

Cong Xu

Regulatory Model for Digital Rights Management

Analysis of U.S., Europe and China



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The exact contribution of all the persons mentioned above is not fully stated

Cong Xu

Contents

1	Introduction	1
1.1	Statement of Problem	1
1.2	Research Questions	2
1.3	Overview of Methodology	3
	Reference	5
 Part I Theoretical Perspective of Digital Rights Management Systems		
2	Panorama of Digital Rights Management Systems	9
2.1	How Digital Rights Management Got Here	9
2.1.1	Background of Digital Rights Management	10
2.1.2	Why We Need Digital Right Management	14
2.2	Digital Rights Management Technological Protection Measures	21
2.2.1	Digital Watermarking	21
2.2.2	Fingerprinting	22
2.2.3	Encryption	24
2.2.4	Access Control	26
2.2.5	Use Control (Copy Control)	28
2.3	Digital Rights Management Technology Standards	30
2.3.1	Extensible Rights Markup Language (XrML)	31
2.3.2	Open Digital Rights Language (ODRL)	33
2.3.3	Extensible Access Control Markup Language (XACML)	35
2.3.4	MPEG Rights Expression Language	37
2.4	Digital Rights Management Usage Models	40
2.4.1	Prepaid	40
2.4.2	Rental	42
2.4.3	Subscription	43
2.4.4	Peer-to-Peer	44
	References	48

3	Digital Rights Management Dilemma: Theoretical Context	53
3.1	Culture Perspective	53
3.1.1	Culture Background	54
3.1.2	Traditional Value System	57
3.2	Social Perspective	65
3.2.1	Culture Lag	65
3.2.2	Reciprocal Determinism Theory	67
3.3	Economic Perspective	70
3.3.1	Right-Holders	77
3.3.2	Internet Content/Service Provider	77
3.3.3	End-Users	78
3.4	Socio-Cultural and Economic Matrix for Copyright and Digital Rights Management	82
3.4.1	The Rationality of the Technological Protection Measures of Copyright	83
3.4.2	Types of Consultation Mechanism	85
	References	87
 Part II Comprehensive Analysis of Digital Rights Management		
4	Legislations	93
4.1	Correct Positioning and Proper Application of Copyright Technological Protection Measures	93
4.1.1	Correct Positioning of Technological Protection Measures in Digital Era	93
4.1.2	The Proper Application of Technological Protection Laws in Digital Era	95
4.1.3	Fully Introduce New Technology	96
4.2	The Background of Anti-Circumvention Rules Emergence	101
4.2.1	Technological Measures Legislations	102
4.2.2	Rights Management Information Legislation	103
4.3	Legal Protection of Technological Protection Measures in Different Regions	104
4.3.1	US Level: Digital Millennium Copyright Act in 1998	104
4.3.2	The EU Directives	105
4.3.3	The Path of Digital Rights Management Regulatory Model in China	109
4.4	The Impact of Anti-Circumvention Legislations	114
4.5	Anti-Circumvention Legislations Analysis and Evaluation	115
	References	117
5	Case Law Analysis	121
5.1	Cases in the US	121
5.1.1	Felten v. Recording Industry Assoc. of America	121
5.2	Cases in Europe	122

5.2.1	Finnish CSS Cases in 2007	122
5.2.2	Nintendo v. PC Box	124
5.3	Cases in China	125
5.3.1	Jiangmin Company “Logic Lock” Case in 1997	125
5.3.2	Beijing Jingdiao Technology Ltd. v. Shanghai Naikai Electronic Technology Ltd.	127
	References	130
6	Digital Rights Management Practices	131
6.1	iTunes Model	131
6.1.1	The Emergence of iTunes: Substitute for Illegal File-Sharing Platform	131
6.1.2	iTunes Online Music Store (iTunes Store): Prospective on Digital Rights Management Model	132
6.2	Amazon Kindle	136
6.2.1	High Updating Speed of Devices	136
6.2.2	Abundant Supported Formats	137
6.3	Adobe Content Server	137
6.4	Foxit Digital Rights Management	138
6.5	Ubisoft and Blizzard	138
6.5.1	Blizzard was Proud of the Digital Rights Management System	139
6.6	National Digital Library Project in China	141
6.6.1	Copyright Protection and Construction of Digital Library	141
6.7	China Unicom/China Telecom Platform	144
6.8	Founder Information Industry Group: Apabi Technology	146
	References	148

