

# A NEW INSTITUTIONAL ECONOMICS ANALYSIS OF THE HISTORY OF THE REGULATION OF THE .CN (CHINA) COUNTRY-CODE TOP-LEVEL DOMAIN FROM 1990 TO 2004

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# **Abstract**

The Domain Name System (DNS) operates at the literal root of the Internet. Governments can control cyberspace communications through controlling the DNS and countries can claim cyberspace sovereignty via their administration of country-code Top-Level Domains (ccTLDs). In order to understand how China governs the Internet and its cyberspace, it is necessary to know how Chinese governments regulate the DNS. Under the theoretical framework of New Institutional Economics theory, combining qualitative analysis, historical research, case studies, and triangulation research, this dissertation analyses the institutional formation and institutional change process for the .cn ccTLD administrative regulations. It also explores how Chinese governments' governance practices are affected and how the constraints of politics, law, economics and technology improve and restrain the institutional formation and change of the .cn ccTLD administrative regulations. The structure of the thesis includes institutional transplantation, institutional localization and institutional specialization.

This dissertation proposes and tests three key arguments: (1) within the context of the DNS and characterized with connectivity and hierarchy, and domain name administrative regulations with a hierarchic administrative mode, domain name technological path dependency led to China's domain name administrative regulation's path dependency; (2) the institutional change of the Administrative Measures on China's Domain Names resulted from the synthesis of endogenous and exogenous institutional change factors; (3) Chinese governments sometimes supply or tolerate inefficient institutional arrangements so as to achieve other higher goals. Overall, this dissertation provides evidence that the Chinese governments tolerate, develop, and/or promote institutions and technologies which might increase the quality of citizens' lives and which might develop the domestic economy, but constrain, supervise, or/and forbid institutions and technologies perceived to risk causing damage to China's stability and unity.

## **Statement of Candidate**

I certify that the work in this cotutelle thesis has not previously been submitted for a degree, nor has it been submitted as part of requirements for a degree, to any other university or institution other than Macquarie University and Wuhan University.

I also certify that the thesis is an original piece of research, and it has been written by me. Any assistance that I received in my research work and the preparation of the thesis itself has been appropriately acknowledged. Ethics Committee approval has been obtained (5201500902).

In addition, I certify that all information sources and literature used are referenced in the thesis.

## Acknowledgement

To achieve the dream of being a professional in a good university, I started to prepare the PhD entrance examination in China during 2012 and 2013. Fortunately, I became a PhD student in Faculty of Law in Wuhan University (WH), China in 2013. In order to find a good position in top-level universities in China, I began to prepare documents for applying the visiting scholar project in foreign universities as soon as I enrolled in WH. After sending hundreds of letters, I finally received two offers. They were from the University of Leeds and Macquarie University (MQ). I accepted the offer from MQ after carefully consideration. As MQ and WH had a joint doctoral supervision agreement which meant I could study in both universities simultaneously as a PhD candidate and could complete two PhD degrees according to their respective policies and procedures.

Dr. John Selby was appointed to be my principal supervisor in MQ and Prof. XU Yawen was other supervisor in WH. Thanks to these two supervisors' supervision and help, I graduated from WH and obtained the degree in doctor of jurisprudence in 2016. Now, it's time for me to submit my PhD dissertation for examination in MQ. Look back to these years, it's full of happiness and tear, hope and despair. Due to the encouragement and guidance by John Selby, I come through all the difficulties and obstacle finally. Hence, I am extremely grateful to him for his help and supervision.

The first thing I should mention about Dr Selby was that he encouraged me to apply for a MQ's scholarship. When I was notified that I failed to be awarded the scholarship from Chinese Scholarship Committee, I was in desperate and had a negative emotion. My dream of studying overseas vanished like soap bubbles. However, John Selby did not give up and encouraged me to apply MQ's scholarship. With the affection of his enthusiasm and optimism, I renewed my confidence and prepared the documents required by MQ with the help from John. Self-evidently, I got the scholarship from MQ.

The study and life in Sydney wasn't going smoothly. As the result of the divergent study pattern and culture between China and Australia, not only my un-fluent oral English

made me study hard, but also the life-style made me home-sick seriously. For many times, I wanted to drop out from MQ and wanted to go back to China. Each time, John did his best to convince and persuade me. His words worked. I insisted on until the end. Besides the spiritual help, with respect to the PhD study, John carefully reviewed every paragraph I wrote and gave loads of valuable suggestions; provided useful information and took me to participate in professional academic conferences nationally and internationally; positively contacted the potential interviewees with whom I needed to conduct interviews required for my PhD dissertation. All in all, without John's support, I cannot finish this dissertation.

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I will be a better woman in my career and in my life!

## Abbreviations and English-Chinese Translations

Abbreviations	English	Chinese
ACPA	Anti-Cybersquatting Consumer Protection Act	《反域名抢注消费者保护法案》
ADR	Alternative Dispute Resolution	
AMoCDN	Administrative Measures on China's Domain Names	中国互联网络域名管理办法
ARPA	Advanced Research Projects Agency	/
BBS	Bulletin Board System	/
BITNET	the 'Because It's Time' Network (University Computer Network)	/
CANET	Chinese Academic Net	中国计算机科技网
CASCO	Chinesische Anwender von Siemens Computern Symposium	西门子计算机中国用户研讨会
CCIRN	Coordinating Committee for Intercontinental Research Networking	/
CCP	Chinese Communist Party	中国共产党
ccTLD	country-code Top-Level Domain	/
CCWG-Accountability	the Cross Community Working Group on Enhancing ICANN Accountability	/
CDNC	Chinese Domain Name Consortium	中文域名协调联合会
C-DNDR	China's Domain Name Dispute Resolution	中国域名争议解决办法

Abbreviations	English	Chinese
CDNDRP (Trial Implementation)	Chinese Domain Name Dispute Resolution Policy (Trial Implementation)	中文域名争议解决办法 ( 试行 )
CERT	National Computer Network Emergency Response Technical Team/Coordination Center of China	国家互联网应急中心
CIETAC	China International Economic and Trade Arbitration Commission	中国国际经济贸易仲裁委员会
CNNIC	China Internet Network Information Center	中国互联网络信息中心
CNNIC-DNDRP	CNNIC Domain Name Dispute Resolution Policy	中国互联网络信息中心域名争议解决办法
CRN	China Research Network	中国研究网
CSNET	Computer Science Network	/
DA	Domain Administrator	/
DARPA	Defense Advanced Research Projects Agency	/
DDN	Defense Data Network	/
DFN	Deutsches Forschungsnetz – German Research Network	/
DGT	Directorate General of Telecommunications	( 台湾 ) 电信总局
DNDR	Domain Name Dispute Resolution	/
DNS	Domain Name System	/
DoC	United States Department of Commerce	/

<b>Abbreviations</b>	<b>English</b>	<b>Chinese</b>
Final Report	Final Report of the WIPO Internet Domain Name Process	/
GAC	Governmental Advisory Committee	/
GAC Principles	the Principles for Delegation and Administration of ccTLDs	/
gTLD	generic Top-level Domain	/
HKNIC	Hong Kong Network Information Centre	香港网络信息中心
IAB	Internet Architecture Board (previously Internet Activities Board)	/
IAMoDNR	Interim Administrative Measures on Domain Name Registration	中国互联网域名注册 暂行管理办法
IANA	Internet Assigned Numbers Authority	/
ICANN	The Internet Corporation for Assigned Names and Numbers	/
ICCB	Internet Configuration Control Board	/
ICP-1	Internet Domain Name System Structure and Delegation (ccTLD Administration and Delegation)	/
IDNs	Internationalized Domain Names	/
IETF	Internet Engineering Task Force	/
InterNIC	Internet Network Information Center	/
IP	Internet Protocol	/
IPD	institutional path dependency	/
IR	Internet Registry	/

Abbreviations	English	Chinese
ISO	International Organisation for Standardization	/
ITU	International Telecommunication Union	/
MII	Ministry of Information Industry	信息产业部
MIIT	Ministry of Industry and Information Technology	工业和信息化部
MONIC	Macao Network Information Centre	澳门网络信息中心
NAF	National Arbitration Forum	
NCFC	National Computing and Networking Facility of China	中国国家计算与联网设施工程 ( 又称中关村地区教育与科研示范网络 )
NIC	Network Information Center, formerly InterNIC	/
NIE	New Institutional Economics	/
NOC	Network Operation Center	/
NSF	National Science Foundation	/
NTIA	National Telecommunications and Information Administration of the US Department of Commerce	/
O-IWLG-SC	the Office of Information Work Leader Group of the State Council	国务院信息化工作领导小组办公室
RFCs	Request For Comments	/
RR	Resource Record	/

Abbreviations	English	Chinese
The 13th Report	the Report of the 13th National Congress of the CCP	十三大报告
The 14th Report	the Report of the 14th National Congress of the CCP	十四大报告
The 15th Report	the Report of the 15th National Congress of the CCP	十五大报告
The 16th Report	the Report of the 16th National Congress of the CCP	十六大报告
TPD	technological path dependency	/
TWNIC	Taiwan Network Information Center	財團法人台灣網路資訊中心
UDHR	Universal Declaration of Human Rights	/
UDRP	Uniform Domain Name Dispute Resolution Policy	/
USC-ISI	University of Southern California Information Sciences Institute	/
WASCO	West Deutschland Anwender von Siemens Computern Symposium (West Germany Users of Siemens Computers Symposium)	西德西门子计算机用户研讨会 ( 又名西德 WASCO 协会计算机学术交流会 )
WIPO	World Intellectual Property Organisation	/
WIPO ccTLD Best Practices	WIPO ccTLD Best Practices for the Prevention and Resolution of Property Disputes	/
WSIS	World Summit on the Information Society	/

Abbreviations	English	Chinese
WTO	World Trade Organisation	/
/	The Chinese People's Political Consultative Conference	中国人民政治协商会议
/	The National People's Congress of China	全国人民代表大会
/	The National Congress of the Communist Party of China	中国共产党全国代表大会
/	Guidance on the Trial of Civil Cases of Intellectual Property Arising from the Registration and Use of Domain Names	《关于审理因域名注册、使用而引起的知识产权民事纠纷案件的若干指导意见》
/	CNNIC Procedure Rules for Domain Name Dispute Resolution	中国互联网络信息中心域名争议解决办法程序规则
/	Administrative Regulation on Publication	出版管理条例
/	Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Civil Disputes Involving Computer Network Domain Names	最高人民法院关于审理涉及计算机网络域名民事纠纷案件适用法律若干问题的解释
/	Procedure Rules for Domain Name Dispute Resolution (Trial Implementation)	域名争议解决程序规则 ( 试行 )
/	Beijing Zhengpu Science and Technology Development Co., Ltd	北京正普科技发展有限公司
/	Alibaba Network Technology Co., Ltd	阿里巴巴网络技术有限公司

Abbreviations	English	Chinese
/	Notice on the Management of Chinese Domain Names on the Internet	关于互联网中文域名管理的通告
/	Administrative Measures for the Registration of Chinese Domain Names (Trial Implementation)	中文域名注册管理办法 ( 试行 )
/	Announcement on the Selection of Trial Service Units for China's Computer Network Security	关于选择我国计算机网络安全服务试点单位的公告
/	National Promotion Office of Electronic Information System	全国电子信息系统推广办公室
/	Administrative Measures on the Prevention and Control of Computer Virus	计算机病毒防治管理办法
/	Administration of Interconnection between Public Telecommunication Networks	公用电信网间互联管理规定
/	Measures for Violations of Laws and Regulations in the Use of Computer Information Systems (Trial Implementation)	关于对利用计算机信息系统从事违法违规活动的处理办法 ( 试行 )
/	CDNC Statement on the NSI's Service of Providing Chinese Domain Names	CDNC 关于 NSI 提供中文域名服务的公开声明
/	Administrative Regulation on the Management of Electronic Publications	电子出版物管理规定
/	Administration of Press and Publication	新闻出版署

Abbreviations	English	Chinese
/	Administrative Measures on the Internet Information Services	互联网信息服务管理办法
/	Interim Administrative Regulation on Publishing News of Internet Websites	互联网站从事登载新闻业务管理暂行规定
/	Information Office of the State Council	国务院新闻办公室
/	Administrative Regulation on Internet Bulletin Board System	互联网电子公告服务管理规定
/	Interim Administrative Regulation on Internet Publication	互联网出版管理暂行规定
/	Interim Administrative Regulation on Internet Culture	互联网文化管理暂行规定
/	Ministry of Culture	文化部
/	Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on the Specific Application of Laws about Producing, Reproducing, Publishing, Selling, and Spreading Pornographic Electronic Information in Criminal Cases through the Use of the Internet, Mobile Communication Terminal, and Voice Platform	最高人民法院、最高人民检察院关于办理利用互联网、移动通讯终端、声讯台制作、复制、出版、贩卖、传播淫秽电子信息刑事案件具体应用法律若干问题的解释
/	Administrative Regulation on Internet News Information Services	互联网新闻信息服务管理规定
/	Information Network Transmission Right Protection Ordinance	信息网络传播权保护条例

Abbreviations	English	Chinese
/	Interpretation of Several Issues Concerning the Application of Laws in Criminal Cases Involving the Internet	关于办理利用信息网络 实施诽谤等刑事案件 适用法律若干问题的解释
/	Interim Administrative Regulation on International Networking of Computer Information Networks	计算机信息网络国际 联网管理暂行规定
/	Self-Regulatory Norms of Prohibiting the Websites to Disseminate Obscene, Pornographic and Other Unhealthy Information	互联网站禁止传播淫 秽、色情等不良信息自 律规范
/	Illegal and Unhealthy Information Reporting Center	违法和不良信息举报 中心

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# 1 Introduction

## 1.1 Domain Names and Internet Governance

This thesis explores the extent to which the New Institutional Economics (NIE), a theory derived from the western world as an analytical tool, can explain institutional formation and institutional change in the regulation of the .cn country-code Top-Level Domain (ccTLD), and explores how politics, laws, the economy, and technology influenced the drafting of the administrative regulations of the .cn ccTLD in China from 1994 to 2004.

Before analysing these influences, it is fundamental to understand the basics of domain names. In the original developing stage of the internet before 1983<sup>1</sup>, an Internet Protocol (IP) address was the tool to identify individual computers. As the internet grew, it was a practical necessity to resolve numerical addresses through domain names because humans remember names more easily than they remember numbers.<sup>2</sup> A domain name<sup>3</sup> corresponding to an IP address has already become a special identifier, besides its initial indexing function.<sup>4</sup> Domain names can be divided into generic Top-Level Domains (gTLDs), such as '.com', and country-code Top-Level Domains (ccTLDs), such as '.cn' for China.<sup>5</sup> Along with the development and prosperity

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<sup>1</sup> Torsten Bettinger and Allegra Waddell (eds), *Domain Name Law and Practice: An International Handbook* (Oxford University Press, 2nd edn, 2015) 4.

