Periodicals Distribution Association of China, China Written Works Copyright Society, China Association of Performing Arts, China Film Producers’ Association and China Film Distribution and Exhibition Association shall effectively change their functions, strengthen self-construction and improve the service functions. Efforts shall be made to construct and renovate various industry organizations in the culture field, so as to separate the government departments and the industry organizations”.<sup>629</sup> Therefore, various cultural organizations are required at the policy level to actively explore ideas and innovation in the construction and renovation of various industry organizations in the culture field, while maintaining their own functions.

It is clearly proposed to construct the national uniform public service platform of digital rights in the *Proposal on Strengthening the Digital Copyright Protection and Constructing the National Unified Public Service Platform for Digital Copyright*, submitted by Democratic Progressive Central during the National People’s Congress and the Chinese People’s Political Consultative Conference in 2013.<sup>630</sup> At present, the copyright trading platforms across the country are mostly located in one region, usually shorter in establishment time, smaller in scale, and imperfect in trading norms and standards. Therefore, in order to provide a comprehensive basic service for the digital publishing industry, the national uniform public service platform of digital rights shall be constructed through the integration of the copyright trading platforms

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<sup>629</sup> 《文化产业振兴规划》, [http://www.gov.cn/jrzq/2009-09/26/content\\_1427394.htm](http://www.gov.cn/jrzq/2009-09/26/content_1427394.htm).

<sup>630</sup> 《关于加强数字版权保护, 构建国家级统一数字版权公共服务平台的提案》  
[http://www.sipo.gov.cn/mtjj/2013/201303/t20130306\\_787114.html](http://www.sipo.gov.cn/mtjj/2013/201303/t20130306_787114.html).

across the country as soon as possible; in the meantime, a national digital rights trading market shall be established to further standardize the transaction order and reduce transaction costs, thus promoting the healthy development of the industry. The DRM organization is the basis of further protecting the interests of the digital works, and the business alliance self-organized by the service providers is just like an industry self-regulation organization; in the organization, all operators comply with a common management rule and cooperate with one another to jointly safeguard the copyright market, so as to strengthen the new digital media market. China shall fully learn from the domestic successful innovation examples of DRM organizations, and the experiences of other countries in the developed digital media industry, and actively explore in the road of DRM, which will balance the rights between copyright holders and the public.

#### **4.3.3 *Judicial Expectations***

Due to the relatively conservative legislation combined with the long bureaucratic legislative process, it is difficult for the justice department to make quick legal responses to new issues upon occurrence. Therefore, in China, it is preferred to coordinate the conflicts between the legal protection of DRM and the Fair Use, relying on the judicial practice of intellectual property. The legal protection of DRM is directly aiming at fully protecting the private interests of digital copyright owners and encouraging innovation. However, its fundamental purposes are to benefit the public, to promote the dissemination of new knowledge and ideas, and to enhance the development of new digital media, rather than giving exclusive monopoly rights to copyright owners. The fundamental purposes can also be reflected in the decision that the Defendant is not constituted an infringement by avoiding the TPMs of the Plaintiff in the *Lexmark International vs. Static Control Components*<sup>631</sup> in the judicial practice for U.S. intellectual property and the *Chamberlain vs. Skylink*.<sup>632</sup> Under the traditional "judge-made law" environment, in the cases concretely involving the conflicts between the TPMs and the Fair Use, it seems to be well-reasoned and easier that the courts regulate the social harms against the abuse of DRM implementation and coordinate all conflicts with Fair Use legislatively, and also understand the

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<sup>631</sup> 《关于加强数字版权保护，构建国家级统一数字版权公共服务平台的提案》  
[http://www.sipo.gov.cn/mtjj/2013/201303/t20130306\\_787114.html](http://www.sipo.gov.cn/mtjj/2013/201303/t20130306_787114.html).

<sup>632</sup> *Lexmark International v. Static Control Components*, 2004 U.S. App. LEXIS 22250 at. 7-10.

substance and nature of the conflicts between the two.

Both the object and the impact have significance in the judicial cases involving digital rights given that the digital works are easy to be reproduced and infringed, not to mention well-received, and the relevant legal issues are quite complex. Although the collegiate bench may make legitimate judicial decisions after careful investigation and cross-examination, the dispute between the parties involved may not be settled fundamentally. The rancor may even be deepened to damage the interests of hundreds of millions of internet users because there are many holders of digital works involved meaning the infringement scope is broader than that is difficult to cover. Therefore, the court with judicial adjudication and the Internet Society, Association for Computing Machinery, and other third-party organizations with technical backgrounds in new digital media technology and digital technology, should establish mutual trust relationships or mediation centers to develop mediation mechanisms for the hard cases above related to the digital rights. As this cannot only effectively resolve the disputes of the parties involved, but also improve judicial efficiency and save judicial resources.

#### ***4.3.4 Legislative Suggestions***

The construction of the legal system is the final protective measure. In the analytic chapters above regarding the conflicts between the DRM system and the Fair Use, the objective manifestation of the conflicts between the two are discussed in detail. It includes the existence of the TPMs objectively narrowing the applicable space of Fair Use, and makes the protection period of digital works extended infinitely. Thus leading to the vicious cycle of the “no term of protection ” for digital rights. Due to the lack of restrictions on the finiteness principle of TPMs, digital copyright owners and service providers may abuse the TPMs to excessively protect their private rights, which will further infringe the freedom of speech and restrict the public interest covered by Fair Use. Moreover, the DRM holders may use the protection of the TPMs to unduly collect and utilize personal information of consumers that would conflict with consumer privacy, and indirectly hinder the safeguard of Fair Use. The DRM holders may use legal protection of the TPMs to conduct the unfair or monopolistic competition, which may endanger the legitimate rights and interests of consumers,

users and the public, and even ultimately endanger the implementation of Fair Use by the public. Only specifying the specific coordination rules from the perspective of legislation can fundamentally ensure the harmonious coordination of the two conflicts.

#### **4.4 Alternative Mechanism: Complementary Measures in Digital Rights Management Regulatory Model**

##### ***4.4.1 Correct Positioning of Technological Protection Measures***

The application condition of TPMs is not ideal due to the passive influence put forward above. These measures deviate from the track of technology neutrality,<sup>633</sup> which are tools for copyright holders to gain profits. Should we completely abandon TPMs in that case? Thus, how these measures play their role is determined by our attitudes and approaches, and the key point is to correctly recognize and properly use them.

Even though TPMs have passive influences on copyright, they also play significant roles in the future construction of copyright (which not only play an important role in the current copyright system, but also in various exploration protection models). Judging from legislation, TPMs have become important components in the modern copyright system. During 1996, TPMs were introduced into copyright law when the *Internet Convention* was recognized.<sup>634</sup> The DMCA (DMCA) in the US,<sup>635</sup> along with the European Union's Copyright Directive<sup>636</sup> and the Copyright Law of China,<sup>637</sup> have all stipulated the perfect TPMs and anti-circumvention. And the results of introducing TPMs into copyright law may be due to the lobbying of the copyright industry, which has deviated from technological neutrality as well. It is undeniable, then, that TPMs have become basic technological measures to protect copyright in the digital era.

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<sup>633</sup> Ibid 312, p.517,  
<http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/flr74&div=27&id=&page=,access at: 15/08/2015>.

<sup>634</sup> Article 11 of WPT.

<sup>635</sup> Article 11 of WPT.

<sup>636</sup> 1201 (a) (1) of DMCA.

<sup>637</sup> 1201 (a) (1) of DMCA.

What's more, TPMs have become important means for copyright holders to face difficulties in the digital era. The IFPI believes that DRM provides flexibility and protection for consumers — and most digital music is obtained from digital carriers.<sup>638</sup> Charlie McCreevy, Chairman of the International Market and Service Committee of European Commission, believes that “DRM is a direct means of payment to provide contents to consumers.”<sup>639</sup>

From the perspective of the European Commission, a DRM infrastructure that is global and compatible based on the consensus of various parties is an important guarantee of the current legal system, and is also a premise to effectively provide and obtain secure content. TPMs have become important means to protect copyright in the network environment. Additionally, TPMs are bases of theoretical models of copyright protection. Upon facing the challenge of digital technology, a vast array of scholars have put forth new theoretical assumptions. The network environment is a virtual environment with a wide variety of content. What's more, the adopted protection models are all based on technology, which requires TPMs to differentiate the copyright ownership and benefit distribution. In conclusion, technological measures are the result of digital technology attacking the copyright system. They have shortages, but play important roles in the future constructional pattern of the copyright system.

#### ***4.4.2 Proper Application of Technological Protection Measures Laws in Digital Era***

TPMs have inherent defects. Only through proper application can these measures design the future protection pattern. At first, the reason why current TPMs have negative influences is that these measures are unilaterally driven by copyright holders, without paying attention to social benefits, and violating the principle of technological neutrality. In the future copyright system, we have to change the role copyright holders usually play and move toward a regulating behavior in a technological neutral

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<sup>638</sup> Article 6 (1). 6(3) of Directive 2001/29/EC of the European parliament and the Council of 22 May 2001 on the Harmonization of certain aspects of Copyright and Related Rights in the Information Society.

<sup>639</sup> Charlie McCreevy, 'Address to the EABC/BSA

(EuropeanAmerican' [http://ketlib.lib.unipi.gr/xmlui/bitstream/handle/ket/784/COPYRIGHT\\_eu](http://ketlib.lib.unipi.gr/xmlui/bitstream/handle/ket/784/COPYRIGHT_eu), access datete: 14th/03/2016.

way.<sup>640</sup> Technological protection tools cannot be used for copyright holders' benefits; rather, they should remain a technological means to safeguard interests between copyright holders and the public, as well as to ensure the proper function of new mechanisms of copyright law. In addition, the value of TPMs should be fully expressed: on the one hand, that may be totally free of charge in the network environment, so as to help copyright owners obtain expected business benefits;<sup>641</sup> on the other hand, changing the situation whereby technology tightly controls consumers to give them more freedom and space is another option. Besides this, guarding against the control of TPMs on end consumers is another factor. The fundamental reason why TPMs have so many negative influences is because of the end-control characteristic, which is overseen by copyright holders.<sup>642</sup> To avoid this, the following two points have to be paid attention to: first, distinguish work access and other productive use. TPMs cannot distinguish whether or not users use the work in a reasonable manner, and the controlling of access means that the way copyright works are accessed is inefficient. Therefore, in the digital era, we have to pay attention to the fact that access to the works cannot be controlled. In fact, if the right to copy and spread is under the control of copyright holders, the access to the copyrighted works will not pose threats to their economical interest.<sup>643</sup> The public should be allowed to read books, listen to music and watch movies online. Then, the public is granted access to the copyrighted works and rules, which will also serve the function. Additionally, the control objects of TPMs must be changed. In the network environment, the copyright compensation system is conducted, and TPMs should not control our exposure to digital content, using and spreading works with only certain behaviors.<sup>644</sup> Based on this, control of objects of TPMs change based on that to which they're exposed, using the works to pay. It is believed that the support of the consumer is the key factor in the survival of copyright holders.<sup>645</sup> Judging from this point of view, the demand to protect copyright should not burden the digital content receivers. So, the DRM — with limitations as a basis — can be abandoned to turn to the models with supervision, which has access to secured content at any time. The potential demand of this change

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<sup>640</sup> Lawrence Lessig, 'Free Culture: The Nature and Future of Creativity', Penguin Books, 2005.