Part III Proposed Digital Rights Management Model in China

7	Predicament and Countermeasure	153
7.1	Necessity for A New Regulatory Model in China	153
7.1.1	In Terms of Legal Nature: Technological Protection Measures are Private Remedies to Protect Copyright	154
7.1.2	In Terms of Protection Methods: Technological Protection Measures Aim to Control and Consumers	155
7.1.3	Rationality Analysis of Fair Use Under Digital Rights Management	157
7.2	Digital Rights Management Rules in China Against the Socio-Cultural and Economic Matrix: Theoretical Basis for Conflict Regulation	159
7.2.1	Based on the Theory of Copyright Benefit Balance	159
7.2.2	Oriented by the Coordination of Rights and Obligations	161

- 7.3 Legal Protection of Digital Rights Management and Present Situation of Conflict Coordination in China 163
 - 7.3.1 Legal Protection of Digital Rights Management in China 163
 - 7.3.2 Present Situation of Conflict Coordination in China 166
- 7.4 Coordination Approach of Conflicts 167
 - 7.4.1 Technical Considerations 167
 - 7.4.2 Administrative Intervention 169
 - 7.4.3 Judicial Expectations 171
 - 7.4.4 Legislation Suggestions 172
- References 173

Part IV Suggestions on the Improvement of Relevant Legal Systems in China

- 8 A Comprehensive Regulatory Model 177**
 - 8.1 Legislative Suggestions on the Direct Coordination of Conflicts 180
 - 8.1.1 Establishment of Effectiveness Principle for Digital Rights Management 180
 - 8.1.2 Supplement of Exception Clauses to Coordinate the Conflict with Fair Use 181
 - 8.1.3 Introduction of Copyright Term System for the Technological Measures 183
 - 8.2 Legislative Suggestions on the Indirect Coordination of Conflicts 184
 - 8.2.1 Establishment of Legal Protection System of Privacy Involved in the Supporting Technological Measures 184
 - 8.2.2 Improvement on the Laws and Regulations of Anti-Unfair Competition to Prevent the Unfair Competition 187
 - 8.3 Far More Than Judicial Regulatory Model 188
 - 8.3.1 Technology and Law of Social Norms 189
 - 8.3.2 Assimilation of Anti-Circumvention Provisions Based on Internationally Multilateral Treaties 192
 - 8.3.3 Accountability & Liability 202
 - 8.4 Exception Rules of Technological Measures 208
 - 8.4.1 Encryption Research Exception 209
 - 8.4.2 Reverse Engineering Exception 212
 - 8.4.3 Library Evasion Exception Rules 217
 - 8.4.4 Personal Information Protection Exception 222
 - 8.4.5 Exception Rules for the Benefit of the Visually Impaired 226
 - References 235

**Part V The Room for Perfecting China’s Digital Rights Management:
Some Experience Can be Learned from Europe and America**

9 Status Quo and Foreground 241

9.1 Clear the Definition of Technology Protection Measures 241

9.2 Distinguish Legal Technology Circumvention Behaviors
from Illegal Ones 242

9.3 Add “Anti-Equipment” Items in Regulatory Architecture 243

9.4 Comparison Between China and Europe and America 246

9.5 The Development of American Network Copyright Law:
Dominated by Government Under the Promotion
of Practitioners 247

9.6 The Adaptive Development of Copyright Law in Network
Age 249

9.7 Summary 254

References 255

10 Conclusion 257

Chapter 1

Introduction



1.1 Statement of Problem

Prompt progress in the development of information and communication technologies (ICTs) across the globe during the past two decades has brought us to the information society from the purely traditional copyright society with a hundreds of years of history. What is notably different from the traditional copyright society is that the atmosphere (cyber sphere), which constitutes the main part of the information society, has no fixed boundary across the different states or peoples. As the traditional copyright industry in physical world developed and evolved in early information age, its potential destiny in cyber sphere has drawn more attention than before.