<sup>2</sup> Peter K. Yu, 'The Origins of ccTLD Policy Making' (2004) 12 (2) *Cardozo Journal of International & Comparative Law* 387, 388.

<sup>3</sup> For the basics of domain names, please see P. Mockapetris, *RFC 1034: Domain Names – Concepts and Facilities* (November 1987) IETF <<https://www.ietf.org/rfc/rfc1034.txt>>; Milton L. Mueller, *Ruling the Root: Internet Governance and the Taming of Cyberspace* (The MIT Press, 2004).

<sup>4</sup> See ZHANG Naigen, 'Lun Quan Qiu Dian Zi Shang Wu Zhong De Zhi Shi Chan Quan' (1999) 17 (2) *Zhong Guo Fa Xue* 137, 139; WANG Fanwu and SHAO Mingyan, 'Guan Yu Yu Ming Jiu Fen Zhong Ji Ge Wen Ti De Si Kao' (2000) (5) *Zhi Shi Chan Quan* 33, 36; HAO Yuqiang, 'Lun Hu Lian Wang Zhong De Shang Biao Bao Hu Wen Ti' (2000) (3) *Zhi Shi Chan Quan* 15, 16. The Internet is constituted of the physical layer, logical layer, application layer, and/or content layer. Domain names are just one component of this physical and virtual infrastructure. See Kevin Werbach, 'A Layered Model for Internet Policy' (2002) 1 (1) *Journal on Telecommunications & High Technology Law* 37, 59-65; Philip J. Weiser, 'Regulatory Challenges and Models of Regulation' (2003) 2 (1) *Journal on Telecommunications & High Technology Law* 1, 3. For more information about IP addresses and domain names, please see section 1.3.1 The Domain Name System in this dissertation.

<sup>5</sup> IANA, *Root Zone Database* IANA <<https://www.iana.org/domains/root/db>>; J. Postel and J. Reynolds, *RFC 920:*

of e-commerce, domain names have been seen as an intangible asset carrying tremendous commercial value, not just a string of characters.<sup>6</sup> Furthermore, national governments can achieve policy goals through regulating public interests, commercial benefits, and freedom of speech via regulating the domain name system, and countries can claim sovereignty in cyberspace through regulating their ccTLDs.<sup>7</sup> As nations and states gradually realized the importance of ccTLDs, they began to control and govern them.<sup>8</sup>

In February 2004, Professor Michael Geist and the Telecommunications Standardization Bureau of the International Telecommunications Union launched a survey of all 189 ITU member states on the current legal role of ccTLD administrators, ccTLD policies, and governmental involvement in national and international internet governance issues. The results, from 66 countries representing every global region as well as a broad cross-section of developed and developing countries, illustrated that (see Figure 1-1):

43 percent of responding governments retain ultimate control over their national ccTLD. A further 30 percent have taken specific steps toward asserting ultimate authority over their national ccTLD. Nineteen percent of respondents indicated that they were considering formalizing their relationship with their ccTLD and expected that relationship to change in the future. Only seven percent of respondents indicated no formal governmental role in their ccTLD with no plans to alter the present situation.<sup>9</sup>

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*Domain Requirements* (October 1984) IETF <<https://tools.ietf.org/rfc/rfc920.txt>>.

<sup>6</sup> Milton L. Mueller, above n3, 105.

<sup>7</sup> Marc Watkins, 'Government Regulation of the Dot-ca Domain Name Space' (2005) 2 (1) *University of Ottawa Law & Technology Journal* 145, 147. Eric Talbot Jensen argued that "States have sovereignty power over their cyber infrastructure and that with that sovereignty power comes corresponding responsibilities to control that infrastructure and prevent it from being knowingly used to harm other States." Eric Talbot Jensen, 'Cyber Sovereignty: the Way Ahead' (2015) 50 (2) *Texas International Law Journal* 275, 277-278. Xi Jinping, president of China, proposed that the principle of respecting cyber-sovereignty should be insisted when conducting a reform for Internet governance in 2015. See Chinanews, *Xi Jin Ping Qiang Diao Zun Zhong Wan Luo Zhu Quan You He Shen Yi* Chinanews (16 December 2015) <<http://www.chinanews.com/gn/2015/12-16/7674308.shtml>>.

<sup>8</sup> Peter K. Yu, above n2, 403.

<sup>9</sup> Michael Geist, *Governments and Country-Code Top Level Domains: A Global Survey Version 2.0* (February 2004)

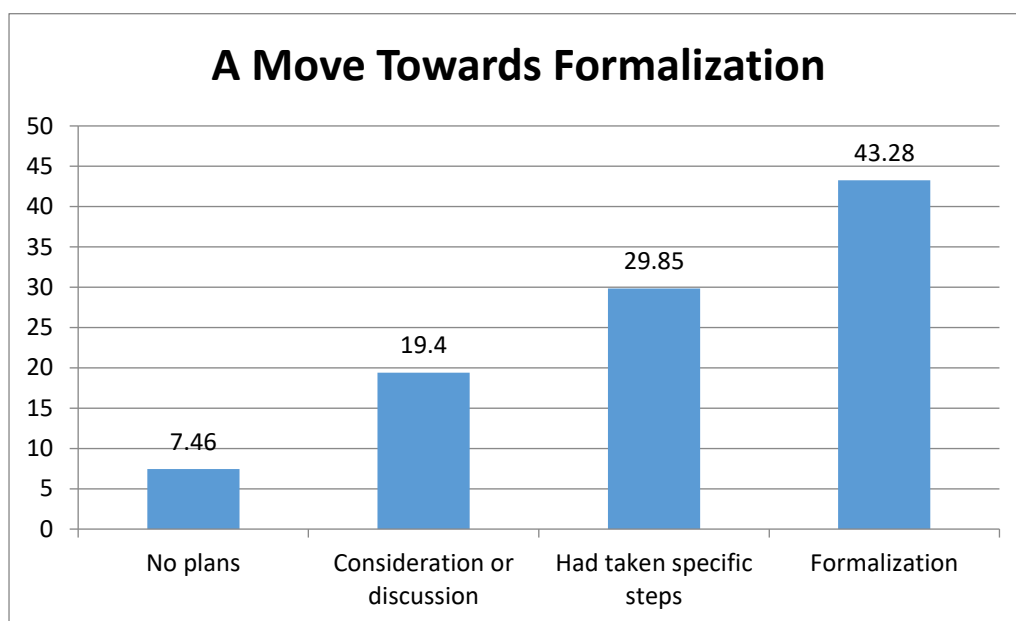


Figure 1-1 A move towards formalization of internet governance

Source: Michael Geist, *Governments and Country-Code Top Level Domains: A Global Survey Version 2.0* (February 2004).

Geist identified a trend that the governments of most countries wanted to control their ccTLDs. In addition, the investigated countries appeared to regulate in a way that recognised that the public interest and the protection of intellectual property rights were high priorities and the volume of registered domain names was less important. However, when the ccTLDs became commercialized, the survey data revealed that the latter was more and more significant than the former.<sup>10</sup> While the administration and operation of ccTLDs by the various countries played a more and more important role, the early research focused most on the relationship between the Internet Corporation for Assigned Names and Numbers (ICANN) and ccTLD managers.<sup>11</sup> Although there

<<https://www.itu.int/osg/spu/forum/intgov04/contributions/governmentsandcctldsfeb04.pdf>>.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid. For example, Jonathan Weinberg, 'ICANN and the Problem of Legitimacy' (2000) 50 (1) *Duke Law Journal* 187; Wolfgang Kleinwächter, 'ICANN between Technical Mandate and Political Challenges' (2000) 24 (6) *Telecommunications Policy* 553; A. Michael Froomkin and Mark A. Lemley, 'ICANN and Antitrust' (2003) (1) *University of Illinois Law Review* 1; Susan Schiavetta and Konstantinos Komaitis, 'ICANN's Role in Controlling Information on the Internet' (2003) 17 (3) *International Review of Law, Computers & Technology* 267.

were few nations participating in the administrative affairs of the internet in its initial years, since the late 1990s, when they realized the importance of participation in global network management, nation states have found ways to put the issues of internet management on to the international agenda.<sup>12</sup>

Since the late 1990s, national governments not only actively engaged in the regulation of ccTLDs in international organisations but also participated widely in the management of ccTLDs in domestic territories.<sup>13</sup> In China, for example, the initial delegation of the right to manage the .cn ccTLD by the Network Information Centre (NIC)<sup>14</sup> was in 1990. After a seven-year period of informal regulation, the first formal regulation<sup>15</sup> of the .cn ccTLD was released by the Office of Information Work Leader Group of the State Council in 1997. By the end of 2014, 37 regulations relating to the .cn ccTLD had been released by Chinese governments, agents and judicial departments (see Figure 1-2, which shows the numbers of laws and regulations relating to the .cn ccTLD published each year in mainland China from 1990 to 2014). Consequently, in the current framework of international domain name regulations and policies, under the constraints of Chinese laws and political policies, it is worth exploring why the administrative regulations on the .cn ccTLD changed so frequently. Understanding how the domain name system has operated and been regulated in mainland China is fundamental as it helps explain how different Chinese authorities have gained the capability to regulate the internet so as to better manage different levels of perceived risk in different parts of China (e.g. Internet access in Tibet and Xinjiang is far more restricted than internet access in Shanghai).

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<sup>12</sup> See Michael Geist, above n9; Rev. Marrakesh, *Management of Internet Domain Names and Addresses* (4 April 2011) International Telecommunication Union <<http://www.itu.int/osg/spu/resolutions/2002/res102.html>>.

<sup>13</sup> Ibid; OECD, *Evolution in the Management of Country Code Top-Level Domain Names (ccTLDs)* (17 November 2006) OECD <<http://www.oecd.org/sti/ieconomy/37730629.pdf>>. International organisations in this thesis refer to not only multistakeholder organisations but also multilateral organisations.

<sup>14</sup> NIC was the registrar for all top-level domains and the management institution for some top-level domain names and second-level domain names until 1998. It was situated in America. See J. Postel and J. Reynolds, above n5.

<sup>15</sup> Regulations in this thesis refer to the rules or policies released by Chinese governments, agents or judicial departments. The first domain name regulation in China was *Interim Administrative Measures on Domain Name Registration 1997* (China). Chinese governments refer to Chinese central, provincial and local governments. Chinese authorities refer to the Chinese governments who have the strong power to make and implement regulations.

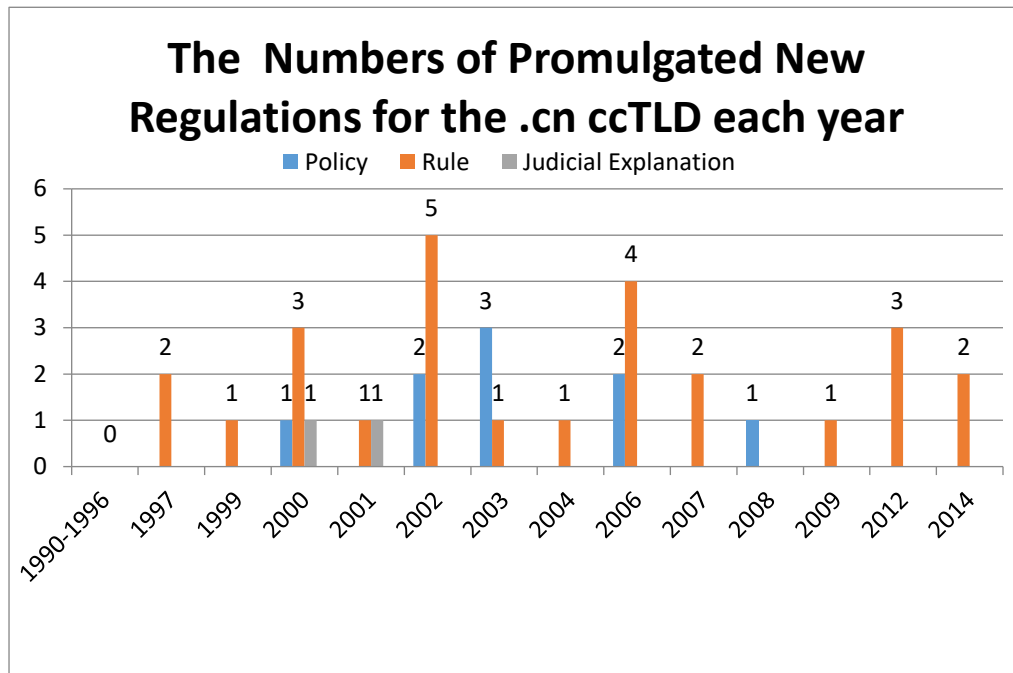


Figure 1-2 the Numbers of promulgated new regulations for the .cn ccTLD each year

Source: <http://www.cnnic.cn/ggfw/fwzxxgzcfg>.

Susan Khazaeli and Daniel Stockemer argued that the popularity of the internet and its governance practices have a positive correlation, namely, no matter what the polity was, the widespread adoption of the internet improved the governance of governments at different levels.<sup>16</sup> In China, by the end of 2014, the number of registered Chinese domain names was 20.6 million, including 11.09 million .cn domain names, with an annual growth of 2.4% and accounting for 53.8% of all Chinese domain names. This contributed to the 649 million Chinese netizens who made the internet penetration rate 47.9%.<sup>17</sup> Then, accompanying the annual growth of the Chinese internet penetration rate,<sup>18</sup> how did domain names – being one of the key

<sup>16</sup> Susan Khazaeli and Daniel Stockemer, 'The Internet: A New Route to Good Governance' (2013) 34 (5) *International Political Science Review* 463, 464, 474.

<sup>17</sup> CNNIC, *Zhong Guo Hu Lian Wang Luo Fa Zhan Zhuang Kuang Tong Ji Bao Gao* (January 2015) <<http://cnnic.cn/gywm/xwzx/rdxw/2015/201502/W020150203456823090968.pdf>>. Chinese domain names refer to Chinese language/Chinese characters domain names in this dissertation.

<sup>18</sup> Chinese internet penetration rates: 8.5% in 2005; 10.5% in 2006; 16.0% in 2007; 22.6% in 2008; 28.9% in 2009; 34.3% in 2010; 38.3% in 2011; 42.1% in 2012; 45.8% in 2013; 47.9% in 2014. See CNNIC, the 31st to 35th *Zhong*

technologies of the internet – affect the practice of national governance? Conversely, how do the factors of politics, laws, economics, and technology affect the administration of the .cn ccTLD? In order to explore these issues, this dissertation will take the administrative measures of the .cn ccTLD as the starting point to thoroughly analyse the processes of institutional formation and change through the framework of institutional transplantation, institutional localization, and institutional characterization in China.