<sup>641</sup> 'The Infringement Age: How Much Do You Infringe On A Daily Basis?', <https://www.techdirt.com/articles/20071119/015956.shtml>, access date: 14th/08/2015.

<sup>642</sup> Ibid 157;.

<sup>643</sup> Ibid 79;

<sup>644</sup> Ibid 157;

<sup>645</sup> Eric Priest, 'Copyright Extremophiles: Do Creative Industries Thrive or Just Survive in China's High Piracy Environment?', *Harvard Journal of Law and Technology*, Vol. 27, No. 2, 2014.p.511.

and payment has significant meanings for a successful DRM system. The change of control objects markedly decreases the level of control over end consumers, which enables the public to use works freely, while at the same time guarantees the economic interest of copyright holders.<sup>646</sup>

#### ***4.4.3 Economic Perspective: Market Force***

The DRM regime is now regarded as a novel method that can oversee digital copyright; it is a controversial issue with respect to the conflict between the competition and intellectual property laws.<sup>647</sup> In fact, it is clear that the exploitation of the DRM system is widely used in the digital environment — even today. The impact on the present adoption of DRM technologies not only benefits the traditional market, but it also influences the creative world.

There are a plenty of definitions concerning DRM — meaning a number of different perspectives on the matter. Classically, however, there is no doubt that DRM is more often considered a technical tool to protect and manage intellectual property information and material through the process of creation, communication, distribution and exploitation of digital content.<sup>648</sup>

Since the birth of DRM, its primary target is located within the scope of restricting piracy through technical approaches, and also to preserve intellectual digital content at the same time, in order to guarantee marketing sales channels about digital products and to keep them unblocked. Another goal of the DRM regime is to safeguard the lawful right of the authors, publishers and distributors on intellectual property rights exploitation and interests. The last — but not the least important — reason behind the DRM technology system is to prompt the press to achieve the interest balance between the private owners and the general public.<sup>649</sup>

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<sup>646</sup> Paul Petrick, 'Why DRM Should Be Cause for Concern: An Economic and Legal Analysis of the Effect of Digital Technology on the Music Industry', Berkman Center for Internet & Society at Harvard Law School Research Publication. No. 2004-09.

<sup>647</sup> Paola Magnani, Maria Lilla Montagnani, 'Digital rights management systems and competition: what developments within the much debated interface between intellectual property and competition law?', *International Review of Intellectual Property and Competition Law*, 2008.

<sup>648</sup> Eric Brousseau and Nicolas Curien, 'Internet and Digital Economics: Principles, Methods and Applications', Jun 2007.

<sup>649</sup> Daniel J. Solove, 'Digital Person: Technology and Privacy in the Information Age', (Ex Machina: Law, Technology

Sometimes people prefer to treat the DRM system as an extension of intellectual property rights, and they strongly desire the DRM system to play the same role as the intellectual property rights system that will affect the competitive market. In light of the principle with respect to DRM, the regime's economic character — which is *per se* not collided with the basic aim of antimonopoly regulations — puts its specific and primary functions concerning anti-monopoly into the whole intellectual property legislative system.<sup>650</sup>

From an active economic perspective of judging DRM technology, one might say it provides a platform for network users' consumption. Some officers of the U.S. Federal Trade Commission insist that it is pretty obvious that DRM technology is good for users in that it offers more choices to purchase or download digital works.<sup>651</sup> It is understandable that the most visible advantage of the DRM system is the protection of digital works accords, limiting reproductive rights to the original intention of the DRM establishment. Although the consensus that copyright works protection could be broken both in the physical and digital worlds, DRM is deemed as a ground-breaking and effective attempt of copyright protection.<sup>652</sup>

According to the physical structure of DRM technology, there are two functions to protect the digital copyrighted work from private exploitation (without the right owners' permission). We have been drawn to the area of DRM based on its primary hybrid feature.<sup>653</sup> Driven by both the commercial profit and the legal emphasis, DRM

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and Society), Dec 2004.

<sup>650</sup> Weiser, Philip J. 'Internet, Innovation, and Intellectual Property Policy'. 103 Colum. L. Rev. 534 2003, available at:

<http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/clr103&div=25&id=&page=>, access date: 14/08/2012.

<sup>651</sup> Weiser, Philip J. 'Internet, Innovation, and Intellectual Property Policy'. 103 Colum. L. Rev. 534 2003, available at:

<http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/clr103&div=25&id=&page=>, access date: 14/08/2012.

<sup>652</sup> *Ibid* 87;

<sup>653</sup> Bill Cope and Robin Freeman, 'Digital Rights Management and Content Development: Technology Drivers across the Book Production Supply Chain, from Creator to Consumer', Oct 2001.



always shows marvelous opportunities when it is implemented.<sup>654</sup>

First of all, the existing DRM regime facilitates the calculation of copyright royalties. The DRM automatic calculation system can precisely determine the result of copyright royalties.<sup>655</sup> Secondly, DRM can ensure the security of the transaction. DRM specifically labels the information in the transmission process in order to inform transmitters and the receiver, confirming the order of consumers' identities; indeed, they could help site administrators observe all the users who would like to download copyrighted works from websites via networks, and contribute that information to the final admission of digital content according to the existing lawful agreement between users and websites.<sup>656</sup> For example, if an author merely grants the user access to transmit and sell his digital works in a domestic market, then DRM is surely able to restrict and stop other users from downloading from a foreign IP address. It is not doubtful that the birth and development of DRM have already accommodated the demand for the renewal of rapid information and technology in the digital world.<sup>657</sup>

The economic exploration of the intellectual property hierarchy could arouse two debates that need to be discussed. Copyright holders depend on DRM to prevent consumers from unlawfully accessing copyrighted works. There came an argument that misaligned the incentive of DRM; consequently, one assumption was regarding whether the abuse of intellectual property existed to a greater extent in digital times. Intellectual property rights are tied tightly to the markets, and are also placed in a vital position in relation to the construction of information markets.<sup>658</sup> The other one might focus on the hypothesis that the involvement of DRM brought the consumption market unbalanced benefits among copyright holders, content/service providers and end users.

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<sup>654</sup> John S. Erickson, Ph.D., Hewlett-Packard Laboratories; D-Lib Magazine February 2002; Vol. 8 Number 2

"Digital Rights Management: Business and Technology"

<http://webdoc.sub.gwdg.de/edoc/aw/d-lib/dlib/february02/02bookreview.html;20/07/2010>.

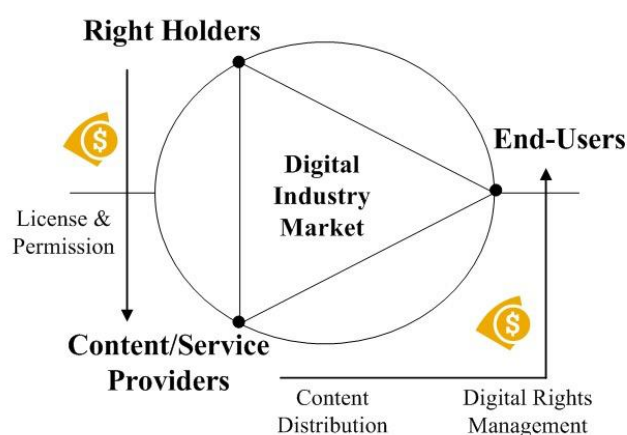
<sup>655</sup> *Ibid*;

<sup>656</sup> Peter Eckersley, 'Virtual Markets for Virtual Goods: The Mirror Image of Digital Copyright?', 18 Harv. J. Law & Tec 85, Fall, 2004

<sup>657</sup> John Logie, 'Peers, Pirates, and Persuasion Rhetoric in the Peer-to-Peer Debates', available at: <http://ebooksgo.org/engineering-technology/PeersPirates.pdf>, access date: 14<sup>th</sup>/08/2010, Parlor Press, West Lafayette, Indiana.

<sup>658</sup> *Ibid* 28;

The internet has thoroughly changed the business model of the digital content industry. The distribution of digital material has become massively cheap. Furthermore, the piracy of digital works has offered users low-cost copies in the digital world, which has led to the invention and ultimately existence of DRM.



**Figure 4.4 Cross-referencing of Three Participants in the DRM System**

If the relationship among the three participants involved in the digital economy has to be precisely defined or described, the pellucid term "money" can fully summarize that. "Money" cannot in any more vulgar a manner locate the positions of each party in an economic matrix. For copyright holders, they hope reasonable reward will be paid through the creation and distribution of digital copyrighted works. Content and service providers, as the middlemen between copyright holders and end users, always chase value maximization. Digital content or information is the end product in the digital market from the consumer's perspective. The factors influencing end users' consumption activities in the digital world vary extensively. Competitive pricing would be among the top priorities for consumers, according to consumer psychology. Alternatively, end users' consumption mentalities reflect the important characteristic of cost preference in consumption value analysis.

As illustrated above, content and service providers are required to obtain the licence or permission from copyright holders, then make profit via digital works distribution. DRM systems are the anti-piracy defenses set by these content and service providers. The whole system achieves the minimum economic loss from digital copyrighted material, and is now adding its appeal for increasing the amount of content and

service providers.