Technology is the other crucial element under digital copyright world. On the one hand, technology provides a new protection approach to copyrighted work in network. On the other hand, it widely prohibits the public's access, which leads to the abuse of copyright holder's right. Digital rights management was initiated with the popular will as a digital-based copyright safeguard measure. Gradually, it aroused controversy with the rapid technology development by both the general public and the right holders. Relevant regulatory models on digital rights management in different countries are struggling to seek the positive point for furthering digital copyright sustainability.

In China, traditional copyright regulatory mechanism devotes considerable efforts to combat the thriving digital copyright industry. With the rapid progress of technology, the obvious and rather intuitive pressure of the regulatory model is the diversity of regulative environment in digital era between nations. How the grim situation that digital rights management regulatory model has encountered will be in the future especially in China? This research is based on the situation that occurred in China, which has attracted more increasing discussion on what kind of regulatory model is better for China.

Under the external pressure of being required to establish a fast copyright system in line with international standards, the formulation and revision of the Copyright Law in China considerably use international treaties and the relevant regulations in overseas legislation for reference (like the US and the EU). However, this approach to legislation on digital rights management regulatory model brings about some side effects: (1) logic conflicts between articles; (2) legislation out of date or too rough; (3) leading to the failure of legislative objectives. However, ultimately, international treaties and the relevant regulations in overseas legislation are against local legal context in China. In other words, China needs to establish a better digital rights management regulatory model, which is in line with international requirements, and also in conformity with China's actual conditions.

In this book, as the creative section, with regard to digital rights management regulatory model establishment in China, the following approaches to using international treaties and overseas legislation for reference are suggested: (1) taking a major country in one legal system as a sample for reference; (2) changing from copying the regulations under international treaties without revision to drawing up new precise rules by using native legislative language and according to national circumstances; (3) no hasty alterations to the general international regulations without ample reasons.

1.2 Research Questions

A: Under the external pressure of being required to establish a fast copyright system in line with international standards, the formulation and revision of the Copyright Law and digital rights management model in China considerably use international treaties and the relevant regulations in overseas for reference. Even China has adopted almost the same outer regulatory architecture as Western countries, why does it not work in China?

B: This approach to legislation has been proven to bring about some side effects: (1) learning widely from others' strong points leading to logic conflicts between articles; (2) copying international treaties without revision making the legislation out of date or too rough; (3) altering the general international regulations leading to the failure of legislative objectives. Based on the first research question, the current digital rights management regulatory model is against China's local context, the second research question would be "what kind of regulatory model should be used in China?"

1.3 Overview of Methodology

Many scholars across the globe have begun their research in the comparison between China's regulatory model and the western regulatory pattern. In particular, some scholars from Europe and America have made some preliminary achievements, which have laid out a significant foundation for further research in this area. However, it is also worth mentioning that the more systematic research in this area is becoming pressing and there is gap between the workshop research and the implementation in practice, especially in digital times.

Copyright seems not that new to us, while digital copyright issues, like DRM, may trigger even subsequent social impact. From my perspectives, any academic research shall focus on providing viable and tangible solutions to the problems in practice. The academic research shall be more than staying within the workshop. As such, an empirical approach will be adopted in my research. In doing so, I will try to find out what differences have been figured out in relation to the current digital rights management regulatory models between China, the US and Europe in our informational society, what problems have been brought out regarding China's digital rights management regulatory model, and what solutions are available to tackle those problems. Besides, I will try to use the scientific methodologies in my forthcoming research, including but not limited to the quantitative methodology. Finally, the comparative methodology will also be implemented in my research, including the comparison of the different legal and cultural system of different countries in the world, and I will focus on how such differences will affect the regulatory model of digital rights management architecture.

With regard to the comparative analysis of my research, the main research methods used will be the Functionalism and the Contextualism.¹

Functionalism The definition will be narrowed down in this research paper. It could be acquainted as one vital analytical aspect of digital rights management regulatory model in China, the US and Europe.