## 1.2 Overview of This Dissertation

This dissertation has seven chapters. It asks three main questions and tests three hypotheses.

### Questions:

1. To what extent did the political, legal, and technological environment affect the development of the first administrative regulation of the .cn ccTLD in China in 1997?
2. How did politics, laws, economics, and technology influence the changes made to the administration of the .cn ccTLD in 2002?
3. To what extent did ICANN's Uniform Domain Name Dispute Resolution Policy and China's new Administrative Measures on China's Domain Name influence China's internet governance over Chinese internet speech in 2004?

### Hypotheses:

1. Did the administrative regulation of the .cn ccTLD follow the developing path of international domain name rules?
2. In 2002, was the institutional change of the Interim Administrative Measures

on Domain Name Registration driven by endogenous institutional change or exogenous institutional change?

3. In 2004, did the Administrative Measures on China's Domain Name provide a less efficient regulation from the perspective of promoting the freedom of speech, which is one of the social benefits of the internet?

Chapter 1 introduces the connection between domain name regulation and internet governance, reviews the scholarly literature on the regulation of the .cn ccTLD in Chinese and English, sets forth the original contributions and significance of the research, and states the limitations of this research.

Chapter 2 sets out the theoretical approach and methodology used in this dissertation. Specifically, it introduces the theoretical framework and details the analytical research methods applied to analyse the Chinese institutional environment, institutional formation and change of the regulation of the .cn ccTLD. It also introduces the sources and types of data gathered to support this research, and explores the methodological limitations of this dissertation.

Chapter 3 is a detailed analysis of relevant aspects of New Institutional Economics (NIE) theory, which is the lens through which the .CN ccTLD is analysed. It briefly explores how the theory developed, its basic concepts, hypotheses, and main sub theories. In particular, it explores institutional change theory.

Chapter 4 is a series of case studies of institutional formation in the regulation of the .cn ccTLD from 1990 to 1997. It explores how the political and legal environments constrained and promoted the delegation of the .cn ccTLD; introduces the process of the initial delegation of the right to manage the .cn ccTLD; and introduces the Interim Administrative Measures on Domain Name Registration, which was released in 1997 and which was the first domain name regulation in China. It then tests a hypothesis against the evidence distilled from the process of institutional formation.

Chapter 5 is a series of case studies of the first institutional change of the regulation of the .cn ccTLD from 1997 to 2002. It explores the institutional environment in which this change was situated, analyses case studies from the perspectives of politics, laws and regulations, economic factors, and technology, and tests a hypothesis against the evidence distilled from the process of the first institutional change.

Chapter 6 is a series of case studies of the second institutional change of the regulation of the .cn ccTLD from 2002 to 2004. It explains the relationship between domain name governance and freedom of speech, sets forth the influence of ICANN-UDRP on internet speech, introduces the governance mode on internet speech in China, the regulation of the new Administrative Measures on China's Domain Names on internet speech, and tests a hypothesis against the evidence distilled from the process of the second institutional change.

Chapter 7 summarizes the key findings of this research and proposes some suggestions for future research.

## 1.3 Review of Relevant Literature

### 1.3.1 The Domain Name System

Domain names are the unique identifiers that locate the network server or computer address, and which are composed of words, Internationalized Domain Names (IDNs), or numbers in each country.<sup>19</sup> The Domain Name System (DNS) is an internet system for resolving domain name addresses into IP addresses.<sup>20</sup> For example, the DNS

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<sup>19</sup> S. M. H. Collin (edited), *Dictionary of Computing* (A & C Black, 2008) Credo  
<[http://search.credoreference.com.simsrad.net.ocs.mq.edu.au/content/entry/acbcomp/domain\\_name/0](http://search.credoreference.com.simsrad.net.ocs.mq.edu.au/content/entry/acbcomp/domain_name/0)>.

<sup>20</sup> *Webster's New World & Trade: Computer Dictionary* (Wiley, 2003) Credo  
<[http://search.credoreference.com.simsrad.net.ocs.mq.edu.au/content/entry/webstercom/domain\\_name/0](http://search.credoreference.com.simsrad.net.ocs.mq.edu.au/content/entry/webstercom/domain_name/0)>.  
For more details, see Ellen Rony and Peter Rony, *The Domain Name Handbook: High Stakes and Strategies in Cyberspace* (Publishers Group West, 1998).

connects the domain name 'www.mq.edu.au' to the IP address '221.179.46.190'. Each domain name corresponds to one or more IP addresses; one IP address also can correspond with more than one domain name. General internet users prefer to key in human-friendly domain names rather than IP addresses when communicating or surfing on the internet.<sup>21</sup> The root resolver is responsible for the connection between domain names and IP addresses. If the domain names and the IP addresses taking up the core position in the internet operation cannot be managed properly, the internet may be paralyzed.<sup>22</sup>

Domain names can be hierarchically divided into top-level, second-level, third-level domain names and so forth. Top-level domain names have a country code Top-Level Domain (ccTLD) and a generic Top-Level Domain (gTLD).<sup>23</sup> For example, 'cn' represents China, 'au' stands for Australia; 'com' is the domain name for industry and commerce, and 'edu' is the domain name for educational institutions. CcTLDs have different structures, including flat structures and hierarchical structures.<sup>24</sup> As will be detailed in Chapter 4, the .cn ccTLD for China was registered in 1990. Its root server was first installed at the University of Karlsruhe in Germany, and operated from there in its early years due to the fact that the internet was not fully connected between China and US. It was only in 1994 that China finally took over the operation of the .cn root server.<sup>25</sup>

The ARPANET was the first wide area packet switching network, which became operational on 30 August 1969, and which subsequently evolved into the Internet as we know it today.<sup>26</sup> It was a communications network established and designed to cut

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<sup>21</sup> Milton L. Mueller, above n3, 6.

<sup>22</sup> Ibid, 2.

<sup>23</sup> OECD, above n13.

<sup>24</sup> J. Postel, *RFC 1591: Domain Name System Structure and Delegation* (March 1994) IETF <<https://www.ietf.org/rfc/rfc1591.txt>>.

<sup>25</sup> CNNIC, *Key Events from 1986 to 1993* (26 May 2009) CNNIC <[https://www.cnnic.net.cn/hlwfyj/hlwdsj/201206/t20120612\\_27414.htm](https://www.cnnic.net.cn/hlwfyj/hlwdsj/201206/t20120612_27414.htm)>.

<sup>26</sup> William Stewart, *ARPANET--The First Internet* (7 January 2000) Living Internet <[http://www.livinginternet.com/i/ii\\_arpanet.htm](http://www.livinginternet.com/i/ii_arpanet.htm)>.

the travel costs of researchers accessing large computer facilities with funding from the U.S. Department of Defense Advanced Research Projects Agency (DARPA). It used logical addressing (known as IP addresses today) to communicate with other hosts.<sup>27</sup> In the 1980s, as applications grew to span multiple hosts, the need to have a mapping between host names and Advanced Research Projects Agency (ARPA) Internet addresses began to stress the existing mechanisms. A solution to this problem suggested: (1) the basic need for a consistent name space which could be used for referring to resources; (2) the sheer size of the database and frequency of updates suggested that it must be maintained in a distributed manner, with local caching to improve performance; (3) the costs of implementing such a facility dictated that it should be generally useful, and not restricted to a single application. Under this background, the domain name system was designed and implemented.<sup>28</sup>

However, In the early stages of the development of the internet in the 1980s, domain names were described as postal addresses analogous to the house numbers of the internet. Users visited IP addresses via typing in domain names. Consequently, domain names with only an identification function did not arouse widespread concern and attention. Unexpectedly, between 1993 and 1995, the emergence and popularization of the World Wide Web made the demand for domain names soar.<sup>29</sup> In China, intellectual property disputes over domain names massively erupted between 1995 and 1996 due to the principle of 'apply first, register first' adopted in the major gTLDs.<sup>30</sup> Along with the development of e-commerce and its constant penetration to daily economic fields, the conflicts between domain names and trade marks intensified. When cybersquatting<sup>31</sup> began to occur, the commercial value of domain names was

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<sup>27</sup> Andrew G. Malis, *RFC 878: The ARPANET 1822L Host Access Protocol* (December 1983) IETF <<https://tools.ietf.org/html/rfc878>>.

<sup>28</sup> P. Mockapetris, *RFC 882: Domain Names - Concepts and Facilities* (November 1983) IETF <<https://www.ietf.org/rfc/rfc882.txt>>.

<sup>29</sup> Milton L. Mueller, above n3, 105.

<sup>30</sup> *Ibid*, 114.

<sup>31</sup> "Since two domain name registrants cannot have two domain names spelled the same way, there has been a frenzy by individuals to register many well-known domain names. The problem arises when individuals register or reserve domain names of a pre-existing trade mark with the intent to resell. This phenomenon is called cybersquatting which (for gTLDs) is typically resolved through use of ICANN's UDRP." Anahid Chalikian, 'Cybersquatting' (2001) (3) *Journal of Legal Advocacy and Practice* 106, 106.

generally identified. Chinese legal professionals began to explore the intellectual property rights of domain names. But at the time, the communicating value of domain names was ignored. It is worth studying and analysing the public interests, social values, and social rights inherent in the identification function, business value, and communication attributes of domain names so as to better understand how Chinese governments have balanced the interests of the state, and social and individual interests under the rule of the Chinese Communist Party.

Having introduced basic information about Chinese domain names, the next section reviews the scholarly literature on this topic.

### **1.3.2 Review of Relevant Chinese-Language Literature**

Chinese scholarly research on domain names mainly falls into the disciplines of computer technology and applications, law, politics, and economics. As this dissertation focuses upon the institutional formation and change of the administrative regulations of the .cn ccTLD, this literature review analyses the research on the regulation of China's domain names in Chinese and in English, and briefly introduces research by Chinese computer scientists, lawyers, political scientists and economists.

In 1992, the first article about domain names in China was published in the field of computer technology and applications<sup>32</sup> It was written by a Chinese computer scientist, ZHANG Shaorun, who simply introduced the existing values, operating mechanism, advantages and disadvantages of the DNS.<sup>33</sup> Up to 31 December 2016, in the discipline of computer technology and applications, there were about 5600 articles published by Chinese scientists.<sup>34</sup> These works primarily focused on research on DNS

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<sup>32</sup> This data was the conclusion from searching the keyword and theme of domain names in CNKI (Chinese database). The time of visiting CNKI was 1 November 2015.

<sup>33</sup> ZHANG Shaorun, 'Wei Hu Xi Tong Xin Xi Yi Zhi Xing De Qu Yu Ming Xi Tong' (1992) 31 (6) *Xia Men Da Xue Xue Bao (Zi Ran Ke Xue Ban)* 600.

<sup>34</sup> This data was the conclusion from searching the theme of domain names in the discipline of computer technology in CNKI (Chinese database). There were 5638 articles, including 4404 articles about internet technology, and 1234 articles about computer software and applications. The time of visiting CNKI was 1

security protection<sup>35</sup>, domain name resolution<sup>36</sup>, domain name filtering<sup>37</sup>, domain information resource management<sup>38</sup>, domain names activity<sup>39</sup> and technical problems relating to domain names.

Chinese political scholars have mostly studied the issues of domain names' international multilateral governance, national network security, and national political security from the perspective of safeguarding national cyberspace sovereignty. SHEN Yi argued that the administrative power over the DNS was the fundamental origin of the power of cyberspace information administration. After the analysis of operational rules and administrative modes of domain name servers, he proposed that when China, as a sovereign nation, confronted the corrosion from external stimulation triggered by the high-speed development of information technology, it should choose the international mutual governance mode based on multilateralism to cope with these kinds of challenges.<sup>40</sup> Shen also thought about whether the International Telecommunication Union (ITU) should be involved in the dispute over ICANN's allocation of domain names and IP addresses and the dispute over who should manage the ccTLDs, and that disputes about how to resolve sensitive domain names should all

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November 2015.

<sup>35</sup> See YE Mingzhi, 'Xin Xi Xi Tong An Quan Fang Hu Ti Xi Yan Jiu' (2004) 18 (2) *Bei Jing Lian He Da Xue Xue Bao (Zi Ran Ke Xue Ban)* 47; WANG Yao, HU Mingzeng, LI Bin, and YAN Boru, 'Yu Ming Xi Tong An Quan Yan Jiu Zong Shu' (2007) 28 (9) *Tong Xin Xue Bao* 91.

<sup>36</sup> See WANG Yunlan, LI Zengzhi, XUE Jun, BAN Shimin, 'Ji Yu DNS De Fu Zai Jun Heng Suan Fa Yan Jiu' (2002) (4) *Ji Suan Ji Gong Cheng Yu Ying Yong* 11; YAN Hongfei, LI Xiaoming, 'Guan Yu Zhong Guo Web De Da Xiao, Xing Zhuang He Jie Gou' (2002) 39 (8) *Ji Suan Ji Yan Jiu Yu Fa Zhan* 958; TAN Mingjia, 'DNS Ji Shu De Ying Yong Fen Xi' (2004) 25 (4) *Ji Suan Ji Gong Cheng Yu She Ji* 958; ZENG Xianzhang, LI Xiao, WANG Feng, and MAO Wei, 'Dong Tai Yu Ming Jie Xi Fu Wu Xi Tong Ji Xiang Guan Wen Ti Tan Tao' (2005) 22 (12) *Wei Dian Zi Xue Yu Ji Suan Ji* 81.

<sup>37</sup> See ZHANG Yang, LI Jianliang, LI Zhanhuai, 'Yi Zhong Ji Yu Yu Ming De Fei Fa Wang Zhan Guo Lv Ji Shu' (2003) 14 *Ji Suan Ji Gong Cheng Yu Ying Yong* 170; PENG Yong, FAN Lejun, CHEN Dongqing, CHENG Xueqi, 'Ji Yu Tou Ming Dai Li De Yu Ming Xi Tong Yin Huan Fen Xi Yu Fang Yu Ce Lue' (2011) 51 (10) *Qing Hua Da Xue Xue Bao (Zi Ran Ke Xue Ban)* 1318; XIA Qin, WANG Zhiwen, and LIU Lu, 'Ji Yu Yu Ming Gong Xian Xing Wei De Jiang Shi Wang Luo Xing Wei Zhui Zong' (2012) 46 (4) *Xi An Jiao Tong Da Xue Xue Bao* 7.