More than any other business models, programs developed by Apple reflect both content owners and end users, with DRM, digital copyrighted works distribution, resulting in a win-win result.<sup>659</sup>

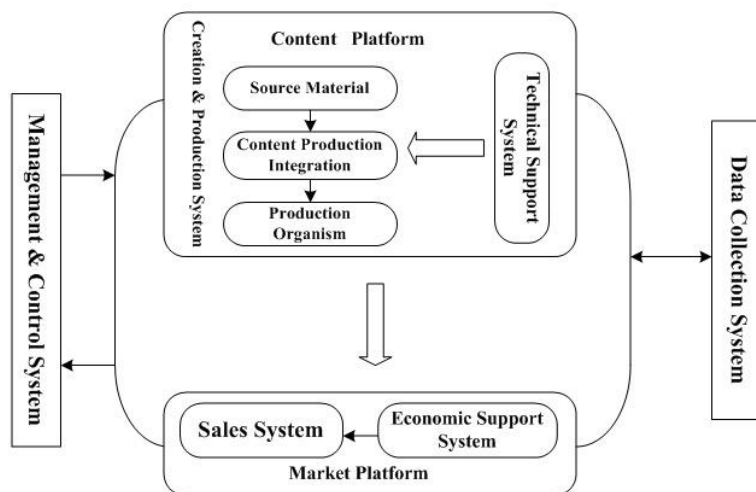


Figure 4.5 Digital Content Industry Structure

Referring to controversial issues with respect to the conflict between the competition and intellectual property laws, we can still pay attention to the novel method that manages digital copyright, which is called the Digital Copyright Management regime.<sup>660</sup> Actually, it is visible that the exploitation of the DRM system is widely used in the digital environment nowadays. The impact on the current adoption of DRM technologies not only benefits the traditional market, but it also influences the creative world. Sometimes people prefer to treat the DRM system as an extension of intellectual property rights, and they strongly desire that the DRM play the same role as intellectual property rights, which will affect the competitive market. In relation to the IPRs, in light of the principle with respect to the DRM regime's economic character (which is not conflicting with the basic aim of anti-monopoly regulations *per se*), its specific and primary function concerning anti-monopoly is put into the whole intellectual property legislation system.<sup>661</sup>

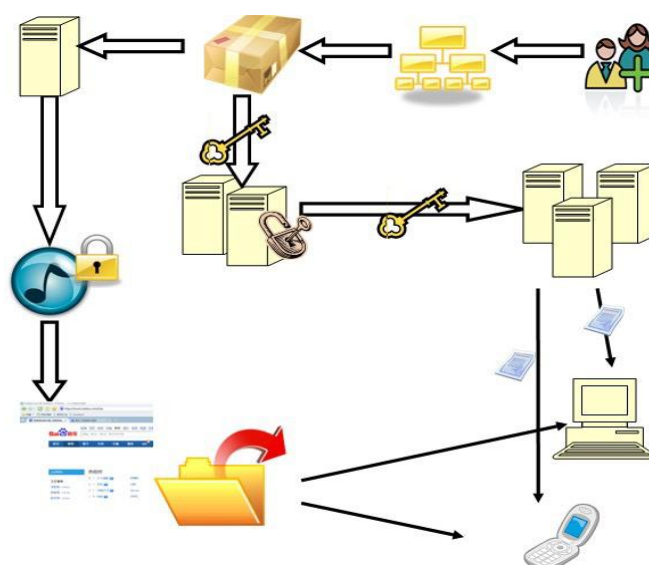
<sup>659</sup> Peter Drahos, "A Philosophy of Intellectual Property", Dartmouth Publishing Company, 1996. p.4.

<sup>660</sup> "Why DRM is Great", [http://www.info-mech.com/drm\\_is\\_great.html](http://www.info-mech.com/drm_is_great.html), access date : 26th/01/2014.

<sup>661</sup> Paola Magnani; Maria Lilla Montagnani. *International Review of Intellectual Property and Competition Law*. Digital rights management systems and competition: what developments within the much debated interface

The working principle of DRM technology is based on the license center of digital works which is able to lock encrypted and compressed digital copyright works through the digital private key. It is accessible via a private ID and URL of the copyright works licence center. The digital copyright works can be played when the users get the credentials from the license center and unlock the route according to the Key ID and the URL. Otherwise, those users who have not obtained the passport of accessing the encrypted digital works cannot download the works to play the program, which would strictly protect the copyright of digital copyright works.<sup>662</sup>

The DRM system consists of three parts: Content Management, Authority Management and Content Distribution. The following flow-process chart visually reflects their respective functions within the entire DRM system.<sup>663</sup>



**Figure 4.6 Digital Content Chain**

- **Content Management Section**

The role of Content Management focuses on the transformation of original media files

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between intellectual property and competition law?. (39), P.83. 2008.

<sup>662</sup> Weiser, Philip J. "Internet, Innovation, and Intellectual Property Policy". *Columbia Law Review*. (103). p.534. 2003.

<http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/clr103&div=25&id=&page=>

<sup>663</sup> Ibid;

into encrypted files, which are protected and stored by the DRM system. Furthermore, Content Management provides tools for producing content (in terms of files forms transformation/information input/etc.); and content encryption/packaging (which are the forms of the final files protected by the DRM system). The copyright-reserved party (e.g. content/service providers) may apply the Content Management function in order to accomplish the process of content producing, content packaging, content transformation and content storage management. In this regard, Content Management, as a whole, can be divided into three subsystems: content producing, content packaging and storage management.

- **Authority Management Section**

As the core of the DRM mode is to content users, this constituent defines itself in the most literal sense: Authority Management makes authoritative rules and produces, distributes and manages licences on the basis of users' requests.

Under specific application circumstances, Authority Management defines the using permission to digital content and issues licences according to transaction request types, user demands and established rules. Licences are encrypted with a secret key prescribed beforehand, and distributed to users through HTTP PUSH, WAP PUSH and other methods.<sup>664</sup> After the licence distribution, Authority Management also works in line with usage condition and users' needs, as well as the cancellation requirement from copyright holders.

- **Content Distribution Section**

This is the most direct connection to end users. Content Distribution controls the content distribution, providing, retrieval and interface downloading; meanwhile, it obtains users' identification information, accepts users' credential requests and gains certificates from Authority Management for users' delivery. Other functions, according to the Content Distribution list, are to oversee user administration, user authentication and reference transactions and fees.

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<sup>664</sup> Ibid 49.

DRM is now the most commonly integrated system in the digital copyright world. However, it is often used as an umbrella term for a series of technology that prevents prohibited access to digital content. The DRM system basically meets the entertainment industry and media companies' demands: decreasing loss through stopping or reducing piracy, and creating profit via the establishment of a payment platform under instructive conditions or rules, which makes consumers' rights clear as well. On the other hand, users may not be fond of these provisions. DRM is not merely a technology for anti-piracy, but also a platform in which content providers can work with marketing strategy neatly, and whereby consumers can enjoy digital content flexibly, and through any medium.

Digital content produces benefits while ensuring the content stays secure. DRM excludes security from its systematic function. However, the DRM system is indeed related to security, since it has begun to take security measures while integrating DRM elements in a commercial mode, which provides accessible content to network users.

The kernel of the DRM system is to establish relevant conditions to play or display media content. The DRM system identifies digital content, defining copyright holders' and consumers' rights, and further interacting with the payment system, which distributes authorization to users. In essence, the DRM system builds the commercial rules involved in intellectual property.

DRM technologies may be applied to old and new commercial modes, although these modes cannot eliminate piracy in a radical way.<sup>665</sup> A deal should be promoted by not just attractive consumption proposals, but also with convenient payment channels. Therefore, a perfect commercial mode should evaluate what DRM can achieve, as well as what they cannot. New business environments give content proprietors opportunities to experiment with improving their existing content as a means of creating pecks of gifts for the orientation toward different consumption capacity users.<sup>666</sup> Indeed, these innovations could produce considerable benefits. It seems a

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<sup>665</sup> Tang Ming. 2008. *Application of Digital Right Management in Music Area*. University of Electronic Science and Technology of China, <http://www.cnki.net/>.

<sup>666</sup> Ibid.

paradox that although piracy in network would create a revolutionary environment for accessing free digital content, other cases from the entertainment and media industries show that the public ought to pay for the digital content, as long as they believe that it is worth paying for.

#### **4.4.3.1 Right holders**

Economic interest is considered the original impetus for digital rights holders' creation. DRM technologies are the protective measures against revenue loss, which reflects rights holders' marketing ambitions. Technology protective measures have increasingly played a role in helping rights-holders turn a profit. <sup>667</sup>

Rights holders deem DRM technology to be the unique solution for copyright protection in the digital world. No matter how fierce the controversial debates are, technologies are not the answer to the interest balance among rights holders, internet content/service providers and end users, simply because of the neutrality of technology. The balance of interest should be realized by digital copyright regulation,<sup>668</sup> and the advent of digital times triggers another debatable matter: copyright holders' rights abuse.

#### **4.4.3.2 Internet Content/Service Provider**

Those who play intermediate roles include publishers, audio-video product manufacturers, film studios, and broadcasting and television stations. As so-called "gatekeepers" of the traditional copyright regime, these mediums, at one point, could not accommodate the particular circumstances.<sup>669</sup> This is since the social information service providers—represented by internet service/content providers, other than traditional intermediate mediums—have intensified the condition in which traditional copyright communication architecture has been challenged. Traditional communication models have likely collapsed in these digital times, along with the

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<sup>667</sup> Marcella Favale, "Death and Resurrection of Copyright between Law and Technology", *Information and Communication Technology Law*, Vol 23, Issue 2, 2014.

<sup>668</sup> Jasper L. Tran, "A Primer on Digital Rights Management Technologies", Chapter 3 in *Digital Rights Managements: A Librarian's Guide*, August 17, 2015,

<sup>669</sup> Floris OW Vogelaar, 'The Compulsory Licence of Intellectual Property Rights under the EC Competition Rules: an analysis of the exception to the general rule of ownership immunity from competition rules', *The Competition Law Review*, Volume 6 Issue 1, 2009. p.117-137.

disruption of gatekeeper rules, which "peer to peer" technologies made to be the acme.<sup>670</sup>

Internet content/service providers, unlike rights holders, are the clusters that indirectly create digital content, but directly access and distribute that content in the cybersphere.<sup>671</sup> The difference between rights holders and internet content/service providers, by their very nature, relies on their diverse features. However, when copyrighted works were thrown into the market, — especially in the digital market — multiple objects became copyright holders. The vast distribution of digital works helped the digital copyright industry shape various channels for end users to access content.<sup>672</sup>

Control-ability of DRM would never have been perfect, especially under the circumstance in which copyrighted works exist without digital mediums. However, this control-ability still equips content/service providers with considerable economic power. Content/service providers might not merely exert rapid and efficient legal protection over copyrighted works, but also set some other contractual obligations for content/service users.