- (1) Social needs (C) + Social Mechanism (C) = Social Function (C)
 - (2) Social needs (W) + Social Mechanism (W) = Social Function (W)
- C: China; W: Western Countries

Modelling speaking, the social response can be developed or formulated as the result of the social needs and social mechanism. The dissertation tries to explicitly explain how this formula could work in diverse digital rights management regulatory backgrounds. It would be articulated in the following chapters that the social needs on digital works and digital copyright protection in China, the US and Europe are the same. In other words, the characters of digital copyright played in different countries

¹“[C]ontextualism’ 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” (Schaffer [1], p. 73).

and regions are the same. “The protection of original creative works” stands the equivalent position to “cultural knowledge dissemination” in digital society, whether in developed countries or developing nations. For copyright in China, at least intellectual property matter, it was acknowledged and recognised much later than that in the Western countries.

In this regard, the method of Functionalism is on the same basis of “social needs”. 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 that in practice most countries will probe or chase. It seeks to explore the eventual harmonisation in digital copyright world. Briefly speaking, social functions of digital rights management regulatory model, or we might say, the intellectual property regulatory system in different environments, comes to be approximate rather than be born the same by nature.

In the course of certain social function formation, or to fulfil the same common social function in relation to digital copyright regulatory architecture, it seems to those countries that social mechanism should be the same or at least similar. What the social mechanisms are expected to be formed is the regulatory models.

As argued by some intellects, it is impossible for Functionalism and Contextualism to exist in the same sphere because they conflict with each other, theoretically speaking. Notwithstanding, the battle between Functionalism and Contextualism is not caused by the research methods themselves, but by the research flow or the results.

Contextualism Contextualism will primarily discuss the role of the contexts in which the regulatory model adopted and also the differences and the influence brought by the various regulatory model contexts. As stated in the research, the basic formulas expressed below, in general, could be regarded as the chief train of thoughts on contextualism perspective. The research interpretation of Contextualism follows the identical way of Functionalism.

- (1) Social needs (C) + Social Mechanism (C) = Social Response (C)
 - (2) Social needs (W) + Social Mechanism (W) = Social Response (W)
- C: China; W: Western Countries

Like components in Functionalism formula, “social needs” are assumed the same, as the demand to intellectual creation protection and knowledge spreading in the society does not change under Contextualism.

The social mechanisms can be drawn up from two aspects: legislative mechanisms and non-legislative mechanisms. However, as mentioned above, social mechanism would be the same if we would like to achieve the same social function. Further, the social mechanisms in terms of digital rights management regulatory models in different areas, based on my research, are similar as well. For instance, China established its copyright regulatory system, which almost cites the whole legislative and practical architecture of Western countries. In short, there is little difference between the first components and the second components in formula 1 and 2.

Social Response has been supposed to be the social acceptance and the practical enforcement of the tentative regulatory model on digital rights management in different countries. However, the sums (social response) in the two equations above are hardly approximate, which can be treated as the incentive of the contextualism exploration. What promotes the comparative outcomes with regard to the digital copyright system in particular situations? Context matters.

Functionalism could be thought of as the research premise of Contextualism, otherwise the research components are constant. The research methodology cannot be interpreted in a variable atmosphere so as to ensure the analysis outcome acceptable and convincing.

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1. Schaffer J (2004) From contextualism to contrastivism. *Philos Stud* 1999, 119:73–103

Part I
Theoretical Perspective of Digital Rights
Management Systems

Chapter 2

Panorama of Digital Rights Management Systems



2.1 How Digital Rights Management Got Here

In the progress of human civilization, the emergence and development of copyright system stay closely with advanced technologies, especially the replica technique and communication technology. Each significant technology evolution, as it were, all remained historically recognizable imprints in the blossom of copyright scheme. Inherently, unique value existing in copyright law system has to be challenged by constant technologies development. Fortunately, they get along with each other well in the overwhelming majority of cases to promote copyright system's value and technologies' progress. Generally speaking, this harmony between copyright and technologies existed commonly in the past, at least, in the analogue technique times. The smoothing interaction of copyright system and technologies is not merely in favor of new techniques growth and the public's interest, but also helpful to the development of copyright derivatives market.