<sup>38</sup> See SU Guangli and GUO Mingying, 'Zhong Wen Yu Ming Xin Xi Zi Yuan Guan Li Yu Bao Hu' (2002) 21 (5) *Qing Bao Xue Bao* 603; YUAN Chunyang, WANG Xi, and LUO Hao, 'Yu Ming Xin Xi Zhu Dong Huo Qu Ji Bei Fen Xi Tong De She Ji He Shi Xian' (2010) 27 (7) *Ji Suan Ji Ying Yong Yan Jiu* 2681; ZHENG Lixiong, LI Qingshan, LI Suke, and YUAN Chunyang, 'Ji Yu Yu Ming Xin Xi De Diao Yu URL Tan Ce' (2012) 38 (10) *Ji Suan Ji Gong Cheng* 108.

<sup>39</sup> See FU Deyu, YANG Qinghai, and DAI Chengqin, 'Ji Yu Yu Ming Huo Yue Du De Gao Xiao Xin Xi Hua Ping Jia Fang Fa' (2009) 11 (2) *Ha Er Bin Gong Ye Da Xue Xue Bao (She Hui Ke Xue Ban)* 113.

<sup>40</sup> See SHEN Yi, 'Duo Bian Zhu Yi Yu Xin Xi Kong Jian De Guo Ji Zhi Li – Yi Yu Ming Xi Tong Wei Li' (2006) (9) *Fu Dan Guo Ji Guan Xi Ping Lun* 79, 92.

be classified as cyberspace order disputes. No matter how it dealt with these issues, Shen argued, China should uphold the basic objective that these issues should not threaten its survival and development as a sovereign nation.<sup>41</sup> WANG Jun stated that the survival of ccTLDs was related to the security of cyberspace sovereignty.<sup>42</sup> FANG Binxing proposed that China should unite with other nations to set up an autonomous root domain name resolution system on the basis of ccTLDs' alliances in order to respond to potential threats of domain names being blocked or networks broken and so forth caused by a central domain name resolution system.<sup>43</sup> WANG Jun, FANG Binxing, and YE Zheng all formalized the concept of cyberspace sovereignty and pointed out that cyberspace sovereignty was directly related to the security and stability of a country.<sup>44</sup>

Chinese economic scholars have paid more attention to domain name accounting measurements, investment values, and marketing strategies. In respect to accounting measurement of domain names, ZHANG Qingqiu, XIE Yancheng, and ZHANG Qianming argued that domain names should be recognized as an intangible asset and provided detailed analyses of how to measure their accounting value.<sup>45</sup> Through the analysis of domain names' operational expenses, customer indicators, validity indexes, business value indexes, operating performance indicators basing on customer base, other indicators indicating the status of enterprises, and macro environmental indicators, DONG Yanan established a value evaluation system for domain names.<sup>46</sup> He noted that the first thing to be done was to evaluate domain names' prices, item to item, and

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<sup>41</sup> See SHEN Yi, 'Neng Li, Deng Ji Yu Zhi Xu: Quan Qiu Wang Luo Kong Jian Xin Xi Zhi Xu Yan Jiu – Ji Yu Guo Ji Zhi Xu De Yan Jiu Shi Jiao' (2014) (1) *Fu Dan Guo Ji Guan Xi Ping Lun* 70, 79-81.

<sup>42</sup> See WANG Jun, 'Guan Nian Zheng Zhi Shi Ye Xia De Wang Luo Kong Jian Guo Jia An Quan' (2013) (3) *Shi Jie Jing Ji Yu Zheng Zhi* 45, 52, 57.

<sup>43</sup> See FANG Binxing, 'Cong Guo Jia Wang Luo Zhu Quan Tan Ji Yu Guo Jia Lian Meng De Zi Zhi Gen Yu Ming Jie Xi Ti Xi' (2014) (12) *Xin Xi An Quan Yu Tong Xin Bao Mi* 35, 35-37.

<sup>44</sup> See WANG Jun, above n42; FANG Binxing, above n43; YE Zheng, 'Dui Wang Luo Zhu Quan De Si Kao' (2015) (7) *Zhong Guo Xin Xi An Quan* 28; WANG Yuan, 'Wang Luo Zhu Quan, Yi Ge Bu Rong Hui Bi De Yi Ti', *Ren Min Ri Bao*, 23 June 2014, 23.

<sup>45</sup> See ZHANG Qingqiu, 'Shi Lun Wang Luo Yu Ming De Kuai Ji Que Ren Yu Ji Liang' (2003) (10) *Shen Ji Li Lun Yu Shi Jian* 18, 19; XIE Yancheng, 'Yu Ming De Jia Zhi Ji Qi Kuai Ji Guan Li' (2003) (11) *Zhong Guo Kuai Ji Dian Suan Hua* 16, 16-17; ZHANG Yanming, WANG Binyang, and HONG Bo, 'Shi Xi Qi Ye Yu Ming De Kuai Ji Ji Liang Wen Ti' (2010) (15) *Cai Kuai Yue Kan* 63, 63.

<sup>46</sup> See DONG Yanan, 'Wang Luo Yu Ming Jia Zhi Ping Gu Zhi Biao Ti Xi She Ji' (2008) (21) *Cai Kuai Yue Kan* 13, 13.

then to comprehensively trade off and confirm the true price of the domain names on the basis of his analysis of domain names' compensation price, excess price, average price, and adjusting price and their valuation models respectively.<sup>47</sup> With respect to domain names' investment value, QIN Shibo argued that domain names under the .cn ccTLD were an important resource and had big investment value for companies, and offered advice on how to invest in domain names.<sup>48</sup> LI Tingchun proposed that domain name investment was a kind of speculation and introduced skills and principles for domain name investment.<sup>49</sup> ZHANG Yiqing and LIU Yan analysed the benefits and risks of domain name investment from the perspectives of information economics and game theory, and concluded that domain name transactions between companies were profitable for both parties.<sup>50</sup> In relation to domain names' marketing strategy, LIU Fengjun suggested that companies should register their domain names as an international marketing tactic because the internet was the fundamental platform for the internationalization of enterprises.<sup>51</sup> FANG Fang and QIN Tianbao analysed the distributed domain name strategy, single domain name strategy, third-level domain name strategy, and customer service strategy under the background of domain names marketing.<sup>52</sup> BAI Guoyu and YU Dan put forward the idea that companies should utilize search engines, emails, web links, online advertising, online communities, public opinion, traditional media and so forth, to popularize domain names. They also pointed out some problems that should be attended to during such promotion.<sup>53</sup> WANG Yongji introduced the development status of Chinese domain names and problems in their promotion, and reminded readers that small and medium-sized enterprises should avoid registration of highly repetitive domain names, should select domain names with localization characteristics, and should keep to the practice of

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<sup>47</sup> See DONG Yanan, 'Wang Luo Yu Ming De Jia Ge Gou Cheng Ji Ping Gu Mo Xing Tan Tao' (2008) 11 (19) *Zhong Guo Guan Li Xin Xi hua* 18.

<sup>48</sup> See QIN Shibo, 'Qian Xi CN Yu Ming De Tou Zi Jia Zhi' (2005) 263 (2) *Shang Ye Jing Ji* 24.

<sup>49</sup> See LI Tingchun, 'Wo Guo Yu Ming Tou Zi Shi Chang Fen Xi' (2008) (5) *Te Qu Jing Ji* 219.

<sup>50</sup> See ZHANG Yiqing and LIU Xiaoyan, 'Qi Ye Yu Ming Tou Zi De Jia Zhi Ji Qi Cheng Ben Fen Xi' (2012) (12) *Dian Zi Shang Wu* 47.

<sup>51</sup> See LIU Fengjun, 'Yu Ming Zhu Ce Yu Qi Ye Ying Xiao Guo Ji Hua' (2000) (6) *Zhong Guo Liu Tong Jing Ji* 17.

<sup>52</sup> See FANG Fang and QIN Tianbao, 'Wang Luo Ying Xiao Zhong Yu Ming Ce Lue He Gu Ke Fu Wu Ce Lue Fen Xi' (2001) 22 (2) *Shang Hai Hai Yun Xue Yuan Xue Bao* 49.

<sup>53</sup> See BAI Guoyu and YU Dan, 'Qi Ye Yu Ming Pin Pai Tui Guang Ce Lue' (2008) 529 (4) *Shang Chang Xian Dai Hua* 189.

using of groups of words in search engines.<sup>54</sup> SHEN Zhiwei, ZHANG Bin, and CHEN Wenji analysed the dynamic game model, the equilibrium of corporate reputation, and the failure of reputation mechanism caused by improper domain name management which led them to conclude that cybersquatting seriously damaged the reputation of the enterprises and the value of domain names. Finally, they provided some suggestions for domain name management.<sup>55</sup> In addition, HONG Yu offered a thorough analysis of how Chinese authorities had prioritized communication industries and policies as technological fixes to rejuvenate China's economic system and renegotiate its relationship with global capitalism.<sup>56</sup> Overall, the suggestions or advice for improving domain name management provided by these scholars were either too vague or too theoretical, rather than specifically in the details of this advice for the regulation of domain names in China.

Chinese legal scholars began publishing articles about domain names in 1997. By the end of April 2015, the collective research on China's domain names was mainly about: (1) domain names and trade mark rights; (2) domain names and intellectual property; (3) the judicial practices surrounding domain name disputes; (4) domain name regulations and policies; and (5) ICANN and its reform.

### (1) Similarities and Differences between Domain Names and Trade Mark Rights

Research on domain names and trade mark rights has focused mainly on the introduction of basic knowledge about domain names, the similarities and differences between domain names and trade marks, the conflicts between domain names and trade marks and the solutions to these problems which are discussed below. Because of the cybersquatting crisis that occurred between the end of 1996 and early 1997,<sup>57</sup>

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<sup>54</sup> See WANG Yongji, 'Zhong Xiao Qi Ye Wang Zhan Zhong Guo Shi Yu Ming Tui Guang Yan Jiu' (2011) 152 (7) *Guang Xi Qing Gong Ye* 138.

<sup>55</sup> See SHEN Zhiwei, ZHANG Bin, and CHEN Wenji, 'Yu Ming Guan Li Xia De Qi Ye Sheng Yu Ji Zhi Yan Jiu' (2011) 16 (6) *Xi An You Dian Xue Yuan Xue Bao* 91.

<sup>56</sup> HONG Yu, *Networking China: The Digital Transformation of the Chinese Economy* (University of Illinois Press, 2015), 5. For more research about the relationship between information technology and Chinese economy, please see HONG Yu, 'Reading the 13th Five-year Plan: Reflections on China's ICT Policy' (2017) *International Journal of Communication* (Online) 1755.

<sup>57</sup> ZHENG Chengsi, 'Yu Ming Qiang Zhu Yu Shang Biao Quan Wen Ti' (1997) 57 (7) *Zhong Guo Gong Shang Guan Li*

leading legal scholars ZHENG Chengsi, WANG Lianfeng, LI Chaoying and CHAO Yijun began to pay attention to the emerging field of domain names. They proposed that cybersquatting was not illegal; the conflicts between domain names and trade marks did not constitute trade mark infringement; and that negotiation, litigation, arbitration, and registration of similar trade marks were the main ways to resolve domain name disputes. These suggestions were not adopted by other scholars and policy makers in China<sup>58</sup> and institutional reform was the main way to resolve such disputes.<sup>59</sup> WANG Lianfeng, LI Chaoying and CHAO Yijun proposed that domain names were different from trade marks in relation to their uniqueness, non-geographical association, automatic access, lack of a legal code, and time characteristics.<sup>60</sup> XUE Hong argued that although domain names were different from trade marks, domain names could also be registered as trade marks on condition that they met the requirements of trade mark registration.<sup>61</sup> And HUANG Minxue concluded that domain names were trade marks from an analysis of the connotation of trade marks' and domain names' definitions, the correlative relationship between domain names and trade marks, and the cases of domain name disputes.<sup>62</sup> LI Yongming and ZHANG Zhenjie put forward the idea that domain names belonged to the category of commercial trade marks of intellectual property.<sup>63</sup> ZHENG Xinjian and GAO Xiaochun argued that there was much

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*Yan Jiu* 8, 8.

<sup>58</sup> See *ibid*, 9-10; FANG Ming, 'Qian Yi Yu Ming He Shang Biao De Chong Tu' (1999) (6) *Jiang Hai Xue Kan* 73; WANG Fanwu and SHAO Mingyan, 'Guan Yu Yu Ming Jiu Fen An Jian Zhong Ji Ge Wen Ti De Si Kao' (2000) (5) *Zhi Shi Chan Quan* 33; HAO Yuqiang, *above* n4, 15; QIN Ke and LI Xiaolan, 'Wang Luo Yu Ming Qiang Zhu He Shang Biao Quan Bao Hu' (2000) 19 (5) *Qing Bao Za Zhi* 53; WANG Liyun, 'Wang Luo Yu Ming Shi Yong Yu Shang Biao Quan Chong Tu De Jie Jue Tu Jing' (2003) (4) *Qing Bao Za Zhi* 18; LIU Chunlin, 'Lun Hu Lian Wang Shang Shang Biao Quan De Bao Hu' (2005) 23 (6) *He Bei Fa Xue* 60; MENG Xiangjuan, 'Yu Ming Yu Shang Biao Quan Li De Chong Tu Ji Jie Jue Tu Jing' (2007) 171 (4) *Xue Xi Yu Tan Suo* 114.

<sup>59</sup> See LIN Jianping and GAO Ru, 'Wang Luo Yu Ming Yu Shang Biao Chong Tu Yuan Yin Ji Jie Jue Ce Lue Yan Jiu' (2006) 24 (12) *He Bei Fa Xue* 130; YANG Lingmei, 'Yu Ming Yu Shang Biao Quan Zhi Chong Tu Yu Xie Tiao' (2009) 29 (4) *Zhong Nan Min Zu Da Xue Xue Bao (Ren Wen She Hui Ke Xue Ban)* 113.

<sup>60</sup> See WANG Lianfeng, 'Guo Ji Hu Lian Wang Shang Yu Ming Quan De Bao Hu' (1997) (5) *Guo Ji Shang Wu Yan Jiu* 27; LI Zhaoying and CHAO Yijun, 'Tan Tan Yu Ming Zhu Ce Ji Bao Hu' (1997) 47 (5) *Xin Xi Yu Dian Nao* 32; HAO Yuqiang, *above* n4, 16; WANG Lianfeng, 'Wang Luo Yu Ming De You Guan Wen Ti Yan Jiu' (2000) 33 (6) *Zheng Zhou Da Xue Xue Bao (She Hui Ke Xue Ban)* 107; ZHANG Jianhua, 'You Guan Yu Ming De Fa Lv Wen Ti Yan Jiu' (2001) 24 (3) *Shan Xi Da Xue Xue Bao (Zhe Xue She Hui Ke Xue Ban)* 11; LONG Jingrong, 'Yu Ming Zheng Yi Zhong De Ruo Gan Fa Lv Wen Ti Tan Xi' (2009) (2) *Qing Hai She Hui Ke Xue* 170; ZHANG Malin, LIU Li, and LIU Yudi, 'Wang Luo Yu Ming Qin Quan De Fa Lv Ren Ding Cheng Xu Ji Ji Zhun' (2013) 31 (8) *Qing Bao Ke Xue* 116.