The DRM system is a tool for fulfilling contracts. Additionally, the system helps content/service providers find more flexible ways to make licences or agreements with end users, which are beyond the regulated range of copyright law.<sup>673</sup> To a certain degree, it initiates some novel business models for larger profit in the digital content industry.<sup>674</sup> Price setting, or any other benefit-gaining channels in articles of contracts or licenses made by content/service providers and end users, would enhance the elasticity of the digital content industry — particularly in terms of marketing.

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<sup>670</sup> Stefania Milan, Arne Hintz 'Networked Collective Action and the Institutionalized Policy Debate: Bringing Cyberactivism to the Policy Arena?', Volume 5, Issue 1, March 2013, p.7-26.

[https://stefaniamilan.net/sites/default/files/Milan-Hintz\\_Policy%26Internet.pdf](https://stefaniamilan.net/sites/default/files/Milan-Hintz_Policy%26Internet.pdf), access date:10/11/2015.

<sup>671</sup> Jasper L. Tran, "A Primer on Digital Rights Management Technologies", Chapter 3 in Digital Rights Management: A Librarian's Guide ,August 17, 2015,

<sup>672</sup> Ibid;

<sup>673</sup> Urs Gasser and John Palfrey, 'DRM-protected Music Interoperability and Innovation', Berkman Publication Series, November 2007, <https://cyber.law.harvard.edu/interop/pdfs/interop-drm-music.pdf>, access date:10/11/2015.

<sup>674</sup> Jean Paul Simon, Marc Bogdanowicz, 'The Digital Shift in the Media and Content Industries:Policy Brief', Luxembourg Publications Office of the European Union, 2012, <http://ftp.jrc.es/EURdoc/JRC77932.pdf>, access date:13/08/2015.



#### 4.4.3.3 End Users

The term of “end-user” is essentially used in digital circumstances. It refers to those people who consume the digital copyrighted works online, or "potential follow-on creators creating based on pre-existing copyrighted works".<sup>675</sup> In other words, end users, as the terminal consumers in digital industry market, are the ultimate internet clusters who access and employ copyrighted works. End users cannot be located as simplification, but as a diversified pattern—individuals, agencies (government, libraries, universities and so forth), or other business organizations or content operators/carriers.

From a protective standpoint, consumers — including the end users in the digital environment—are protected by specific consumer protection laws when they are doing digital content transactions. As the gradual globalization goes into all fields, internet users have more opportunities to obtain the network resources from both the local website and other sites abroad.<sup>676</sup> The educated users are more prone to getting details about the process of accessing knowledge and information. In other words, the focal point of new technology for internet users is on the means by which these people get copyrighted information or material. Those internet users tend to have common sense about the behavior acted upon in the digital environment, which cannot acquire the copyrighted works without paying dues.<sup>677</sup>

However, there is one thing I'd like to stress: no matter how advanced DRM technology has become, the truth is that restrictions and limitations on internet users' legal rights under the DRM regime do not fall into the legal scope. It is pretty understandable that the birth of technology has led to improvements in the digital copyright protection environment, and that it has also posed a challenge to the scope of public access — or the degree to which users can access digital copyrighted works.<sup>678</sup> Yet the dissemination of information products does not happen merely at

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<sup>675</sup> Ibid;

<sup>676</sup> John Cahir, "The Structure of Control Communication System and copyright law", *Emerging issues in intellectual property trade, technology, and market freedom : essays in honor of Herchel Smith*, Guido Westkamp(ed), Queen Mary Intellectual Property Research Institute, Center for Commercial Law Studies, University of London, UK, 2007.

<sup>677</sup> Mark A. Lemley, R. Anthony Reese, 'Reducing Digital Copyright Infringement Without Restricting Innovation', 56 *Stanford Law Review* 1345-54, 2004.  
<http://cyber.law.harvard.edu/people/tfisher/Lemley%20Reese%20Abridged.pdf>. Access date:10/11/2015.

<sup>678</sup> Ibid;

the national level — sometimes these legal copyright issues occur on the global level.<sup>679</sup> Therefore, making the specific regulations clear, given the situation, seems very important<sup>680</sup>.

It is visible that existing DRM technologies restrict the private “fair use”. If we accept that the system of “fair use” is a form of copyright restriction, then the DRM scheme would be regarded as another restriction specifically toward “fair use” and “fair dealing”.<sup>681</sup>

First of all, based on the classic authorization-licence model and key element of DRM technology, internet users can merely access digital copyrighted works via successful individual identity certification.<sup>682</sup> Sometimes the certification is far from accessible, however, as the DRM regime has various levels of authorization. Internet users, in fact, already have the “passport” to access intellectual works, but they still wait for permission when it comes to the real access rights.

Moreover, the fair use regime helps the general public to explore the copyrighted works freely within a certain scope. However, there is no specific scope with respect to the “fair use” of copyrighted works in the digital world. The absolute fact aroused by DRM technologies is that this technology controls the channels connected with the exploitation of digital copyrighted works, yet consumers still buy the digital works in vain.<sup>683</sup> For example, if an internet user gets permission to download a single song from one music website, under the DRM technologies principle, they will be limited by DRM to that one song, and could play this piece of music merely on their own PC, but not on other devices. This kind of “repression” concerning the exploitation of DRM technologies is deemed as the chief reason why the DRM regime is not as popular as one would have thought among internet users.<sup>684</sup>

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<sup>679</sup> Giuseppe Mazziotti, "EU Digital Copyright Law and the End-User", Springer-Verlag Berlin Heidelberg, 2008.p.4.

<sup>680</sup> Reducing Digital Copyright Infringement Without Restricting Innovation, Stanford Law Review, Vol. 56, p. 1345, UC Berkeley Public Law Research Paper No. 525662, University of Texas Law, Public Law Research Paper No. 63, University of Texas Law and Economic Research Paper No. 025. (2004).

<sup>681</sup> See the differences between “fair use” and “fair dealing” at “INTRODUCTION” part.

<sup>682</sup> Ibid;

<sup>683</sup> Kevin L. Smith, 'Owning and Using Scholarship:An IP Handbook for Teachers and Researchers',Association of College and Research Libraries, Chicago, 2014.

<sup>684</sup> Jonathan Zittrain, 'The Future of the Internet And How to Stop It',Yale University Press & Penguin UK 2008, [https://dash.harvard.edu/bitstream/handle/1/4455262/Zittrain\\_Future%20of%20the%20Internet.pdf?sequence=1](https://dash.harvard.edu/bitstream/handle/1/4455262/Zittrain_Future%20of%20the%20Internet.pdf?sequence=1). Access date:10/11/2015.

The exploitation of the DRM regime causes privacy problems, as well as that which appears a little knotty to handle within the domestic scope. This DRM system facilitates the process with respect to collecting users' private data, but this kind of activity is hard to supervise, and even more difficult to administer beyond national jurisdiction. In a certain number of countries, users are allowed to adopt some measures to circumvent technical protection and restrict the gathering or diffusion of private information.<sup>685</sup>

Copyright owners are able to escape from developing nations' copyright systematic limitations; they usually sign a contract to transfer their copyright to obtain the considerable profit. The principle of DRM technology is to allow users to access the digital copyrighted works or encrypted material based on the terms with respect to "automatically-enforced licences"<sup>686</sup> —at least in contracts between foreign copyright owners and DRM companies. It is understandable that the copyright legal protection system in developing nations—which seems at first sight to be an effective legal approach—actually restricts the more developed regions' tricks of circumventing the local copyright regulations.

There is no doubt that the general public does not need to explore the information and resource in the public domain with the permission of the authors. However, the DRM technologies are not as familiar as the knowledge in the public domain. It's no wonder that some jurisdictions demonstrate that users were sued by copyright owners, since they have no clear recognition of the legal status of DRM technologies.<sup>687</sup> In other words, these DRM technologies caused uncertainty in commerce when the laws allowed some measures to circumvent DRM, which is intended to preserve copyrighted content and rights holders' interest.

It is much more risky for developing countries to use DRM technology like the developed nations' exploitation, and to place DRM at a crucial position; most users

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<sup>685</sup> Ibid;

<sup>686</sup> Qiong Liu , Reihaneh Safavi-Naini, Nicholas Paul Sheppard , 'Digital rights management for content distribution', *Conferences in Research and Practice in Information Technology Series*; Vol. 34, Adelaide, Australia, p.49 – 58, 2003.

<sup>687</sup> Ibid;

are aware of — and understand — this situation in developing countries.<sup>688</sup>

DRM was deemed as a monopoly tool among rights owners, restricting users from developing regions from accessing the digital copyright material through encrypting digital content by domestic DRM technology.<sup>689</sup> Sometimes, in even worse cases, the restriction of external access to digital content narrowed its scope, preventing the legal exploitation regulated by copyright laws. The DRM system might restrict the resale concerning the digital copyrighted products with regional licence codes, which is another negative effect on developing nations.<sup>690</sup>

Last but not least, regulations concerning DRM or anti-circumvention may cause a passive influence among developing countries' innovation progress.<sup>691</sup> History shows that copyright owners inappropriately explored the rules with respect to DRM mechanisms and anti-circumvention technology, as a means of limiting the competitive rivalry in the market — this would then indirectly lead to monopolies. In other words, small companies are confronted by the hazardous situation brought about by the inappropriate exploitation of DRM technologies and survival of the fittest market choices.<sup>692</sup>

Both the copyright owners and the DRM technology distributors highlight that the authorities should be excluded from the main bodies that have the right to set the unified interoperability criteria. While they are so avaricious that the administrations

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<sup>688</sup> Manon Ress, 'DRM and developing countries', CPTech, Washington DC, USA on: 29/04/05 available at: [http://www.indicare.org/tiki-read\\_article.php?articleId=97](http://www.indicare.org/tiki-read_article.php?articleId=97), access date: 15/08/2010.

<sup>689</sup> Gordon, Wendy J.; Bahls, Daniel, 'Public's Right to Fair Use: Amending Section 107 to Avoid the Fared Use Fallacy', 2007 Utah Law Review 619, 2007, available at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/utahlr2007&div=26&id=&page=>, access date: 14/08/2013.

<sup>690</sup> François Bar, Hernan Galperin, 'Geeks, Cowboys, and Bureaucrats: Deploying Broadband, the Wireless Way'. The Southern African Journal of Information and Communication, Issue No. 6. available at: <http://www.sajic.org.za/index.php/SAJIC/article/viewArticle/155>, access date: 08<sup>th</sup>/08/2013.