Digital technologies was developed first in America in the middle of the twentieth century. The technical basis of digital technology was the binary algorithm, which was created by German Mathematician Gottfried Wilhelm Leibniz in the seventeenth century. "0" and "1" are consist of binary coding, which records massive information and keep as the expression of sound, images and text. Compared with analogue technique, digital technologies made vast information communication come true through small mediums compression technology. Digital technologies pose a revolutionary influence on information storage, reproduction and communication. Briefly, the technical challenges that copyright system met in digital environment are mainly centered on two aspects: one is the novel communication routes, the other one is the large amount of piracy problem.

2.1.1 *Background of Digital Rights Management*

When American Mauchly and Echart invented the first “ENIAC” (Electronic Numerical Integrator and Computer) in 1945,¹ it already indicated that digital technologies had proceeded on its way. In 1946, “EDVAC” (Electronic Discrete Variable Auto Computer) scheme proposed by Mathematician Von Neumann thereupon became the computer prototype in the world. Along with the classification of “software” and “hardware” in 1969 by International Business Machines Corporation (IBM),² the computer products had been increasingly sophisticated from then on. In those days, computers were not popular consumable, however, they were captured by the attention of legal universe. In 1960s, American people objected the proposal. Nevertheless, the software of computers was accepted to be copyright registration finally.³ Computer technologies, as the core element of digital technologies, made speedy development under the circumstance where copyright barely intervened.

The spat on digital rights management never stops. The fighting campaign in Great Britain, led by Cambridge University professor Ross Anderson intends to prevent digital rights management.⁴ If John Walker was not treated as one of the representative opponents on digital rights management in digital environment by the public, then it would be preposterous when he was ranting “How big brother and big media can put the internet genie back in the bottle”?⁵ Another famous dissenter on digital rights management technologies and its economic strategy, Cory Doctorow, who is also the blogger of the popular technology blog “BoingBoing”.

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.⁶

When the famous software freedom activist Richard Matthew Stallman shows his concern and anger on digital rights management in his article “The Rights to Read”, “should the digital rights management exist” seemed a continuous controversy since digital rights management appeared.

As the majority of hobbyists must be aware, most of you steal your software. 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?⁷ (Bill, Gates)

It was an open letter that was issued in 1976 when Bill Gates’ company was “Micro-Soft” though.⁸ This letter was regarded to be a letter for those who made

¹<http://history-computer.com/ModernComputer/Electronic/ENIAC.html>.

²<http://history-computer.com/ModernComputer/Electronic/ENIAC.html>.

³Lam [1].

⁴Roemer [2].

⁵Walker [3], pp. 24–77. Also see http://en.wikipedia.org/wiki/Digital_rights_management.

⁶Stallman [4], pp. 85–87.

⁷Whitehead [5].

⁸Ibid 8.

piracies of 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.”⁹

To a vast majority computer gamers in the UK, it was in the late twentieth century that copy protection appeared to arresting concern along with “Jet Set Willy” published. 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 setting of ZX Spectrum’s data storage, to a certain degree, facilitate the piracy.¹⁰ Any person could record and made a game copy with a blank tape when double tape recorders used.

In 1977, Apple Computer Incorporation promoted its new product Apple II, which astonished computer world. The sales volume of Apple Company even increased yearly 700% and it brought the real “PC” (personal computer) times.¹¹ In fact, 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, to deal with the “communication” issue between computers, the Advanced Research Projects Agency of the U.S. Department of Defense (DARPA) created the earliest network in the world, which is named “ARPANET”. Distributed Networks, instead of Centralized Networks, were applied by “ARPANET” for safer networks establishment. “ARPANET”, in a certain degree, formed the features of current internet.¹²

If we cannot agree more with this concise description about “science”, which is “trust, but verify”,¹³ we might also accept the simple saying on “technology”, which conclude as “evolution, but paradox”. As people concerned that modern science brought vast uncertain “theory” for laboratory research, technology, as it were, has been doubted by the public, even the inventors or creators themselves, for its multi-faces. Its designed goals and features had been changed rapidly, or more than that, both of them deviated from technologies’ essence. Ideally, technologies merely highlight its creators’ desire for facilitating or changing our life. There are no good or bad boys in technologies value system. In this regard, “neutrality” is regarded as nothing, but the exact expression for technologies’ character,¹⁴ no matter whether this discipline has been swayed or not.