<sup>61</sup> See XUE Hong, 'Mi Shi Zai Wang Luo Kong Jian De Shang Biao – Yu Ming Yu Shang Biao Bao Hu' (1999) (2) *Guo Ji Mao Yi* 42, 43.

<sup>62</sup> See HUANG Minxue, 'Shi Lun Hu Lian Wang Luo Shi Chang Yu Ming De Shang Biao Jia Zhi Yu Shang Yong Guan Li' (1998) (12) *Zhong Guo Ruan Ke Xue* 24.

<sup>63</sup> See LI Yongming and ZHANG Zhenjie, 'Zhi Shi Chan Quan Quan Li Jing He Yan Jiu' (2001) (2) *Fa Shang Yan Jiu*

in common between domain names and trade marks, and that they were both factors of goodwill.<sup>64</sup>

In area of research on the conflicts and disputes between domain names and trade marks, WANG Yongqiang argued that domain names could not infringe the rights of trade marks.<sup>65</sup> CHENG Yongshun insisted that domain names generally did not conflict with trade mark rights unless a domain name diluted a well-known trade mark.<sup>66</sup> However, most scholars, led by A Lamusi, argued that cybersquatting not only encroached upon trade mark rights, it might also violate an enterprise's name right, trade name right, appellation of origin right, and the rights and interests of enterprises protected by the Anti Unfair Competition Law.<sup>67</sup> WU Denglou stated that domain names using others' registered trade marks did not constitute an infringement, with the exception of special circumstances relating to the protection of well-known trade marks.<sup>68</sup> LV Xiaodong also put forward that there was a contradiction between the right of domain names and the prior right of registered trade marks.<sup>69</sup> Although protection for trade marks should not automatically be extended to domain names which ignored the rights of domain names, protection for well-known trade marks should be extended to their domain names<sup>70</sup> and a different level of protection for domain names should be developed on a case-by-case basis.<sup>71</sup> XUE Hong stated that

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89, 95.

<sup>64</sup> See ZHENG Xinjian and GAO Xiaochun, 'Wang Luo Yu Shang Yu Bao Hu' (2000) (3) *Zhi Shi Chan Quan* 9, 10.

<sup>65</sup> See WANG Yongqiang, 'Cong Shang Biao Dui Shang Pin De Yi Fu Xing Tan Yu Ming De Qin Quan Bu Neng' (2001) (12) *Xue Shu Yan Jiu* 136.

<sup>66</sup> See CHENG Yongshun, 'Shen Li Yu Ming Zhu Ce Jiu Fen An Jian De Ruo Gan Wen Ti' (2001) (1) *Zhong Guo Zhuan Li Yu Shang Biao* 3, 4.

<sup>67</sup> See A Lamusi, 'Qian Yi You Guan Yu Ming De Fa Lv Wen Ti' (1998) (2) *Zhi Shi Chan Quan* 15; XUE Hong, 'Ren Ke Yu Zhi Chi – Dian Zi Shang Wu De Zhi Shi Chan Quan Fa Lv Huan Jing' (1999) 13 (11) *Guo Ji Mao Yi* 49, 50.

<sup>68</sup> See WU Denglou, 'Xi Hu Lian Wang Yu Ming Yu Shang Biao Ming Cheng Chong Tu Zhi Jie Jue – Jian Ping Zhong Guo Hu Lian Wang Luo Yu Ming Zhu Ce Zan Xing Guan Li Ban Fa De You Guan Gui Ding' (1999) (3) *Zhi Shi Chan Quan* 31, 32-33; WANG Fanwu and SHAO Mingyan, above n58, 36; ZHU Yaming, 'Wang Luo Yu Ming Shi Yong Yu Chi Ming Shang Biao Bao Hu' (2003) (9) *Qing Bao Za Zhi* 35.

<sup>69</sup> See LV Xiaodong, 'Yu Ming Quan Yu Zhu Ce Shang Biao Zai Xian Quan De Chong Tu Ji Xie Tiao' (2000) (9) *She Hui Ke Xue* 43.

<sup>70</sup> See LV Xiaodong, 'Wang Luo Huan Jing Xia De Chi Ming Shang Biao Fan Dan Hua Bao Hu Wen Ti' (2002) (4) *Shang Hai She Hui Ke Xue Yuan Xue Shu Ji Kan* 87; ZHANG Malin, LIU Li, and LIU Yudi, above n60; LIU Manda, 'Yu Ming Qiang Zhu Qin Quan De Ren Ding Ji Zheng Duan Jie Jue' (2001) 81 (1) *Fa Shang Yan Jiu* 73, 76.

<sup>71</sup> See DONG Jingbo, 'Yu Ming Qiang Zhu Qin Fan Chi Ming Shang Biao Quan Wen Ti Tan Xi' (2004) (2) *Zhi Shi Chan*

the use of trade marks in websites, in the third-level or lower domain names, in email user names, or in parody did not constitute trade mark infringement.<sup>72</sup> HUANG Hui considered that cybersquatting on similar trade marks would encroached on the interests of trade mark holders and dilute or vilify the original trade marks.<sup>73</sup> HU Xiaohong and WEI Haozheng suggested that only when satisfying three conditions at the same time – registered maliciously, the implementation of an infringement, and the possibility of confusion – could the registration of domain names be regarded as a trade mark infringement.<sup>74</sup> ZHENG Xuanyu carried out a detailed analysis on the concept of ‘malicious cybersquatting’<sup>75</sup> and CHENG Yongshun made a detailed analysis of the cognizance of malicious cybersquatting.<sup>76</sup> After specific analysis of the effects of malicious cybersquatting in domain name disputes, of malicious purpose, of recognition of malice, and of some other general considerations, CHENG Ziwei stated that identification of malice in China was biased, and would lead to the favouring of the interests of prior trade mark proprietors.<sup>77</sup>

With respect to research on disputes between domain name rights and other rights, SHAO Peizhang first introduced the WIPO and the resolution mechanism on disputes between domain name rights and name rights in the United States and Germany, then suggested that China should adjust the relevant legal system to resolve these conflicts.<sup>78</sup> GAO Zhiming and ZHANG Desen put forward the idea that not only the rights of domain names should be protected, but also the rights of website names.

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Quan 49.

<sup>72</sup> See XUE Hong, ‘Yu Ming Jiu Fen Yu He Li Shi Yong’ (1999) (8) *Guo Ji Mao Yi* 49, 49; XUE Hong, ‘Fa Wang Yi Hui Hui – Zai Wo Guo Fa Lv Ti Xi Xia Zhi Cai Yu Ming Qin Quan Xing Wei’ (1996) 14 (6) *Guo Ji Mao Yi* 48, 49.

<sup>73</sup> See HUANG Hui, ‘Wang Shang Zheng Ming – Jie Jue Yu Ming Yu Shang Biao Chong Tu San Yuan Ze’ (2000) 12 (9) *Guo Ji Mao Yi* 48, 50.

<sup>74</sup> See HU Xiaohong and WEI Haozheng, ‘Mei Guo Yu Ming Yu Shang Biao Qin Quan Chong Tu Fa Lv Gui Zhi Yan Jiu – Fan Wang Yu Ba Zhan Xiao Fei Zhe Bao Hu Fa Dui Wo Guo De Qi Shi’ (2003) 31 (4) *Lan Zhou Da Xue Xue Bao (She Hui Ke Xue Ban)* 26.

<sup>75</sup> See ZHENG Xuanyu, ‘Yu Ming An Jian Zhong De E Yi Gai Nian Fen Xi’ (2003) (3) *Zhi Shi Chan Quan* 44.

<sup>76</sup> See CHENG Yongshun, above n66.

<sup>77</sup> See CHENG Ziwei, ‘Yu Ming Jiu Fen Zhong De E Yi Ren Ding Yan Jiu – Yi Bu Que Ding Gai Nian Li Lun Wei Fen Xi Gong Ju’ (2014) 92 (1) *Hua Dong Zheng Fa Da Xue Xue Bao* 100.

<sup>78</sup> See SHAO Peizhang, ‘Yu Ming Yu Xing Ming Quan Yi Chong Tu: Fang Fan Yu Jie Jue De Yu Wai Shi Jiao – Yi Shi Jie Zhi Shi Chan Quan Zu Zhi, Mei Guo He De Guo Wei Li’ (2005) (9) *Dian Zi Zhi Shi Chan Quan* 26.

Domain name rights included the exclusive use, lease, transfer, and renewal rights for domain names and the rights of website names were the same for website names used by a website creator. In disputes between domain name rights and website name rights, China generally treated these according to trade mark infringement or unfair competition and the settlement mechanisms were mainly arbitration and litigation. Judicial protection of website names in China had provided only weak protection, with the result that website name holders could not defend against another right to use a similar domain name.<sup>79</sup>

On the exemption from liability of domain name registries in China in disputes between domain name rights and other rights, LIU Manda noted that exemption clauses formulated by domain name registries could not be relied upon in the courts.<sup>80</sup> After the introduction of statutory exemption clauses and agreed exemption clauses for domain name registries worldwide, DENG Jiong advised Chinese authorities to standardize agreement exemption clauses made by the China Internet Network Information Center (CNNIC) and introduced statutory exemption clauses for CNNIC.<sup>81</sup>

## (2) Whether Domain Names Could be Regarded as Intellectual Property

Following the discussion on domain name rights and trade mark rights, Chinese legal scholars began to study whether domain names belonged to intellectual property. ZHENG Youde and XUE Hong stated that the rules of domain name administration had a great impact on traditional intellectual property rights.<sup>82</sup> ZHANG Naigen, and many

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<sup>79</sup> See GAO Zhiming and ZHANG Desen, 'Yu Ming Quan Yu Zhan Ming Quan De Shu Xing Yu Chong Tu – Yi Liang Ge Kai Xin Wang, Liang Ge Qu Na Er Wang An Wei Bi Jiao' (2011) 41 (4) *Xi Bei Da Xue Xue Bao (Zhe Xue She Hui Ke Xue Ban)* 92. Website name is the name that represents on the website. Website name and website's domain name may be the same or different. For example, China's well-known Tencent company's domain name is "www.qq.com", but its website name are "腾讯" and "Tencent". Chinese companies sometimes choose easy memorable English word/words as their domain names, but Chinese/English names of their companies will be presented at a prominent position on the websites. In addition, unfair competition term is not exclusive to intellectual property law, it is often applied to other aspects of economic activity under China's Unfair Competition Law.

<sup>80</sup> See LIU Manda, above n70, 76.

<sup>81</sup> See DENG Jiong, 'Shi Xi Yu Ming Deng Ji Guan Li Zhe Zai Yu Ming Zheng Yi Zhong De Fa Lv Ze Ren' (2001) (2) *Zhi Shi Chan Quan* 37.

<sup>82</sup> See ZHENG Youde, JIAO Hongtao, and XIAO Jian, 'Dian Nao Xin Xi Wang Luo Zhi Shi Chan Quan Bao Hu Yan Jiu' (1999) 20 (4) *Ke Yan Guan Li* 28; ZHENG Youde, 'Dian Nao Xin Xi Wang Luo Zhi Shi Chan Quan Ruo Gan Wen Ti Tan Xi' (1999) 71 (3) *Fa Shang Yan Jiu* 61; XUE Hong, 'Mei Li Xin Shi Jie – Yin Te Wang Shang De Zhi Shi Chan Quan

other scholars, proposed that domain names should be regarded as a new kind of intellectual property to protect.<sup>83</sup> Nevertheless, ZHENG Qifu argued only domain names with identification characteristics constitute intellectual property.<sup>84</sup> ZHANG Yurui argued that domain name rights belonged to the rights of operation identification in the field of anti-unfair competition.<sup>85</sup> JING Gang concluded that domain name rights were not property rights or intellectual rights and neither can they be applied to the law of property rights or intellectual property rights, but they should be specified in the cyberspace law.<sup>86</sup> SHOU Bu agreed that domain name rights were not intellectual property rights because no law anywhere in the world specified this.<sup>87</sup>

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Zong Heng Tan' (1999) (1) *Zhi Shi Chan Quan* 8, 12; QIAO Sheng, 'Wang Luo Zhong De Zhi Shi Chan Quan Bao Hu' (2001) 23 (5) *Xian Dai Fa Xue* 66, 70.