<sup>691</sup> Thipsurang Vathitphund, 'Access to knowledge difficulties in developing countries: A balanced access to copyrighted works in the digital environment', International Review of Law, Computers & Technology, Volume 24, Issue 1 March 2010, p. 9-10.

<sup>692</sup> William W. Fisher, Felix Oberholzer-Gee, 'Strategic Management of Intellectual Property: An Integrated Approach', California Management Review, Vol.55, No.4, Summer, 2013. [http://www.hbs.edu/faculty/Publication%20Files/CMR5504\\_10\\_Fisher\\_III\\_7bbf941f-fe1b-4069-a609-9c6cd9a8783b.pdf](http://www.hbs.edu/faculty/Publication%20Files/CMR5504_10_Fisher_III_7bbf941f-fe1b-4069-a609-9c6cd9a8783b.pdf). Access date: 10/11/2015. Also see Cong, Xu, 'Redefinition of Current Legal Measures' Role as "Panaceas" in Digital Rights Management Play', Vol.11, No. 2. February 2014.

could do them a favor regarding the harmonization of the various solutions, sometimes private means conflict with official approaches, and local regulations may collide with international treaties (with respect to the protection of technological measures and knowledge sharing with the general public).

Many opponents disagree with the exploitation of DRM technology and technical protection measures that have already raised a lot of controversy, since they pose an adverse influence on many fronts. As I mentioned above, DRM technology and other digital copyright protective means affect the development of innovation and the technological research. The very existence and development of the DRM system more gradually proves that its marketing prospect will be challenged by the increasing cost and narrow consumerist market.<sup>693</sup>

### **Interim Conclusion:**

While the definition of TPMs in the *Regulations for the Protection of the Right of Communication Through Information Network*<sup>694</sup> (*Regulations*) emphasizes that TPMs shall be beneficial, there is no specified norm to back this up. This has led to a discrepancy in the effectiveness criteria implemented by different countries. While the United States has guidelines that give the power to copyright owners, which according to them make TPMs work better; the EU CD believe in a more free-handed way of functioning, giving the holders more control.

When it comes to DRMs, copyright holders are required to implement a barrier that will prevent the illegal access and use of their works by ordinary users, using universal skills. Due to these irregularities, a clear explanation and definition needs to be issued to ensure the universal effectiveness of technical measure under legal provisions.<sup>695</sup>

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<sup>693</sup> Tehranian, John, 'All Rights Reserved - Reassessing Copyright and Patent Enforcement in the Digital Age', available

at: <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/ucinlr72&div=9&id=&page=>, access date: 14/08/2013, 72 University of Cincinnati Law Review, 45 (2003-2004).

<sup>694</sup> 《中华人民共和国信息网络传播权保护条例》;

<sup>695</sup> Pamela Samuelson, 'Preserving the Positive Functions of the Public Domain in Science', [http://people.ischool.berkeley.edu/~pam/papers/dsj\\_Nov\\_2003.pdf](http://people.ischool.berkeley.edu/~pam/papers/dsj_Nov_2003.pdf), Data Science Journal, Volume 2, 24 November, 2003, access date: 10/11/2015.

This chapter specifically focuses on proposed strategies on the model in China, where there seems to be a fissure in the definition and interpretation of TPMs. This has also led to a difference in standards between ordinary users and network professionals. In China, legal provisions are solely made for deliberate circumvention of technical measures and there is no legal responsibility or liability given to the holder regarding the abuse of TPMs. The discrepancy of rights and obligations at the juridical level has resulted in a shift of muscle towards the rights of DRM users.<sup>696</sup> This in turn creates a dissension in the relationship between DRM and Fair Use.

In developed countries, there is more contemplation towards the protection of personal information. Because of this, personal information is already protected by the DRM. In this regard, China needs to put in place guidelines to protect and safeguard personal information. While there are certain personal privacy laws in place, consumer privacy is still undefended. DRM seems biased, such that, while they serve the purpose of protecting the interests of the copyright owners, the general public have been left out in the cold.<sup>697</sup> The legal system is the last brick in this protective wall.

Technological protection on the other hand has also become a way for copyright holders to gain profit. It in a way ebbs the functionality of the technology itself. Having said that, total abandonment of these measures may not be the solution. They have arisen as a result of digital technology attacking the copyright system. While they may have their shortcomings, they play a crucial role in the further build up of copyright. At the same time though, the exploitation of DRM technology is not unheard of.

On the downside, DRM technology may not be very beneficial to the progress of innovation and technological research. And while they have their merits, the demerits cannot be ignored. Presenting itself as a conundrum, while necessary, the further development of the DRM system will gradually lead towards its marketing prospect being challenged by increasing finances and its repercussions on the consumerist

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<sup>696</sup> N Korn, 'Guide to Intellectual Property Rights and Other Legal Issues', 2005, [http://www.minervaeurope.org/publications/guideipr1\\_0.pdf](http://www.minervaeurope.org/publications/guideipr1_0.pdf), access date:10/11/2015.

<sup>697</sup> Katarzyna Gracz, Primavera De Filippi, 'Regulatory failure of copyright law through the lenses of autopoietic systems theory', *International Journal of Law And Information Technology*, 2014, p.1 - 33.

market.

## Chapter 5

### Conclusion: Specific Recommendations for China's Digital Rights Management Regulatory Model

#### 5.1 Primary Findings

*“[t]he economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Arts.’”*<sup>698</sup>

Yet, the copyright system could no longer perform as the impetus to creation, if it is lacking of modification when the continuous expansion emerges. The expansion of copyright scheme should be deemed as the consequence of technology advancement.<sup>699</sup> Ostensibly, technology progress activates a new type of copyright architecture (digital works), which substantially reduced the cost of reproducing and disseminating works. Moreover, in the most essential sense, it potentially evokes some change of the interest between copyright holders and the public.<sup>700</sup>

Nevertheless, the noisy content industries claim digital technologies has cut down their market share, the consumers still complain they rarely obtain the works without rigorous usage/access restrictions. The role of “accessibility”, or alternatively speaking, “access to works” thus counts for much in the regulatory model design of DRM. It is basically regarded as the proposed approach to achieving creation encouragement and knowledge promotion. But, only appropriate accessibility or defined “access to works” can be acceptable by the copyright system for balancing the interest between creative parties and the general public in the digital era.

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<sup>698</sup> These preliminary remarks shaped by the earlier case *Mazer v. Stein*, See case *Mazer*, 347 U.S. at 219.

<sup>699</sup> *Ibid* 23, p.201.

<sup>700</sup> *Ibid* 23, p.201.

Although it is not entirely clear for individuals to portray the future of technological surroundings so far, it is acknowledged the whole world has a better understanding of the internet.<sup>701</sup> Besides, the sustained “digital challenge”<sup>702</sup> and the need for transitional regulative policies have found the general acceptance. However, there are still many issues and side-effects of DRM regulations (anti circumvention regulation) discussed by the critics.<sup>703</sup>

The cultural tradition of China on intellectual property rights differs notably from that of the West. Confucianism, followed by Communism, never instilled the same stance toward individual ownership of creative works that we observe in Western countries.<sup>704</sup> Although China is trying to align its copyright regulatory system with the standards set by the International Conventions, enforcement has been sloppy and the Chinese people are torpid to use Western eyes on intellectual property rights.<sup>705</sup>

It is time to rethink and revise DRM regulatory model of China in the digital world, on the basis of comparative analysis on international and domestic laws, among various jurisdictions.<sup>706</sup> Hence, minimum efforts on how to structure a fresh regulatory model on the basis of existing substantive practice and unintended consequences should be taken into account if transplanted regulative architecture from other jurisdictions is a must in China.<sup>707</sup>

## **5.2 Keep Legal Flexibility and Certainty: Clear the Definition of Technology Protection Measures**

The definition of TPMs should be included into the anti-device rules. The definition can be expressed as follows: TPMs imply effective technology, equipment as well as parts, that copyright owners adopt to protect their execution right of materials, for which they have copyright or neighboring rights by *Copyright Law*.

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<sup>701</sup> Ibid 1, p.762, 2010.

<sup>702</sup> Ibid 47, p.29, 2006.

<sup>703</sup> Ibid 47, p.54 ,(Prof. Yu stated the DMCA’s problems and side-effects).

<sup>704</sup> Vincent Brodbeck, ‘Using the Carrot, Not the Stick: Streaming Media and Curbing Digital Piracy in China’, Boston University Journal of Science & Technology Law 127,(2013), p.155.

<sup>705</sup> Ibid.

<sup>706</sup> Ibid 19, p.210.

<sup>707</sup> Ibid 1, p.762.



The TPMs, protected by anti-circumvention rules, should be effective since they will be nonsense to protect ineffective TPMs by law. Therefore, whatever the DMCA or EUCD says, they only offer legal protection to effective technology protection measures by giving definitions for their effectiveness.<sup>708</sup> As for the judgment standards of TPMs' effectiveness, a lowest standard scheme has been adopted by the DMCA, which stipulates that technological protection measure will be considered effective as long as consumers have no access to the work without permission from the copyright owner. This method is worthwhile, and can be learned by China. There is no absolutely effective technological protection measure in the entire world; otherwise anti-circumvention rules would be completely unnecessary. Moreover, no matter how effective TPMs protect the interests of copyright owners, they are still legal execution tools.<sup>709</sup> It is law, rather than technology, that gives final relief to copyright owners. Therefore, although copyright owners aim to protect their copyright from infringement by employing TPMs, the realization of the aim can't be seen as the criteria for judging the effectiveness of the technological protection measure. Besides, TPMs are implemented for common consumers; and as such, those measures will be considered effective as long as common consumers without professional techniques have no access to copyrighted materials by those measures.<sup>710</sup>

### **5.3 Distinguish Legal Technology Circumvention Behaviors From Illegal Ones**

The technological circumvention behaviors have diversified purposes, with different consequences as well. Therefore, anti-circumvention rules should be distinguished from technical circumvention behaviors by giving different legal statuses to each category.<sup>711</sup> For example, without the permission of copyright owners, no one is allowed to deliberately circumvent or destroy TPMs that protect the owner's copyright or neighboring rights of their digital works (and sound and video recordings, too). However, this article will be inapplicable if the technical circumvention behavior is necessary to reach a legal goal without damaging the interest of the copyright owner. For instance, scientific researchers can make technical circumvention actions merely for the research, But in this case, information gained from the research cannot be used

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<sup>708</sup> Ibid;

<sup>709</sup> 'Intellectual Property Protection in China', <http://www.fmprc.gov.cn/ce/cegv/eng/zmjg/jgzfbps/t176937.htm>, access date:10/11/2015.