⁹Ibid 8.

¹⁰Ibid 8.

¹¹<http://www.vintageisthenewold.com/apple/>.

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

¹³“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.

¹⁴Will [6].

Since human beings stepped into digital times, it already indicated that numerous traditional matters had to be subverted by digital elements. Certainly, traditional communication approaches were also included, as communication mediums and its ways were treated as the revolutionary change. The communication channels in physical circumstance encountered its misfortune, which was either desolated, or replaced by digital means. Copyright regime, as this kind of industry that develops and promotes itself relying on communication spreading, reflects the value of its existence on the communication progress as well under digital environment.

Updated digital communication mediums seemed to be the active actor for making traditional copyright still alive when it met technologies. The combination of technologies and copyright showed the inevitable trend in digital surrounding. Admittedly, this connection between copyright and technologies also presented the requirement of copyright holders. How to survive in digital times? Or, in other words, how to keep the interest of copyright holders and comply with the characteristic and development of digital era, which is the main concern in nowadays.

The approach that accessing to information and knowledge is more regarded as unique method for solving the current dilemma of copyright system in digital context. Copyright law system has proved that it owns potential ability for getting with the increasingly rapid development of technology in former days and definitely has its special measure to further its function in digital world in the future. 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 interest of the public not the right holders'.¹⁵

During the last two hundred years, the law on copyright has allowed the public to get a wealth of concepts, ideas, information or expressions described in the works by differently way because the final goal of copyright is for the sake of the public.¹⁶ Nevertheless, internet changed the situation of copyright, which is challenging the present law on copyright and copyright practice. Additionally, the copyright protection under this circumstance also poses challenges to the system of copyright.¹⁷ At present, the development of digital technology may violate the right of the copyright owners. The copyright architecture should be increasingly advanced to accommodate itself to the new environment, whereas, the over-protection of copyright may hinder the development of digital technology and thus harm the interests of the public.

The whole copyrights system has been primarily and gradually changed by the novel technology that embarrasses the exploitation of copyright works and makes it hard to manage in networks environment. In digital context, the massive

¹⁵Samuelson [7], p. 519.

¹⁶Steering 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.

¹⁷Summer [8], p. 31.

reproduction and distribution based on the new information development and technology innovation has increasingly spread dramatically. However, the technical progress at the same time initiates some potential issues like illegal piracy and unlawful commercial exploitation. The commercial profit gradually went into the general public's vision. A certain amount of examples with regard to the economic interest balance have risked the established commercial modules that absorbed the element of both the normal use of copyright works and the competitive market.¹⁸

Technological protection measures are more than proposed schemes, which have become important significant components of current copyright system and profoundly changed the copyright system. When the digital technology was not developed, copyright holders are not afraid of private copying because it cannot significantly affect the commercial profits of copyright owners. Even when the internet is introduced in 1992, the enormous capacity of documents makes reciprocal interchange impossible. Private copying has little impact on the benefits of copyright holders. However, the constantly innovative technology 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 Technological Measures is being developed. While the priest climbs a post, the devil climbs ten, and any technological protection measures shall be cracked without the protection of laws. 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 going through endless obstacles, the World Intellectual Property Organization finally regulates anti-circumvention provisions into international protection system. Afterwards, anti-circumvention provisions are gradually brought into copyright laws in various countries,¹⁹ and technological protection measures finally establish a position in the copyright law world.

At present, primary electronic databases all adopt encryption technology to control users' access and copying. 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. Some scholars believe that technological protection measures have become indispensable parts of copyright law in the network era so we have to construct access right based on technological protection measures to perfect economic right regime. Then, what is the legal nature and essence of technological protection measures? Can they be regarded as the basis of copyright protection system in the digital era? These questions should be carefully answered whether to correctly comment on the technological protection measures or scientifically planning for the future of copyright. However, the academic circle intends to prefer the

¹⁸McEwan [9].