<sup>83</sup> See ZHANG Naigen, above n4, 139; ZHANG Naigen, 'Shi Xi Quan Qiu Dian Zi Shang Wu Zhong De Zhi Shi Chan Quan (Shang)' (1999) (1) *Shi Jie Mao Yi Zu Zhi Dong Tai Yu Yan Jiu* 16, 17; WANG Fanwu and SHAO Mingyan, 'Guan Yu Yu Ming Jiu Fen An Zhong Ji Ge Wen Ti De Si Kao' (2000) (5) *Zhi Shi Chan Quan* 33, 36; HAO Yuqiang, above n4, 16; ZHANG Guangliang, 'Wang Luo Huan Jing Xia De Zhi Shi Chan Quan Jiu Fen Ji Xiuang Guan Fa Lv Wen Ti' (2000) (2) *Zhi Shi Chan Quan* 16, 18; LIAO Fang, 'Wang Luo Huan Jing Zhong De Shang Biao Quan Bao Hu' (2000) 20 (4) *Zhi Shi Chan Quan* 43; QIN Ke, 'Wang Luo Yu Ming Shi Yong Zhong De Zhi Shi Chan Quan Wen Ti' (2000) (4) *Tu Shu Qing Bao Gong Zuo* 51; LI Xiaolan, 'Lun Wang Luo Yu Ming De Zhi Shi Chan Quan Bao Hu' (2000) 17 (1) *Ping Yuan Da Xue Xue Bao* 87; PANG Shuping, 'Yu Ming Zheng Duan De Fa Lv Fen Xi' (2000) 23 (1) *Shan Xi Da Xue Xue Bao (Zhe Xue She Hui Ke Xue Ban)* 75; HAO Yuqiang, 'Tan Zhong Wen Yu Ming Yu Shang Biao De Chong Tu Ji Qi Jie Jue' (2001) (4) *Zhi Shi Chan Quan* 21; CHENG Yongshun, above n66; ZHANG Jianhua, above n60; PENG Liu and WANG Fang, 'Chu Tan Dian Zi Shang Wu Zhong De Zhi Shi Chan Quan Wen Ti' (2002) (9) *Xian Dai Qing Bao* 168; YUAN Zhenfu, 'Yu Ming Wen Ti: Quan Li De Ping Deng Yu Ping Heng' (2003) 2 *Wang Luo Fa Lv Ping Lun* 269; KE Jiaer and REN Long, 'Zhong Wen Yu Ming Yu Xiang Guan Zhi Shi Chan Quan Bao Hu' (2003) 15 (1) *Yan Jiu Yu Fa Zhan Guan Li* 74; ZHENG Chengsi, *Zhi Shi Chan Quan Lun* (Fa Lv Chu Ban She, 2003), 9-19; ZHOU Xianzhi and ZHOU Jie, 'Yu Ming Qiang Zhu Fa Lv Wen Ti Tan Tao' (2003) 25 (4) *Ji Nan Xue Bao (Zhe Xue She Hui Ke Xue)* 27; YANG Qiao, 'Yu Ming Yu Shang Biao Chong Tu Ji Qi Jie Jue' (2004) 125 (4) *Ning Xia She Hui Ke Xue* 19; ZHONG Guangchi, 'Yu Ming Yu Shang Biao De Zheng Yi Ji Qi Jie Jue' (2004) (2) *Qing Bao Za Zhi* 39; ZHANG Lianyong, ZHANG Zhiqun, CUI Shuming, and YUAN Xiaohong, 'Yu Ming Xi Tong Yun Xing Zhong De Zhi Shi Chan Quan Qin Quan Wen Ti Fen Xi' (2004) 116 (10) *Xian Dai Tu Shu Qing Bao Ji Shu* 85, 87; FENG Yanhui, 'Yu Ming Zheng Yi Yu Shang Biao Chong Tu De Fa Li Fen Xi' (2005) (3) *Hua Nan Shi Fan Da Xue Xue Bao (She Hui Ke Xue Ban)* 31; LIU Ning, 'Yu Ming Fa Lv Di Wei Yan Jiu' (2006) 31 (6) *He Bei Da Xue Xue Bao (Zhe Xue She Hui Ke Xue Ban)* 76; YUN Yiqun, *Dian Zi Shang Wu Zhong Zhi Shi Chan Quan Guo Ji Bao Hu Zhi Yan Jiu* (Zhong Guo Zheng Fa Da Xue Bo Shi Xue Wei Lun Wen, 2007); MA Zhengyong, 'Guan Yu Yu Ming Fa Lv Xing Zhi Ji Qi Bao Hu De Si Kao' (2007) 29 (3) *Ning Xia Da Xue Xue Bao (Ren Wen She Hui Ke Xue Ban)* 62; CHENG Xiaona, *Lun Wang Luo Qin Quan Xing Wei De Te Shu Xing Yu Li Fa Dui Ce* (Zhong Guo Zheng Fa Da Xue Bo Shi Xue Wei Lun Wen, 2009), 90; JIANG Jianming, *Hu Lian Wang Yu Ming Yu Shang Biao Chong Tu Yan Jiu* (Zhong Guo Ren Min Gong An Da Xue Chu Ban She, 2011).

<sup>84</sup> See ZHENG Qifu, 'Lun Yu Ming Yu Shang Biao De Chong Tu Ji Qi Jie Jue' (2005) 13 (4) *Cheng Du Xing Zheng Xue Yuan Xue Bao* 40.

<sup>85</sup> See ZHANG Yurui, 'Lun Zhong Wen Yu Ming De Zhi Shi Chan Quan Shu Xing Yu Li Fa' (2001) (2) *Zhi Shi Chan Quan* 6, 7.

<sup>86</sup> See JING Gang, 'Yu Ming Fa Lv Wen Ti Si Kao' (2000) 26 (3) *Fa Xue Jia* 88, 92.

<sup>87</sup> See SHOU Bu, ZHANG Hui, and LI Jian, *Xin Xi Shi Dai Zhi Shi Chan Quan Jiao Cheng* (Gao Deng Jiao Yu Chu Ban She, 2003), 316.

### (3) Judicial Practices Surrounding Domain Name Disputes

Research on the judicial practices relating to domain name disputes has mainly been about the analysis of specific cases under the existing domain name dispute resolution mechanism in China and foreign countries, and how to improve the Chinese current domain name dispute resolution mechanism. XUE Hong proposed that enterprises could use the principle of ‘first come, first served’, technical methods, and disclaimer methods to solve conflicts between domain names and trade marks, besides litigation, arbitration and other means.<sup>88</sup> HUANG Xiaojian argued that the practice of registering another’s trade mark as domain name and of simultaneously acting in a way that was detrimental to the trade mark holder should result in legal liability according to unfair competition law. Furthermore, China should strengthen the quality of legislation and reform the administrative measures relating to domain name registration to protect domain name rights.<sup>89</sup> CHEN Gui and KE Jiaer stated that some adjustments should be made to trade mark law, anti-unfair competition law, and general principles of civil law.<sup>90</sup>

DENG Jiong proposed that Chinese authorities should formally identify the role of CNNIC in the domain name administrative system in China, officially increase the legal force of domain name regulations and rules promulgated by CNNIC, improve the existing domain name registration procedures, distinguish malicious cybersquatting and general domain name cybersquatting, set up special domain name disputes resolution institutions and procedures within CNNIC, and improve measures for combating cybersquatting.<sup>91</sup> DENG Jiong, FU Wang and ZHOU Bin all stated that the decision-making procedures of the Uniform Domain Name Dispute Resolution Policy

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<sup>88</sup> See XUE Hong, ‘Duo Chong Xing Yu Wei Yi Xing – Yu Ming Jiu Fen Zhong De Quan Li Chong Tu’ (1999) (10) *Guo Ji Mao Yi* 47.

<sup>89</sup> See HUANG Xiaojian, ‘Yin Te Wang Yu Ming Shi Yong Zhong De Zhi Shi Chan Quan Wen Ti’ (2000) (3) *Zhi Shi Chan Quan* 6, 8.

<sup>90</sup> See CHEN Jiang and LIN Xuan, ‘Guo Wai Dui Yu Ming Yu Shang Biao Jiu Fen De Si Fa Jie Jue Ji Dui Wo Guo De Qi Shi’ (2000) 15 (12) *Guo Ji Mao Yi Wen Ti* 54; KE Jiaer and REN Long, above n83; GUO Xuewen, ‘Ji Suan Ji Wang Luo Yu Ming Min Shi Jiu Fen De Fa Lv Gui Zhi’ (2010) (12) *Qiu Suo* 171.

<sup>91</sup> See DENG Jiong, ‘Zhong Guo Jie Jue Yu Ming Qiang Zhu Zheng Duan De Si Fa Shi Jian Yu Ping Xi – Jian Lun Wo Guo Yu Ming Guan Li Ti Zhi Yu Zheng Duan Jie Jue Ji Zhi De Wan Shan’ (2000) (2) *Ke Ji Yu Fa Lv* 90, 93; ZHOU Xianzhi and ZHOU Jie, above n83. For more information about UDRP, please see the part International Domain Name Rules and Regulations in the section 5.1.2.1 International Legal Environment in this dissertation.

(UDRP) were rapid, cheap, and simple, which also solved the issues of international domain name dispute jurisdiction and applicable laws. Furthermore, most of UDRP decisions had been respected and implemented by the affected parties. Therefore, China should reference UDRP practices.<sup>92</sup> After analysis of the agents' rights and interests in domain name disputes regulated under UDRP, WANG Yong perceived that agents' rights and trade mark holders' rights were often indistinguishable under current Chinese domain name arbitration rules, which might result in making wrong or adverse decisions against the parties.<sup>93</sup> Following analysis of the resolution mechanism on disputes between domain names and trade marks in the United States, ICANN and China, XIE Guanbin and others suggested that China should resolve disputes in terms of technology, the value of rights, and legal regulations simultaneously.<sup>94</sup> QIU Junping and CHEN Jingquan conducted a detailed comparison and analysis of the application of laws in domain name disputes, the identification of malicious domain name registration, the responsibilities of registries, and relevant legal relief between the United States and China, then deduced that China should learn from the experiences of the United States and should set up a Chinese legal protection system for domain names.<sup>95</sup> SHI Qinyan and TIAN Wei considered that ICANN rules on reverse domain name hijacking and domain name squatting were a trade-off between trade mark holders and domain name registrants and would be useful for China as a reference in the legal protection for domain names.<sup>96</sup> HAO Yiding proposed the establishment of a domain name dispute resolution mechanism to resolve disputes between domain names and trade marks.<sup>97</sup> ZHANG Lianyong and others suggested the establishment of an emergency and early warning mechanism for intellectual property

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<sup>92</sup> See DENG Jiong, 'Gui Fan Yu Ming Qiang Zhu De Guo Ji Li Fa Xin Fa Zhan – ICANN <Tong Yi Yu Ming Zheng Duan Jie Jue Gui Ze> Ping Xi' (2001) 108 (1) *Fa Lv Ke Xue* 41; FU Wang and ZHOU Bin, 'Yu Ming Zheng Ce De Xin Fa Zhan Ji Jie Jian' (2000) (3) *Zhi Shi Chan Quan* 19, 21.

<sup>93</sup> See WANG Yong, 'Qian Xi UDRP Gui Ze Xia Bei Tou Su De Dai Li Shang Dui Xi Zheng Yu Ming De Quan Yi' (2009) 19 (6) *Zhi Shi Chan Quan* 27.

<sup>94</sup> See XIE Guanbin, 'Cong Yu Ming De Fa Lv Bao Hu Kan Zhi Shi Chan Quan Zhi Du De Fa Zhan' (2001) 107 (3) *Fa Xue Ping Lun* 61; CHENG Xiaona, above n83, 102.

<sup>95</sup> See QIU Junping and CHEN Jingquan, 'Zhong Mei Yu Ming Zi Yuan Fa Lv Bao Hu De Bi Jiao Fen Xi' (2002) (5) *Tu Shu Qing Bao Zhi Shi* 2.

<sup>96</sup> See SHI Qinyan and TIAN Wei, 'Tou Shi ICANN Gui Ze Zhi Xia De Fan Xiang Yu Ming Qin Duo Wen Ti – Cong Yi Ze WIPO An Li Tan Qi' (2004) (8) *Dian Zi Zhi Shi Chan Quan* 46.

<sup>97</sup> See HAO Yiding, 'Lun Yu Yu Ming Xiang Guan De Shang Biao Quan Li Jiu Fen Ji Qi Jie Jue' (2010) (1) *Zheng Zhi Yu Fa Lv* 23.

protection besides the technical protection of domain name rights.<sup>98</sup> WANG Ling and others proposed, in addition, that relevant intellectual property regulations should be modified and judicial practices of Chinese authorities should be improved. They also stated Chinese enterprises should enhance their awareness of private rights in order to protect the rights of domain names.<sup>99</sup>

#### (4) Domain Name Regulations and Policies

While many legal scholars in China have studied the domain name dispute resolution mechanism, many other legal scholars have gradually begun to focus on the research of domain name regulations and policies from a macro perspective. This research has mainly introduced the development history of China's domain name regulations and policies, their defects and loopholes, and the relevance of foreign domain name regulations and policies to China. ZHANG Naigen analysed the relevant provisions in the Interim Administrative Measures on Domain Name Registration (IAMoDNR) released in 1997 and concluded that the contemporaneous domain name administrative pattern in China was similar to that of the US DARPA.<sup>100</sup> WU Denglou stated that the two solutions resolving conflicts between domain names and trade mark rights formulated in IAMoDNR had the drawbacks of insufficient operability and unclear infringement guidelines.<sup>101</sup> HUANG Hui and DENG Jiong noted that domain name dispute resolution provisions in IAMoDNR were vague and not clear enough to identify the real power subject and the scope of power to solve trade mark disputes.<sup>102</sup> FU Wang, ZHOU Bin and others argued that the provision stating that individuals were not allowed to register a domain name in IAMoDNR was too strict and the clause that domain names could not be transferred was contrary to the principles of a market economy; further, that it was obviously unfair that trade mark owners had the right to

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<sup>98</sup> See ZHANG Lianyong, ZHANG Zhiqun, CUI Shuming, and YUAN Xiaohong, above n83, 87.

<sup>99</sup> See WANG Ling and QU Jing, 'Zhong Guo .com Zheng Zai Zao Yu Ru Shi Wei Ji – Dui Yi Qi Kua Guo Zhi Shi Chan Quan An De Fan Si' (2002) (4) *Fa Xue* 77; CHEN Wei and XIAO Hai, 'Zhong Guo Qi Ye Wu Xian Yu Ming Bao Hu Cun Zai De Wen Ti Ji Dui Ce' (2009) (12) *Ke Ji Guan Li Yan Jiu* 217; ZHAO Ou and LI Ning, 'Ke Ji Qi Kan Zhong Wen Yu Ming De Fa Lv Bao Hu' (2011) 23 (5) *Bian Ji Xue Bao* 390.

<sup>100</sup> See ZHANG Naigen, 'Qian Xi Quan Qiu Dian Zi Shang Wu Zhong De Zhi Shi Chan Quan (Xia)' (1999) (2) *Shi Jie Mao Yi Zu Zhi Dong Tai Yu Yan Jiu* 12, 15.

<sup>101</sup> See WU Denglou, above n68, 32-33.

<sup>102</sup> See HUANG Hui, above n73, 49-50; DENG Jiong, above n91.

object to a domain name registration which led to the effectiveness of the registered domain name being undermined. More seriously, trade mark owners who registered domain names later than domain name registrants still had the right to raise an objection to prior-registered domain names. In addition, provisions in IAMoDNR failed to provide a fast and reasonably cheap procedure to solve domain name disputes. Therefore, it was necessary for China to adopt ICANN's domain name dispute resolution policy or to revise and improve it according to UDRP's principles.<sup>103</sup> ZHANG Guangliang proposed increasing the legal force of the IAMoDNR.<sup>104</sup> HU Xiaohong and WEI Haozheng stated that China should establish a unified domain name law, just like the Anti-Cybersquatting Consumer Protection Act (ACPA) in the United States.<sup>105</sup> ZHANG Yurui also proposed a special law for domain names.<sup>106</sup>

HAO Yuqiang argued that the solutions for domain name disputes in the Chinese Domain Name Dispute Resolution Policy (Trial Implementation) (CDNDRP) released in 2000 were inconsistent with other domain name resolution policies, and the Guidance on the Trial of Intellectual Property Disputes Arising from the Registration and Use of Domain Names released by Beijing Superior People's Court had limited effect. Hence, China should promulgate a strong operational Chinese domain name dispute resolution policy as soon as possible, based on the characteristics of Chinese domain name registration in combination with international experiences.<sup>107</sup>

SUN Hanhui commented in detail on the revised contents of the CNNIC Domain Name Dispute Resolution Policy (CNNIC-DNDRP) released in 2006, and estimated the new version would better balance the interests between domain name registrants and trade mark holders.<sup>108</sup> ZHOU Huichun analysed the clauses in the CNNIC-DNDRP and

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<sup>103</sup> See FU Wang and ZHOU Bin, above n92; LIU Shuangning, 'Zhong Guo Hu Lian Wang Yu Ming Ling Yu Fa Lv Gui Zhi De Fa Zhan Ji Qi Fa Lv Wen Ti Tan Xi' (2002) 138 (1) *She Hui Ke Xue Ji Kan* 52.