<sup>710</sup> Roger Brownsword and Karen Yeung (eds), 'Regulating Technologies Legal Futures, Regulatory Frames and Technological Fixes', Hart Publishing, Oxford, 2008.

<sup>711</sup> Jia Wang, 'Anti-circumvention Rules in the Information Network Environment in the US, UK and China: A Comparative Study', *Journal of International Commercial Law and Technology*, Vol.3, Issue 1, 2008.

for other purposes beyond the scope of academic communication.

In the first place, anti-circumvention rules should set up a common and general clause related to exempting from technical circumvention — namely, certain circumvention behaviors can be free from liability for particular purposes, which provides the court with the discretion to determine whether or not those technological circumvention activities violate the anti-circumvention regulations. In digital era, technology—especially digital technology—is rapidly developing.<sup>712</sup> So, if laws only carry out a closed list for legal technical circumvention actions, there should be certain ones that remain left out or eliminated due to continuous technology development. Besides, along with the emergence of the digital environment, there may be problems that are never found in the analog environment, with various circumvention situations.<sup>713</sup> For example, technical failure may occur to a certain kind of technological protection measure, and subsequently cause an irregular operation, which further results in the unavailable use of these works encrypted by this technical measures, and even other works. Under some circumstances, consumers have to adopt circumvention actions for those good running techniques. For example, the technology updates rapidly, which certain technologies obsolete fast as well. Therefore, consumers have to sometimes make circumvention of very outdated TPMs for accessing to digital works. Under such circumstances, the technical circumvention should be accepted by law, otherwise copyright will die on account of technology monopoly. Based on this, both American DMCA and EU CD have authorized a committee to discuss the effects of anti-circumvention rules,<sup>714</sup> and at the same time adjust liability exemption cases in technology circumvention architecture.<sup>715</sup>

In China, making a common and general clause for legal technological circumvention, legal officials shall provide regulations for the Supreme People's Court to abide by in

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<sup>712</sup> Thierry Rayna, 'The Economics of Digital Goods: Selling vs. Renting Music Online', DIME Intellectual Property Rights Working Paper No.13,(2009).

<sup>713</sup> Ibid;

<sup>714</sup> Title I of the DMCA requires the Copyright Office to conduct two studies jointly with NTIA, one dealing with encryption and the other with the effect of technological developments on two existing exceptions in the Copyright Act. New section 1201(g)(5) of Title 17 of the U.S. Code requires the Register of Copyrights and the Assistant Secretary of Commerce for Communications and Information to report to the Congress no later than one year from enactment on the effect that the exemption for encryption research (new section 1201(g)) has had on encryption research, the development of encryption technology, the adequacy and effectiveness of technological measures designed to protect copyrighted works, and the protection of copyright owners against unauthorized access to their encrypted copyrighted works. See <http://www.copyright.gov/legislation/dmca.pdf>. Access Date:17/12/2015. While in EU CD,

<sup>715</sup> Ibid;

the course of making judicial interpretation or directive opinion, which will make the rules become more flexible and fair. As far as I am concerned, this general article should include the following elements: First of all, technological circumvention aims to achieve a legal purpose. Second, technological circumvention activities are necessary to complete being purpose. No matter what a person's intentions are, technological circumvention activities will increase the risk of copyright infringement.<sup>716</sup> Only necessary technological circumvention activities that achieve the legal goal can be exempted from the liability by law to prevent copyright infringement. Thirdly, the technical circumvention activities will not cause any damage to copyright owners.<sup>717</sup> The aim of anti-circumvention rules is to protect the benefits of copyright owners, so these rules should only punish those who cause damages to the copyright owners. Practices in both America and the European Union have also proven that the prohibition of technological circumvention activities will shackle scientific research, academic communication and market competition. We can punish those that aim to evoke copyright infringement by intentionally circumventing however.<sup>718</sup>

Similarly, those circumvention behaviors that are conducted by researchers (and only for research purpose) should be ruled out of anti-circumvention rules. Moreover, based on the above situation, the law should allow scientific researchers' circumvention, and also allow providing circumvention devices to their peers and exchanging the information mutually which is obtained in circumvention actions on the basis of research purpose. Of course, if they implement infringement activities, or create convenience for infringement, they have to be liable of copyright infringement.

#### **5.4 Add "Anti-Equipment/Device" Items in the Regulatory Architecture**

The articles related to anti-circumvention devices are of vital importance for the protection of copyright owners in the digital environment. In this regard, China's

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<sup>716</sup> R Mansell, 'Copyright Infringement Online: The Case of the Digital Economy Act Judicial Review in the United Kingdom', Prepared presentation at the Communication Technology & Policy Section, International Association for Media and Communication Research (IAMCR) Conference, Istanbul,13-17, July,2011.  
[http://eprints.lse.ac.uk/36433/1/Copyright\\_infringement\\_online\\_the\\_case\\_of\\_the\\_Digital\\_Economy\\_Act\\_judicial\\_review\\_in\\_the\\_United\\_Kingdom\\_\(LSE\\_RO\).pdf](http://eprints.lse.ac.uk/36433/1/Copyright_infringement_online_the_case_of_the_Digital_Economy_Act_judicial_review_in_the_United_Kingdom_(LSE_RO).pdf), access date:13/08/2015.

<sup>717</sup> Ibid;

<sup>718</sup> Deven R. Desai, 'The New Steam: On Digitization, Decentralization, and Disruption', *Hastings Law Journal*, Vol.65, No.6,(2014).

anti-circumvention provisions should incorporate clauses concerning these.<sup>719</sup> However, the legitimacy of anti-circumvention device provisions (explained by the Supreme People's Court of P.R.C) is challenged because it is beyond the competence of the court, which is also blurred with discrimination, and unsuitable to become part of copyright law.<sup>720</sup> A clearer definition of anti-device provision would be better provided in China. In 2013, *Regulation on the Protection of the Right to Communicate Works to the Public over Information Networks* (hereafter "*Regulation*") was issued in China. For the provision related to "anti-device", article 4 of the *Regulation* has not stated clear.<sup>721</sup> Based on the aforementioned situation, it would be better for China to incorporate an explicit clause for anti-device in circumvention actions, which I propose to express like this, based on the current article 4 of the *Regulation*, "in order to protect the right to...an owner may adopt technical measures. No organization or individual may purposely manufacture, import or provide to the general public any devices that are only used for circumventing the effective technical measures without any other substantial non-infringement use".

Laws should prohibit anyone not only internet service providers, from manufacturing (or providing) circumvention devices. Devices themselves cannot distinguish whether or not a user is infringing copyrighted material.<sup>722</sup> So abandoning everyone from manufacturing and transferring circumvention devices is helpful to protect the rights of copyright owners, and it is more feasible. Those activities, such as reverse engineering, can be regulated with exceptions and limitations.<sup>723</sup>

Anti-device rules should clearly define the connotation of circumvention devices, and

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<sup>719</sup> Aaron Schwabach, 'Intellectual Property Piracy: Perception and Reality in China, the United States, and Elsewhere', TJS Legal Studies Research Paper No. 1022243 Journal of International Media and Entertainment Law, Vol.2, No.1, p.65, 2008.

<sup>720</sup> Ibid;

<sup>721</sup> Article 4 of the *Regulation on the Protection of the Right to Communicate Works to the Public over Information Networks in P.R.C* mentions "anti-device" as "In order to protect the right to communicate works to the public over information networks, an owner may adopt technical measures. No organization or individual may purposely avoid or break the technical measures, purposely manufacture, import or provide to the general public any device or component that is mainly applied to avoiding or breaking the technical measures, or purposely provide such technical services to any other person for the purpose of avoiding or breaking the technical measures, unless it is otherwise provided for by any law or regulation that the relevant technical measures may be avoided."

<sup>722</sup> Ibid;

<sup>723</sup> U Gasser, 'Legal Frameworks and Technological Protection of Digital Content: Moving Forward towards a Best Practice Model', Fordham Intellectual Property, Media and Entertainment Law Journal, Volume 17, Issue 1, 2006.

the word “*device*” serves as a general reference, including tangible machines and accessories and intangible services (think technology as a whole). I think simple device services, or at least parts of them, may contain a complete circumvention<sup>724</sup> action. Furthermore, anti-device rules should also set up standards of judging the circumvention devices; in other words, which kind of equipment should be regarded as circumvention devices.<sup>725</sup> Both American DMCA and EU CD have worked out a relatively low standard: not only equipment that is subjectively designed, manufactured or promoted to evade certain specific technological protection measure, but also those which have limited commercial significance other than to circumvent technical protection measures, are banned by anti-device provisions.

The standards for judging circumvention devices in American DMCA and EU CD are questionable. To begin with, if we prohibit equipment that has limitless commercial significance other than to circumvent TPMs, there should be a wide attack on technological development shackling, because the equipment with limited commercial meaning may be applied to non-commercial — yet legal — activity. Second, it is not reasonable to determine the fate of any technology based on the will of its producer or seller. Whether the equipment is applied to carry out infringement actions depends on the intention of users, but not that of the producer. It is ridiculous that we deny a certain technology when manufactures and distributors produce or promote it since they expect to circumvent it. Finally, the US and the European Union have always adopted high standards with good effects to judge whether or not the equipment in question belongs to circumvention devices. The substantial non-infringing use standard was created in the Sony case<sup>726</sup>, judged by U.S. Supreme Court, stated that people have to ban the circumvention behaviors but not the equipment itself, when the equipment can be used for technological circumvention with practical substantial non-infringing uses, such as reasonably use certified copies.<sup>727</sup> However, in EU Directive, only those equipment that are used to help technological circumvention should be ruled out.<sup>728</sup> Laws ought to fight against illegal activity, but not against the technology itself. Consequently, it is advised that China would be better to adopt

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<sup>724</sup> Ibid 296;

<sup>725</sup> Ibid 296;

<sup>726</sup> Sony Corp. of America v. Universal City Studios, Inc., 464 U.S. 417 (1984)

<sup>727</sup> Ibid;

<sup>728</sup> Alex Solo, 'The Role of Copyright in an Age of Online Music Distribution', 19. Media & Arts Law Review 169, (2014).

substantial non-infringing use standards to assess circumvention devices.