¹⁹Amen et al. [10].

technological protection measures without rational analysis and positioning.²⁰ This paper starts from the legal nature and essence of technological protection measures to analyze their passive influences and carry out positioning under the macro environment of the future mode construction of copyright system in the digital era.

The legislation and implementation systems of copyright protection aim to protect the legitimate rights and interests of authors, coordinate the relationship between author and users, and encourage authors to carry out creations as well as widespread promotions of creations so as to promote the development of scientific culture. Copyright System emerges along with the issuance of The Statute of Anne, and the recent development history shows an ever-present contradiction between private right of author and public benefits. The balance of interest of various parties is the main issue remaining to be considered while it can be said that the copyright aims to show balance. However, the development of network technology has brought unprecedented challenges for the original balanced system. Both the circumvention of digitalization and technologically protective measures of copyright demonstrate the characteristics of the network, free information flow and information sharing, which are unprecedented challenges for the right of copyright monopoly.²¹ Besides, some people even vow that the copyright shall be overturned in the network era. On the one hand, there is about the precarious benefit of copyright holders; on the other hand, there are unprecedented requirements of information sharing. Network technology does not only provide powerful information and convenient communication approach, but also tools and channels for people to probe into other people's privacy, steal other's commercial secrets, carry out illegal transaction, obtain improper interests, and evade liability, etc. Accordingly, some copyright holders have to set up protective measures for their information and rights. However, some hackers try unremitting efforts, aiming to crack the protection technologies. In the network era, the development of digital technique and internet has brought with unprecedented challenges for the interest of copyright holders while traditional afterwards relief measures seem powerless when facing modern infringement activities. Therefore, preventive copyright protection measures emerge as times require. At present, popular measures refer to digital right management technology.

2.1.2 Why We Need Digital Right Management

Along with the development of digital technology, internet does not merely provide convenience while getting information but also profoundly affect the management mode of traditional intellectual property,²² which present a challenge for current

²⁰Purnhagen and Rott [11], pp. 439–458.

²¹Geiger [12], pp. 1–14.

²²Anderson and Rainie [13].

copyright system. In this context, how to create, manage, protect and apply intellectual property so as to promote a healthy development of internet industry through effective use of copyright protection regime is an issue of common interest in the intellectual property circle and in the internet industry. At present, the copyright protection problem under the network environment has become a matter of general concern in the copyright protection field throughout the world. The copyright has the following features under the background of internet communication:

The rapid increase on types and quantities of copyright work continuously swells the ranks of the creative team, communication and consumption team. The application of digital technology and the diffusion of the internet enable sky-rocketing people to participate in the creation of copyright work and to spread to the public on their own. Second, their rapid development makes it become difficult. With the increase of networking broadband and improvement in transmission quality, it becomes easier for people to copy, spread and use others' works. Further, anyone could be granted with the access to certain works while clicking the mouse and spread out. Furthermore, digitalized works is easily violated comparing to traditional works. Finally, there is a glittering array of violation approaches in the network era.²³ Meanwhile, some websites illegally duplicate, upload and disseminate others' works without approved authorization, which does not only violate the legal right of the right holder but also disturb the disseminative order of network normal operation, affect the healthy development of internet industry and bring along with devastating shock on traditional industries such as books, music, film and television industry, etc. Internet service providers, internet content providers, internet content customers all carry out these unlawful practices and all of them shall bear relevant tort liabilities. The development of internet industry cannot be separated from product and content innovation, which should be protected by sophisticated copyright protection regime. Therefore, it is of vital importance to further perfect the copyright protection regime, effectively protect copyright protection, and fight online piracy behaviors.²⁴ In fact, online infringement approaches and channels are too numerous to enumerate. 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. The above conditions show that the development of internet is calling for legal norms, which face severe challenges brought by internet infringement.

There are both inheritances and differences between copyright protection in traditional copyright protection system and the network era, which possess the same theoretical origin, legal philosophy greatly emphasizes on the fairness and justice principle, elaborating balance of interest, namely to continually resolve

²³Liu et al. [14], pp. 49–58.

²⁴Limitations 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.