<sup>104</sup> See ZHANG Guangliang, 'Wang Luo Huan Jing Xia De Zhi Shi Chan Quan Jiu Fen Ji Xiang Guan Fa Lv Wen Ti' (2000) 16 (2) *Zhi Shi Chan Quan* 18.

<sup>105</sup> See HU Xiaohong and WEI Haozheng, above n74.

<sup>106</sup> See ZHANG Yurui, above n85, 7.

<sup>107</sup> See HAO Yuqiang, above n83.

<sup>108</sup> See SUN Hanhui, 'Xin Xiu Ding De <Zhong Guo Hu Lian Wang Luo Xin Xi Zhong Xin Yu Ming Zheng Yi Jie Jue Ban

the Administrative Measures on China's Domain Names (AMoCDN) released in 2004, and suggested China should introduce a publicity system into the domain name registration procedure so as to reduce the volume of domain name disputes.<sup>109</sup> DING Ying and JI Yanna analysed and compared the identification of the rights and interests of the complainants in the UDRP and the CNNIC-DNDRP released in 2012 and then advised that CNNIC should make clear the civil rights and interests of names or logos.<sup>110</sup>

## (5) ICANN and its Reform

In addition to detailed research on Chinese domain name disputes and domain name policies, Chinese legal scholars have also studied how ICANN managed global domain name resources. These studies briefly introduced a general overview of ICANN and its reforms. SHI Yan introduced ICANN's affiliation, sources of funding, organisational principles, and its reform in 2002, following up with the suggestion that China should actively participate in ICANN's policy-making process.<sup>111</sup> XUE Hong introduced ICANN's main protection measures for intellectual property rights after it fully opened the registration of generic top-level domain names.<sup>112</sup> CUI Congcong and CHENG Qun noted that the transfer of ICANN's administrative power did not affect the fact that USA had the real controlling power over the internet. In order to for other national governments to have a strong role in the management of cyberspace, they believed it was better to establish an international organisation within the UN framework to achieve international governance of internet.<sup>113</sup> CHEN Xia and others noted that the National Telecommunications and Information Administration of the US Department of Commerce (NTIA) relinquished the main administrative power to ICANN in 2014 and would assist in accelerating the development of Chinese domain names, in breaking

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Fa> Shu Ping' (2006) (8) *Dian Zi Zhi Shi Chan Quan* 42.

<sup>109</sup> See ZHOU Chunhui, 'Yu Ming Zhu Ce Zhi Du Fan Si' (2006) (9) *Dian Zi Zhi Shi Chan Quan* 60.

<sup>110</sup> See DING Ying and JI Yanna, 'Zhuan Men Xing Yu Ming Zheng Yi Jie Jue Ji Zhi Zhong Tou Su Ren Quan Yi De Ren Ding' (2013) (8) *Zhi Shi Chan Quan* 34. For information about ICANN, please see section 5.1.2.1 International Legal Environment in this dissertation.

<sup>111</sup> See SHI Yan, 'ICANN De Zheng Zhi Jing Ji Xue Fen Xi' (2002) 118 (5) *Xian Dai Chuan Bo* 91.

<sup>112</sup> See XUE Hong, 'Quan Qiu Yu Ming Xi Tong Zhi Shi Chan Quan Bao Hu Cuo Shi Zui Xin Fa Zhan Yan Jiu' (2012) (1) *Zhi Shi Chan Quan* 82.

<sup>113</sup> See CUI Congcong, 'Hou Ling Jing Shi Dai De Guo Ji Wang Luo Zhi Li – Cong Mei Guo Ni Yi Jiao Dui ICANN De Jian Guan Quan Tan Qi' (2014) 32 (8) *He Bei Fa Xue* 26, 26; CHENG Qun, 'Hu Lian Wang Ming Cheng Yu Shu Zi Di Zhi Fen Pei Ji Gou He Hu Lian Wang Guo Ji Zhi Li Wei Lai Zou Xiang Fen Xi' (2015) 17 (1) *Guo Ji Lun Tan* 15.

the United States' monopoly on domain name root servers, and in giving China's voice greater power in the internet's international governance; but it also challenged the Chinese internet defense system and internet resource competition. Consequently, Chen thought China should participate in the construction of the new order of international internet governance from a strategic and tactical level.<sup>114</sup>

Although Chinese-language literature constitutes the majority of scholarly research on Chinese domain names, there is also some English-language scholarship on this topic, which is described in the next section.

### 1.3.3 Review of Relevant English-Language Literature

The research in English on the .cn ccTLD is the object of this component of the literature review. Research published by foreign scholars and Chinese scholars in English has mainly concentrated in the fields of the early development of the .cn ccTLD, domain name dispute resolution methods in China, Chinese domain name legal regulations and policies, and the internationalization of Chinese domain names. Professor Werner Zorn and others introduced the registration process of the .cn ccTLD, described the historical background and process of its development, and the foundation and development of CNNIC.<sup>115</sup> In terms of Chinese domain name dispute resolution methods, ZHANG Mo introduced the legal framework, laws, and regulations of Chinese domain name dispute resolution, analysed several cases of domain name cybersquatting adjudicated by Chinese courts, and pointed out that the regulations issued by the Ministry of Industry and Information relating to the administration and registration of domain names should not become the legal basis of judicial judgments

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<sup>114</sup> See CHEN Xia, ZHANG Hui, and HAO Xiaowei, 'Mei Guo Xuan Bu Jiang Yi Jiao ICANN Guan Li Quan De Dong Yi Yu Dui Wo Guo De Ying Xiang' (2014) (6) *Dui Wai Jing Mao Shi Wu* 93.

<sup>115</sup> See Werner Zorn, 'How China Was Connected to the International Computer Networks' (2007) 15 (2) *The Amateur Computerist* 36; Werner Zorn, *China's CSNET Connection 1987 – Origin of the China Academic Network CANET* (29 June 2012) Internet History <<https://sites.google.com/site/internethistoryasia/book1/personal-essay-werner-zorn>>; Monika Ermert and Christopher R. Hughes, 'What's in a name?: China and the Domain Name System' in Hughes, Christopher R. and Wacker, Gudrun, *China and the Internet: Politics of the Digital Leap Forward* (Routledge, 2003) 127; Chen-Dong Tso, 'Computer Scientists and China's Participation in Global Internet Governance' (2008) 44 (2) *Issues & Studies* 103.

in the courts.<sup>116</sup> After comparing analysis of the similarities and differences between UDRP and CNNIC-DND RP (2006) and their common problems, ZHANG Isabella Yi suggested procedures for appeal or a review committee for domain name dispute resolution should be added to solve the problem of inconsistent adjudication standards between various review tribunals, and that fines should be increased also to better protect intellectual property rights.<sup>117</sup>

In research into Chinese domain name laws and regulations and analysis of the differences in legislation and judicial practices relating to cybersquatting cases in China and the USA, FANG Fang and LIU Jiarui argued that China should learn from the Anti-Cybersquatting Consumer Protection Act. Specifically, China should also issue a single law for domain name cybersquatting which should cover all civil rights and interests of domain names and increase the domain name infringement compensation, punish, fine, or impose similar penalties.<sup>118</sup> After the introduction of clauses in AMoCDN (2002) and CNNIC-DND RP (2002), Michael E. Burke predicted laws and regulations relating to the internet in China would continue to be introduced or constantly updated.<sup>119</sup> YANG Feng and Milton L. Mueller listed some provisions in the Chinese domain name administrative regulations and concluded that the main purpose of regulating decentralized cyberspace in China was to build the centralized internet governance mode controlled by the Chinese governments.<sup>120</sup>

With respect to research on the internationalization of Chinese domain names, XUE Hong argued that the endeavour to control and manage the internationalization of Chinese domain names was to prevent chaos in the Chinese domain name registration

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<sup>116</sup> See ZHANG Mo, 'Governance of Internet Domain Names against Cybersquatters in China: A Framework and Legal Perspective' (2002) 26 (1) *Hastings International and Comparative Law Review* 51.

<sup>117</sup> See ZHANG Isabella Yi, 'A Comparative Study on the UDRP and the CND RP' (2010) 4 *Hong Kong Journal of Legal Studies* 45.

<sup>118</sup> See FANG Fang and LIU Jiarui, 'Does What Works for .com Also Work for .cn? Comparative Study of Anti-Cybersquatting Legal Systems in the United States and China' (2002) 20 (4) *The John Marshall Journal of Computer & Information Law* 541.

<sup>119</sup> See Michael E. Burke, 'China Law' (2003) 37 (3) *International Lawyer (ABA)* 927.

<sup>120</sup> See YANG Feng and Milton L. Mueller, 'Internet Governance in China: A Content Analysis' (2014) 7 (4) *Chinese Journal of Communication* 446.

market, to control speech, and to consider national security and strategic economic development.<sup>121</sup> However, Daithi Mac Sithigh maintained that the main purpose of CNNIC contending for administrative power over Chinese domain names was to confirm the Chinese government's administrative rights in cyberspace and to control the dissemination of Chinese information or speech over the internet.<sup>122</sup> After analysing the existing issues in the process of internationalization of Chinese domain names and the relevant rules issued by ICANN, Undrah B. Baasanjav stated that the fact that ICANN delegated the right to manage internationalized domain names to CNNIC (the national government's agency) implied that ICANN intended to cooperate with the Chinese government, which would lead to fewer opportunities for members of the public and social cyberspace communities to participate in cyberspace governance.<sup>123</sup>

To sum up this literature review on research into China's domain names, scientific scholars in Chinese had made a thorough study on protection, resolution, filtering, and resource management of the .cn ccTLD related to technology; political scholars in Chinese had provided a wealth of recommendations on the protection of national sovereignty from the perspective of international multilateral governance over the global internet; economic scholars in Chinese had analysed lucrative outcomes in respect to accounting measurement and investment value of .cn domain names; legal scholars in Chinese had reached a general consensus about the mutually inclusive relationship between domain names and trade marks and agreed that domain name rights formed part of intellectual property rights, had rich achievements on the judicial practice of domain name disputes, but the research provided a poor analysis of the .cn domain name administrative regulations and relevant policies, and had little study of ICANN reform which began to occur only in 2015. The research in English was very limited and focused on the early development of the .cn ccTLD and the internationalization of Chinese domain names. There were only a very few papers on

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<sup>121</sup> See XUE Hong, 'The Voice of China: A Story of Chinese-Character Domain Names' (2004) 12 (2) *Cardozo Journal of International & Comparative Law* 559.

<sup>122</sup> See Daithi Mac Sithigh, 'More than Words: The Introduction of Internationalised Domain Names and the Reform of Generic Top-Level Domains at ICANN' (2010) 18 (3) *International Journal of Law and Information Technology* 274.

<sup>123</sup> See Undrah B. Baasanjav, 'Linguistic Diversity on the Internet: Arabic, Chinese and Cyrillic Script Top-Level Domain Names' (2014) 38 (11) *Telecommunications Policy* 961.

domain name dispute resolution in China and the regulations of the .cn ccTLD. Overall, the research was mostly descriptive.

Although since the release of the US government's white paper opened the era of domain name constitutionalism,<sup>124</sup> more and more scholars had paid attention to the development of Chinese administrative regulations upon domain names, it could be concluded that Chinese and English research had applied predominantly historical analysis, case studies, qualitative analysis, and quantitative analysis<sup>125</sup> as the main research methods to explain problems relating to domain names and to provide suggestions, those scholars had not deployed a clearly-stated theoretical approach to study .cn domain names. Due to the lack of theoretical framework, this published research could only interpret issues relating to the .cn or contribute advice from a single discipline, which precluded them from testing how laws, politics, the economy and technology had interacted to influence the regulation of the .cn ccTLD. Furthermore, from the above literature review, it was known that research in the field of computer science had not discussed how domain name technology had affected the institutional formation and change of the regulations of the .cn ccTLD; research in the field of politics had not explored how political policies had affected the institutional formation and change of the regulations of the .cn ccTLD; research in the field of economics had not studied how domain name disputes and the distribution of commercial benefits related to domain names had affected the resolution mechanism of domain name disputes; and research in the field of law had not analysed how laws and regulations affected the institutional formation and change of the regulations of the .cn ccTLD. It is necessary to explain that the institutional formation and change of the regulation of the .cn ccTLD has been constrained by the combined effects of laws, politics, the economy and technology, which leaves a research gap. Subsequently, this dissertation analyses the connection between the institutional formation and change of the regulation of the .cn ccTLD and the politics, economy, laws and regulations, and technology from the perspective of New Institutional Economics to fill the gap in the research on the regulation of domain names in China. The original contributions and

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<sup>124</sup> Milton L. Mueller, above n3, 4-5.

<sup>125</sup> Such as historical analysis, see ZHENG Chengsi, above n57; case studies, see SHAO Peizhang, above n78; qualitative analysis, see WU Denglou, above n68; and quantitative analysis, see DONG Yanan, above n47.

significance of this thesis are detailed in the following section.

## 1.4 The Original Contributions and Significance of the Research

### 1.4.1 The Original Contributions of the Research

This dissertation makes four original contributions through: 1) its gathering and analysis of historical events relating to domain name regulation in China; 2) its introduction of concepts from New Institutional Economics theory to Chinese legal scholars; 3) its communication of Chinese-language scholarly thought about domain names to English-language scholars; and 4) its communication of Western analytical tools to Chinese domain name policy practitioners.

First, most of the existing research by Chinese scholars relating to the .cn ccTLD has been in the form of descriptive studies and there has been little analysis by Chinese or foreign scholars to explain why the events they have described occurred in the ways that they did.<sup>126</sup> This dissertation will be the first detailed research which uses a theoretical framework to explain and contextualise those events, thus filling a gap and advancing understanding in this field. Furthermore, it will provide a lens to better understand how Chinese governments have made policies to regulate the internet.

Second, this dissertation will introduce New Institutional Economics (NIE) to Chinese legal scholars who may not be familiar with this western interdisciplinary theory. The dissertation also seeks to improve that theory through testing hypotheses with Chinese cases of domain name regulations. It will contribute to debate within China about the transplantability of a number of regulatory concepts developed in the West, moving beyond just an analysis of the transplantability of legal institutions in isolation to an integrated analysis of regulatory institutions which operate through the modalities of law, cultural norms, market forces, architecture (such as software code)

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<sup>126</sup> For more information, please see section 1.2 Review of Relevant Literature in this chapter.

and transaction costs.