There are always conflicts between TPMs and consumers' fair use in the digital environment. Therefore, anti-circumvention rules should make it clear which one should be the priority.<sup>729</sup> It hereby could be summarized by the following explanation of the relationship between TPMs and fair use: when state organs use works that have been published in a reasonable range while performing official business, or copyright works stored in the library (or archives, memorial hall, museum, art gallery, etc.), copyright owners have to provide copies without technological measures or technological circumvention tools or approaches.<sup>730</sup>

### **5.5 Introduce Copyright Term Mechanism into the Digital Rights Management Regulatory System**

If there are still technical protection measures for the digital works beyond the protection term, the general public shall be restricted by not only the technical measure, but also by the *Copyright Law*. It is pointed out that, "the technical measures are not worthy of unconditional recognition and protection by the law, and it just conforms to the public interest and justice requirements to crack them in some cases."<sup>731</sup> The U.S. DMCA, the EUCD and similar laws in Japan and Australia shall be attributed to the "fair use" and the "limitations and exceptions of copyright protection"; I believe that the behavior "to crack the protection of technical measure of works beyond the copyright term" shall also be excluded from the infringement act, and included in the circumvention exception clauses of technical measure. If the works with knowledge and information in the public domain are beyond the scope of the statutory protection period, the technical measure will merely serve to protect the copyright in essence; however, the copyright does not exist at that point. "Mutually dependent, usefulness of having a buffer state in between"<sup>732</sup>—therefore, it is the inevitable requirement and necessary path to realize the public interest by cracking the

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<sup>729</sup> Séverine Dusollier, 'Electrifying The Fence: The Legal Protection of Technological Measures for Protecting Copyright', <http://www.crid.be/pdf/public/4138.pdf>, European Intellectual Property Review 285, 1999. access date:13/08/2015.

<sup>730</sup> Estelle Derclaye, 'Research Handbook on the Future of EU Copyright', Edward Elgar Publishing, 2009.

<sup>731</sup> Ibid;

<sup>732</sup> Patricia Aufderheide, Tijana Milosevic and Bryan Bello, 'The Impact of Copyright Permissions Culture on the U.S. Visual Arts Community: The Consequences of Fear of Fair Use', New Media & Society, Online First, March 10, 2015.

technical measure of digital works beyond the protection term, which is also a manifestation of social justice. In addition, the works in the public domain are the most important way in which the public accesses those works—to exercise the fair use right, to acquire cultural knowledge, to spread the social culture, and to develop the cultural industry;<sup>733</sup> if this circumvention behavior becomes the infringement act for the application of anti-circumvention provisions in the *Copyright Law* and the *Regulations for the Protection of the Right of Communication Through Information Network*, it will be not only contrary to the legislative intention of the *Copyright Law*, but it won't be conducive to the realization of the benefit balance principle of the copyright law, which will ultimately damage the public interest.<sup>734</sup> Therefore, the copyright protection term system of technical measures is a necessity in the substantial sense.

Furthermore, in the *Copyright Law*, and other relevant laws and regulations, the copyright holder shall be required to actively provide ways to crack and circumvent the corresponding DRM measures at the expiry of the protection term of digital works, which is essentially the obligation undertaken by the copyright holder during the term of the copyright protection.<sup>735</sup> But in practice, it is impossible to require the copyright holder to fully relieve these technical measures, due to the wide distribution and large-scale storage of work carriers.<sup>736</sup>

Therefore, another balance mode shall be taken into consideration so as not to affect public access to digital works. Namely the author shall submit the ways in which to crack the copyright authority or competent authorities with targeted digital rights at the expiry of the copyright protection term of digital works.<sup>737</sup> If the copyright owner does not submit the cracking manner to the competent authority, the public shall be exempted from the use of works through self-circumvention of the technical measure. Further, the copyright holders shall cooperate with the administrative law enforcement as they conduct a legal inspection of the network's digital works.<sup>738</sup> The digital rights

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<sup>733</sup> Ibid;

<sup>734</sup> Kirsten E. Martin, 'Understanding Privacy Online: Development of a Social Contract Approach to Privacy', *Journal of Business Ethics*, April 25, 2015.

<sup>735</sup> Neil Weinstock Netanel, 'Copyright and a Democratic Civil Society', *Yale Law Journal*, Vol.106, 1996.

<sup>736</sup> Ibid;

<sup>737</sup> Lloyd, Frank W., Mayeda, Daniel M., 'Copyright Fair Use, the First Amendment, and New Communications Technologies: The Impact of Betamax', 38 *Federal Common Law Journal* 59 (1986-1987).

<sup>738</sup> Mueller, Milton, Kuehn, Andreas, and Santoso, Stephanie Michelle, 'Policing the Network: Using DPI for Copyright Enforcement', *Surveillance & Society*, 2012, 9(4), p.348-364.

may be managed more effectively to coordinate the conflicts of interest between the copyright holder and the public by regulating the existing copyright authorities, integrating their business systems, expanding the scope of management and manner of digital works, or establishing the appropriate DRM organizations, so as to deal with the digitization and mediumisation trend. Thus, it is clear that the term system of technical measure is compatible with the existing specific rules of copyright law.<sup>739</sup>

## 5.6 Concluding Remarks

With respect to the battle between the enforcement on current DRM regulatory model from Chinese government and copyright infringement in network environment, self-regulation set by the internet content providers seems more effective against piracy. If the circumvention actions can be prevented at its source by building users' blacklist database against their further access via locating their IP addresses, it would make sense to predict a decrease of circumvention behavior. Here, self-regulation is also in accord with the traditional Confucian values that prefer mediation between interested parties before getting authorities involved.<sup>740</sup> Therefore, it could not be better that less administrative intervene and even dispensable government regulation in common circumstances when the new DRM regulatory model works.

First, the mission is to make the term "TPMs" simplified and clarified both in the Chinese context and in its English translation to avoid ambiguity and unsuitable adaption of the Chinese definition for this term in current Chinese intellectual property regulation texts, which leads to confusion. Here, I have to emphasize that, with regards to the meaning of TPMs, it should be within the boundary of the statement defined by the WIPO Conventions (WCT and WPPT) and simply restricted to "effective technologies, devices, or components applied by the right holders to prevent access or reproduction (two sorts of acts) of copyright works without prior authorization". In the circumstances, a range of behaviors (like browsing, or making available of works through the information network), already ruled in certain China's regulations, could be incorporated into two types of acts mentioned above. Likewise,

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<sup>739</sup> Ibid;

<sup>740</sup> Vincent Brodbeck, 'Using the Carrot, Not the Stick: Streaming Media and Curbing Digital Piracy in China', *Boston University Journal of Science & Technology Law* 127, (2013), p.155.



better understanding of the expression of TPMs will be achieved if it is explicitly explained much clearer in line with the description provided by international treaties.

Furthermore, current undesirable condition of China's DRM regulatory model, frankly speaking, is attributed to the failed technology and legislation. Technology and legislation, can not work alone in the proposed DRM regulatory model. Whereas a mechanism included the both is expected to overcome the crisis. Therefore, a scenario that technological components can be embodied into TPMs for allowing the circumvention of access/copy control under restricted calculable use.<sup>741</sup> It is certain that this technological scheme should be on the basis of well-designed technologies, which challenges the research and development of technology professional's creations. For the "countable" (minimum)use, it is not fixed. It could be determined based on the negotiations between or among different interest parties, such as copyright holders, content industries, technology developers, NGOs, and consumers.<sup>742</sup>

Next, the recommendation for the updated DRM regulatory model infrastructure in China, is to primarily revise the present regulations by incorporating a detailed exception/limitation provision. On the one hand, it will provide the decision-making foundation for the judges when sizing up "use" is infringing or non-infringing, regarding specific circumvention of TPMs. On the other hand, it will exist as an indispensable supplementary of technological mechanism as well, which I named it, legal mechanism. Besides, technology improvement aforesaid will include a particular unit with automatic or intelligent decoding device for allowing minimum fair use. In this sense, legal mechanism could be promoted by progress of technology. Moreover, it is necessary that a general exception is embodied into copyright legislation. In regard to the the anti-circumvention part, it should clearly express that limitations and exceptions to the exclusive rights of copyright owners would not be confined at all.

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<sup>741</sup> Like the following proposal presented recently: the technological mechanism will automatically prohibit the users to further access the copyrighted work, for example, when they are browsing or reproducing which exceeds certain percentages of the protected works(5-15%). "Under such a mechanism, users only need ordinary knowledge and skills to partially circumvent the TPMs and use the authorized minimum amounts of protected works. Then, the partially circumvented TPMs will go back to function as protection against access or copying of the remaining parts of the works. ". See Jerry Jie Hua, 'Toward A More Balanced Approach: Rethinking and Readjusting Copyright Systems in the Digital Network Era'. Springer-Verlag Berlin Heidelberg, 2014, p.203.

<sup>742</sup> Ibid.

Illegal dealing of circumvention device merely apply to the equipment which is primarily designed or manufactured for the purpose of circumventing “TPMs”, with limited commercially significant purpose or use, should be prohibited. Here, both of the two elements: (1) the fundamental aim for designing and producing this device; (2) restricted commercial purpose or use should be significant; are indispensable. All possible cases/conditions which are regarded as the underlying fair use or non-infringing use will be included by the comprehensive exceptions in copyright system.

Fourthly, judges’ task for devoting themselves into the reform of DRM regulatory model is keeping decision-making prudent when cases related to circumvention disputes are presented for the judgment. It is very vital for them to decide (1) whether the use of “TPMs” satisfies the prerequisite on TPM protection; and (2) whether the acts of circumvention or trafficking of circumvention devices are for uses that fall within the scope of limitations and exceptions in the exclusive rights of copyright owners. In China, the prior cases are not the decisive factors for judicial decision, however, the Supreme Court in China can release judicial interpretations to detail the benchmarks for courts to comply when making decisions case by case.

Then, the weak public intellectual property recognition and public legal recognition in China is also a problem on the road to the DRM regulatory model construction, even intellectual property protection. As discussed in the previous chapters, it is certainly that a well-functioning enforcement architecture of copyright law relies on the basis of a legal rights consciousness.<sup>743</sup> In order to enhance the public consciousness on intellectual property protection in digital times, regular intellectual property education in various regions and communities is necessary, especially in undeveloped regions. In addition to launching the specific intellectual property publicity strategy, the complementary measures such as intellectual property courses and lectures also can be provided.

Indeed, many external factors influence copyright protection and enforcement may be discovered.<sup>744</sup> In addition to initiating DRM regulatory model, it is worth discussing complementary or parallel measures should be introduced for better improving the

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<sup>743</sup> Ibid 1, p.766, 2010.

<sup>744</sup> Ibid 1, p.766, 2010.

protection of copyright system and the interested parties. The effectiveness of the whole architecture depends on how well-functioning the enforcement system are.

Finally, it is understandable that legal regulatory model may not be responsive immediately to rapid technology change. Yet, in order to maintain a relative balance in the copyright system, the establishment of corresponding correction mechanism is highly needed for dealing with new issues and challenges.

However, the recommendations discussed in the thesis are just the first step in the road to perfect China's DRM regulatory model as they provide a basic framework in the first place. It is worthy to devote much effort on many issues concerning digital copyright deserve in future. The regulatory model of DRM is considered as a multiple-track approach with intellectual property regulation, administrative measures and even criminal means. Meanwhile, the interest balance between the copyright holders and the public should not merely depend on national regulatory system but also needs support from bilateral treaties or international conventions.

## **List of Legislation**

- ❖ Administrative Measures for Software Products (P.R.C. 2009)
- ❖ Agreed Statement Concerning the WIPO Copyright Treaty (1996)
- ❖ Agreement of Trade-Related Aspects of Intellectual Property Rights (1994)
- ❖ Berne Convention for the Protection of Literary and Artistic Works (1886)
- ❖ Copyright Law of the People's Republic of China (2010 Amendment) (P.R.C. 2010)
- ❖ Copyright Law of the People's Republic of China (Modified Draft) (P.R.C. 2012)
- ❖ Copyright Law of the People's Republic of China (2nd Modified Draft) (P.R.C. 2012)

- ❖ Copyright Law of the People's Republic of China (Reviewing Modified Draft)(P.R.C. 2014)
- ❖ Decision of the Standing Committee of the National People's Congress on Amending
- ❖ the Copyright Law of the People's Republic of China (P.R.C. 2010)
- ❖ Digital Millennium Copyright Act (U.S.A. 1998)
- ❖ Directive 96/9/EC of the European Parliament and of the Council of March 11, 1996, on the Legal Protection of Databases (E.U. 1996)
- ❖ Directive 2000/31/EC of the European Parliament and of the Council of June 8, 2000, on Certain Legal Aspects of Information Society Services, in Particular Electronic Commerce, in the Internal Market (E.U. 2000)
- ❖ Directive 2001/29/EC of the European Parliament and of the Council of May 22, 2001, on the Harmonization of Certain Aspects of Copyright and Related Rights in the Information Society (E.U. 2001)
- ❖ Directive 2004/48/EC of the European Parliament and of the Council of April 29, 2004, on the Enforcement of Intellectual Property Rights (E.U. 2004)
- ❖ General Principles of the Civil Law of the People's Republic of China (P.R.C. 1986)
- ❖ Interpretations of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Cases Involving Copyright Disputes (P.R.C. 2006)
- ❖ Measures for the Administrative Protection of Internet Copyright (P.R.C. 2005)
- ❖ Measures for the Implementation of Copyright Administrative Punishment (P.R.C. 2009)
- ❖ Provisions of the Supreme People's Court on Certain Issues Related to the Application of Law in the Trial of Civil Cases Involving Disputes over Infringement of the Right to Network Dissemination of Information (P.R.C. 2012)
- ❖ Regulation on the Collective Management of Copyright (P.R.C. 2005)
- ❖ Regulation on the Implementation of the Copyright Law of the People's Republic of China (P.R.C. 2002)
- ❖ Regulation on the Protection of Computer Software (P.R.C. 2002)
- ❖ Regulation on the Protection of the Right to Network Dissemination of Information (P.R.C. 2006)

- ❖ The United States Constitution (U.S.A. 1787)
- ❖ The United States Copyright Act (U.S.A. 1976)
- ❖ The Universal Declaration of Human Rights (1948)
- ❖ WIPO Copyright Treaty (1996)
- ❖ WIPO Performances and Phonograms Treaty (1996)

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<http://www.cnnic.net.cn/hlwfzyj/hlwzxbg/200906/P020120709345337342613.doc> [Accessed 27 June 2013].
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### **Name & Affiliate of Contributors List**

<b>Alberto Sgarzi</b>	CIRSFID, University of Bologna, Italy
<b>Alessandra Malerba</b>	Ph.D Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Arif Jamil</b>	PhD Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Benoit Misonne</b>	Team Leader of IP Key-EU-China New Intellectual Property Cooperation
<b>Bert-Jaap Koops</b>	Ph.D Research Fellow, Tilburg Institute for Law, Technology, and Society (TILT).
<b>Bin Wang</b>	PhD Research Fellow, Leeds University, U.K
<b>Bing-Wan Xiong</b>	Assistant Professor, Law School,

	Renmin University, China
<b>Chih-Ping Chang</b>	PhD Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Chun-Tian Liu</b>	Professor, Head of Intellectual Property Academy, Renmin University, China
<b>Davide Follador</b>	Technical Expert of IP Key-EU-China New Intellectual Property Cooperation
<b>Denard Veshi</b>	PhD Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
	PhD Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Dusan Pavlovic</b>	
<b>Dr. C.M.K.C. Cuijpers</b>	Associate Professor, Tilburg Institute for Law, Technology, and Society (TILT)
<b>Dr. Danny Friedmann</b>	Lecturer Intellectual Property and the Law Course at Faculty of Law, Chinese University of Hong Kong.
<b>Dr. Dina Ferrari</b>	Research Assistant, CIRSFID, University of Bologna, Italy
<b>Dr. Eleni Kosta</b>	Associate Professor, Tilburg Institute for Law, Technology, and Society (TILT)
<b>Dr. Giorgio Spedicato</b>	Adjunct Professor of Intellectual Property Law, University of Bologna, Italy
<b>Dr. Tadas Limba</b>	Associate Professor, Head of Institute of

	Digital Technologies, Faculty of Social Technologies, Mykolas Romeris University, Vilnius, Lithuania
<b>Dusko Martic</b>	PhD Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Eduard Fosch Villaronga</b>	Ph.D Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Eniafe Festus Ayetiran</b>	Ph.D Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Graham Dutfeld</b>	Professor, Law School, Leeds University, U.K
<b>Hai-Jun Jin</b>	Associate Professor, Intellectual Property Academy, Renmin University, China
<b>Ji Huang</b>	Ph.D Researcher Intellectual Property Academy, Renmin University, China
<b>Jian Zhang</b>	Ph.D Research Fellow, Law School, Tilburg University.
<b>Jun-Ping Zheng</b>	Ph.D Research Fellow, Law School, University of Bologna, Italy
<b>L.M.H. (Leonie) de Jong</b>	General Manager, Tilburg Institute for Law, Technology, and Society (TILT)
<b>Li-Zhou Wei,</b>	Ph.D Research Fellow, Max-Plank Institute for for Innovation and

	Competition, Munich, Germany
<b>Lulu Wei</b>	Ph.D Research Fellow, Tilburg Institute for Law, Technology, and Society (TILT).
<b>M.A. Dizon</b>	Ph.D Research Fellow, Tilburg Institute for Law, Technology, and Society (TILT)
<b>Maartje Niezen</b>	Senior Lecturer, Tilburg Institute for Law, Technology, and Society (TILT).
<b>Martynas Mockus</b>	PhD Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Maurice Schellekens</b>	Senior Lecturer, Tilburg Institute for Law, Technology, and Society (TILT).
<b>Mohamed Hegazy</b>	Head of Intellectual Property Office at Information Technology Industry Development Agency (ITIDA), Egypt.
<b>Mohammad Bagher Asghariaghamashhadi</b>	Ph.D Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Prof. Cees Stuurman</b>	Tilburg Institute for Law, Technology, and Society (TILT)
<b>Prof. Dr. Guido Boella</b>	Institute of Informatics, University of Turin, Italy
<b>Prof. Dr. Maria Timoteo</b>	Professor of Comparative Law, Law School, University of Bologna, Italy
<b>Prof. Dr. Massimo Durante</b>	University of Turin, Italy
<b>Prof. Dr. Mindaugas Kiškis</b>	Faculty of Social Policy, Institute of Communication and Informatics,

	Mykolas Romeris University, Vilnius, Lithuania
<b>Prof. Dr. Monica Palmirani</b>	University of Bologna, Italy
<b>Prof. Dr. R.E. Leenes</b>	Head of Tilburg Institute for Law, Technology, and Society (TILT)
<b>Prof. Dr. Reto M. Hilty</b>	Director of Max-Planck Institute for for Innovation and Competition, Munich, Germany
<b>Prof. Dr. Ugo Pagallo</b>	University of Turin, Italy
<b>Prof. Giuseppe Mazziotti</b>	Assistant Professor at Trinity College Dublin, Attorney at-law, Intellectual Property & IT Law Consultant, EU Affairs; CEPS, Université de Versailles St. Quentin-en-Yvelines, International Federation of the Phonographic Industry.
<b>Prof. Jonas Juškevičius</b>	Mykolas Romeris University, Vilnius, Lithuania
<b>Prof. Ryo Shimanami</b>	Graduate School of Law, Kobe University, Japan
<b>Qian Wang</b>	Professor, Intellectual Property Academy, East China University of Political Science and Law, China.
<b>Qing Wang</b>	Professor, School of information Management, Wuhan University, China.
<b>Robert Muthuri</b>	Ph.D Research Fellow (2013-2016), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Shao-Ling Chen</b>	Researcher, Academy of Legal Science,

	East China University of Political Science and Law, China.
<b>Shi-Yu Wang</b>	Ph.D Research Fellow, Intellectual Property Academy, Renmin University, China
<b>Tazia Bianchi</b>	CIRSFID, University of Bologna, Italy
<b>Vaida Kavaliukaite</b>	Editing and publishing assistant at European Institute for Gender Equality & Senior Coordinator of Doctoral Studies, Mykolas Romeris University (April 2013 – October 2014), Vilnius, Lithuania.
<b>Xian-Zhi Ao</b>	Legal Counsel, Legal Counsel at Chrysler Group LLC Shanghai, China.
<b>Xiao-Qing Zhou</b>	Lawyer, Chinainlaw Partners Law Firm.
<b>Yi-An Sun</b>	PhD Research Fellow (2012-2015), Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
<b>Yang Tao</b>	Lecturer, Law School, Central China Normal University
<b>Wei Lizhou</b>	Ph.D Researcher, Max-Planck Institute for Innovation and Competition.
<b>Martin Husovec</b>	Assistant Professor, Tilburg Institute for Law, Technology, and Society, Affiliate Scholar at Stanford Law School's Center for Internet & Society
<b>Zhan Li</b>	Project Officer of IP Key-EU-China New Intellectual Property Cooperation

**AND**

**All the respondents of the study**

- *The exact contribution of all the persons mentioned above is not fully stated*