Third, this dissertation will contribute to the broader research base within NIE scholarship outside of China on the impact that differences in the institutional environment and higher-level institutions have on the effectiveness of lower-level governance institutions transplanted from the West into Asian countries, such as China. As much of this existing NIE scholarship has focused upon assessing the effectiveness of such transplanted institutions into former Communist countries in Eastern Europe,<sup>127</sup> this dissertation will contribute to assessments of NIE theory's power in a non-European/Western context.

Fourth, this dissertation provides institutional change knowledge and practical experiences of policy making relating to domain name regulations for Chinese stakeholders who want to be involved in future institutional development of the .cn ccTLD regulations, and will help them to better understand the constraints they must confront and the strategies they can deploy to make efficient and effective policy improvements. Also, it can be a reference to foreign stakeholders who face the same situation regarding domain name regulations faced by Chinese stakeholders and will help them to become aware of how politics, economics, laws and technology contribute to localize and characterize the regulation of domain names.

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<sup>127</sup> For example, Robert Henry Cox and Erich G. Frankland, 'The Federal State and the Breakup of Czechoslovakia: An Institutional Analysis' (1995) 25 (1) *Publius* 71; Petra Kuskovaa, Simone Gingrichb, and Fridolin Krausmannb, 'Long Term Changes in Social Metabolism and Land Use in Czechoslovakia, 1830–2000: An Energy Transition under Changing Political Regimes' (2008) 68 (1) *Ecological Economics* 394; Mulaj Isa, 'Redefining Property Rights With Specific Reference to Social Ownership in the Successor States of the Former Yugoslavia: Did It Matter For Economic Ef' (2007) (3) *CEU Political Science Journal* 225; Laura D'Andrea Tyson, 'Investment Allocation: A Comparison of the Reform Experiences of Hungary and Yugoslavia' (1983) 7 (3) *Journal of Comparative Economics* 288; Annette Hurrelmann, 'Analysing Agricultural Land Markets as Organizations: An Empirical Study in Poland' (2008) 67 (1) *Journal of Economic Behavior and Organization* 338; Piotr Szkudlarek, 'Telecommunications Services Market in the Light of the Agency Theory and the Transaction Cost Theory under New Institutional Economics: Case for Poland' (2014) 7 (3) *Journal Of International Studies* 70; Christian Schleyer, 'Economic and Ecological Transformation Processes in East German Water Management Regimes: The Role of Property Rights and Governance Structures' (2004) 34 (2) *Environmental Management* 281; Katrin Daedlow, Volker Beckmann, Maja Schlüter, and Robert Arlinghaus, 'Explaining Institutional Persistence, Adaptation, and Transformation in East German Recreational-Fisheries Governance after the German Reunification in 1990' (2013) 96 *Ecological Economics* 36; V. Balogh and K. Cseres, 'Institutional Design in Hungary: A Case Study of the Unfair Commercial Practices Directive' (2013) 36 (3) *Journal of Consumer Policy* 343.

## 1.4.2 Significance of the Research Outcomes

The outcomes of this dissertation are significant for three reasons.

First, the regulation of the .cn ccTLD is still changing. The detailed case studies in this dissertation offer Chinese stakeholders insights through which to more effectively engage with their national government on future ccTLD policy issues. The findings of this dissertation will increase stakeholder awareness of the extent to which the regulation of the .cn ccTLD has become a component of China's national sovereignty.<sup>128</sup> As the commercialization of the .cn ccTLD has increased, this has created challenges for the regulation of domain names as public resources, thus creating tensions between private-sector and governments' control.<sup>129</sup> ICANN and its GAC have both recognized the DNS is a kind of public resource. Whilst domain names were originally a Western concept, the administration upon its functions for the .cn ccTLD would reasonably be expected to accord with the public interests and/or the common good of the Chinese people.<sup>130</sup>

Second, some governments regard the ccTLDs as the platform for their state's economic growth and as a regulative subject through which they can govern their respective civil societies.<sup>131</sup> Although the technical management and operation of internet technologies, such as the Domain Name System, might not appear to be inherently political, internet governance has become political.<sup>132</sup> Therefore, greater understanding is essential for stakeholders of the ways in which the legal rules regulating the allocation and use of domain names inevitably embody the domestic, international, and trans-national characteristics of different nation states, cultures and

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<sup>128</sup> Peter K. Yu, above n2, 402; OECD, above n13(b); YE Zheng, above n44, 28.

<sup>129</sup> Milton L. Mueller, above n3, 67.

<sup>130</sup> GAC, *Principles for Delegation and Administration of ccTLDs Presented by Governmental Advisory Committee* (23 February 2000) ICANN <<https://archive.icann.org/en/committees/gac/gac-ccTLDprinciples-23feb00.htm>>.

<sup>131</sup> Peter K. Yu, above n2, 402.

<sup>132</sup> Saretta Ramdial, 'Who Should Govern the Internet: ICANN's Controversial Position Questioned and Challenged' (2007) 18 (3) *LBJ Journal of Public Affairs* 71, 72.

models for economic development.<sup>133</sup> Interdisciplinary research on China's domain name administrative regulations (such as that undertaken in this dissertation) is a central step towards exploring and understanding the richness and complexity of Chinese internet governance both for Chinese scholars/stakeholders and foreign scholars/stakeholders.

Third, this dissertation helps to connect and enrich the understanding of both Chinese scholars/stakeholders and Western scholars/stakeholders. It synthesizes insights from both Chinese-language scholarship and English-language scholarship of domain name regulation. By connecting these two previously separate bodies of scholarly literature, this dissertation will particularly help Western scholars of domain name regulation, most of whom do not speak Mandarin or Cantonese, and who therefore were previously unable to engage effectively with the significant body of Chinese-language scholarly literature. Hopefully, future scholars will be able to build upon this work to increase both the volume and sophistication of scholarly engagement across these linguistic / cultural divides.

## 1.5 The Limitations of the Research

Due to the limitation in the data, the methodology, and the research scope, the conclusion and advice of this dissertation has several limitations.

In relation to access to data, legislative materials and data about Chinese administrative measures relating to the .cn ccTLD released in 1997, 2002 and 2004 were not all publicly available and only fragmented data could be collected for this dissertation. Therefore, because the data collected was incomplete and one-sided, the reliability and credibility of the conclusion and advice provided in this thesis are imperfect. Subsequent scholars who are able to gain access to resources unavailable at this point in time might reach different conclusions.

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<sup>133</sup> Graeme B. Dinwoodie, '(National) Trademark Laws and the (Non-National) Domain Name System' (2000) 21 (3) *University of Pennsylvania Journal of International Economic Law* 495, 521.

With respect to the methodology, the qualitative analysis, historical research, case studies, interviews, and triangulation applied by this dissertation possessed some inherent limitations themselves.<sup>134</sup> These limitations influenced the conclusion of this thesis. Further, as most of the data explored by this dissertation was qualitative data, this thesis cannot make accurate quantitative analysis of the factors impacting on the institutional formation and change of the regulations of the .cn ccTLD and the effects of that; only qualitative analysis is possible. Consequently, this dissertation did not have a quantitative analysis of the numerical features, quantitative relations, and quantitative changes in the process of institutional formation and change of the regulations of the .cn ccTLD.

In definition of the research scope, this dissertation only undertook in-depth analysis of the Chinese administrative measures of the .cn ccTLD released in 1997, 2002 and 2004 in which was the newest effective regulation of the .cn ccTLD prior to August 2017. From 2004 to July 2017, there was regulatory stability, with no significant changes to the administrative regulation of the .cn ccTLD. It did not study China's domain name dispute resolution methods and the rules of procedure, China's domain name registration rules and the implemented procedure because the research of the administrative measures of the .cn ccTLD being the typical rules of domain names in China was sufficient to explore and explain the institutional formation, institutional change, and the evolution of the regulation of the .cn ccTLD. Also it did not look at the similarities and differences between Chinese administrative measures on ccTLDs and those of other nations, because if this research had covered administrative regulations released by 2014 in any other nation, it would have enlarged the research project beyond the scope of a PhD project. As a result, the conclusion and advice of this thesis derived from the process of institutional formation, institutional change, and contents' evolution of the regulation of the .cn ccTLD are not complete.

In summary, public materials and data has been collected online, at China Internet

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<sup>134</sup> For further details about the inherent limitations of the methodology applied by this dissertation, please see Chapter 2 'Theoretical Approach and Methodology' in this dissertation.

Network Information Center (CNNIC) in Beijing, and at the Institute for Internet Law, Peking University in Beijing by diligent effort, but it was not possible to gather relevant information and data from the Ministry of Information Industry of China which stores much of the original and comprehensive information and data related to the .cn ccTLD. Furthermore, many of the stakeholders identified as having participated in the historical events of the regulation of the .cn ccTLD refused or were unavailable to be interviewed, or could not be contacted.<sup>135</sup> Hence, inevitably, due to the flaws in the data and methodologies, also including the research scope, the conclusion and advice of this thesis are subject to different levels of limitations in reliability, credibility, accuracy, and universal applicability.

## 1.6 Conclusion

This chapter has discussed five topics: the research questions to be resolved, an overview of this dissertation, the literature review on China's domain names, the contribution/significance of the research, and the limitations of this dissertation.

In the first section, it put forward that the domain names had already become a kind of intangible asset which was protected by intellectual property rights. Further and importantly, governments can control cyberspace communication through regulation of the domain name system, and nations have declared their territorial sovereignty in cyberspace through the administration of ccTLDs. When nations began to realize the importance of ccTLDs, national governments gradually began to control and manage their ccTLDs. In China, since 1997, when China's first administrative measure of the .cn ccTLD was released, to the end of 2014, Chinese authorities had issued a total of 37 laws and regulations related to domain names. A valuable research issue is why China published or updated these laws and regulations so frequently. Simultaneously, understanding how China regulated the .cn ccTLD is a sub-topic of how China regulated its internet, because the domain name system is one of the core technologies of the internet. This dissertation deeply analyses the process of institutional formation and

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<sup>135</sup> If anyone is interested in the list of potential interviewees, please contact the researcher for more information.

change of the administrative measures of the .cn ccTLD, to explore how politics, economics, laws and technology influenced the development of the regulations of the .cn ccTLD from the stages of legal transplantation, localization and characterization.

The second section briefly set out each chapter's framework and main points, questions asked and hypothesis tested through all chapters in this dissertation.

The third section reviewed the literature about China's domain names written in Chinese and in English. Among the research in Chinese, Chinese scholars' research on domain names mainly involved internet technology and computer application, laws, political science, economics and other disciplines. In the fields of internet technology and computer application, Chinese scholars mainly concentrated on DNS security protection, domain name resolution, domain name filtering, domain information resource management, domain name activity and other items relating to technological problems with domain names. In the discipline of political science, Chinese political scholars have mostly studied the issues of international multilateral governance of domain names, national network security, and national political security from the perspective of safeguarding national cyberspace sovereignty. In the research of economics scholars, Chinese economic scholars have paid attention to domain names accounting measurement, investment value and marketing strategy. In the field of law, Chinese legal scholars have mainly studied domain names and trade mark rights, domain names and intellectual property, the judicial practices surrounding domain name disputes, domain name regulations and policies, and ICANN and its reform. The research published by foreign scholars and Chinese scholars in English has mainly concentrated on the fields of the early development of the .cn ccTLD, domain name dispute resolution methods in China, Chinese domain name legal regulations and policies, and the internationalization of Chinese domain names.

In summary, research in the fields of computer science, political science, economics and law did not study the process of institutional formation and change of the regulations of the .cn ccTLD. Therefore, this dissertation will be the first detailed research to use a theoretical framework to explain and contextualise those events,

thus filling a gap and advancing understanding in this field. Furthermore, it will provide a lens to better understand how Chinese governments have made policies to regulate the internet.

The fourth section stated the four original contributions of the research and the three aspects of the research outcomes which are significant to academic scholars, policy practitioners, and the domain name industry, whilst the fifth section pointed out the limitations of this dissertation.

Overall, this first chapter introduced the background and reasons why the regulation of the .cn ccTLD was chosen to be the dissertation topic, conducted a literature review of the .cn domain names both in Chinese and English studies, analysed the contributions and significance of this research, and explained several limitations of this research.

In the next chapter, this dissertation will introduce the theoretical framework applied by this research, describe the research methods and data, and set forth the limitations of the methodology applied.

## 2 Theoretical Approach and Methodology

This chapter begins with an introduction about why New Institutional Economics theory was chosen as the theoretical framework for this dissertation and why the legal transplants theory is considered as supplementary. It then follows with the reasons for selecting research methods, a brief introduction to the qualitative research method, historical analysis, case studies, interviews, and the triangulation research method. Finally, there is an analysis of the data types deployed by this dissertation, the limitations of these data and the limitations of the research method applied.

### 2.1 Theoretical Framework

#### 2.1.1 Selection of New Institutional Economics

So as to develop an understanding of the path of administrative regulations of the .cn country-code Top-Level Domain (ccTLD) and exploring why they were regulated in the ways that Chinese stakeholders wanted, this dissertation will analyse historical cases that occurred in the institutional formation and change process from 1990 to 2004. Although the legal regulations are the research subject of this dissertation, in order to comprehensively understand how the historical cases affected the institutional development, this dissertation needs a multi-disciplinary perspective of politics, law, economics and technology to interpret how the constraints promoted or limited institutional formation and/or change, rather than from the single discipline of law. Consequently, an interdisciplinary approach which can integrate analysis from across those disciplines is appropriate. New Institutional Economics (NIE) is one such interdisciplinary approach.<sup>136</sup>

Furthermore, NIE theory analysed regulations from a variety of institutions whereas Economic Analysis of Law sought to explain legal phenomena through neoclassical

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<sup>136</sup> Claude Ménard and Mary M. Shirley (eds), *Handbook OF New Institutional Economics* (Springer, 2008) 2; Nicholas Mercuro, 'The Jurisprudential Niche Occupied by Law and Economics' (2009) 2 *The Journal of Jurisprudence* 61, 90-95.

economic models (and therefore had difficulty incorporating aspects of culture and politics into its analysis). Economic Analysis of Law, Socio-Legal or Law-in-Context and other research theories (except Legal Transplants theory which is introduced in the below section) will not be considered in this dissertation as NIE theory provides a broader theoretical framework to analyse institutional formation and change from multiple perspectives, such as politics, laws, economics, traditions, evolution, architecture and so on. This theory is an appropriate and logical tool to be applied to explain and analyse the events situated in the institutional formation and change of the regulation of the .cn occurred as it is more interdisciplinary than those alternative theoretical approaches.

In the context of NIE, institutions are usually considered to be the human created constraints on human behaviour.<sup>137</sup> These institutions constrain human behaviour through laws, cultural norms, markets, architecture, transaction costs and other means.<sup>138</sup> As the result, the NIE can not only study the institutions of norms, laws and the economy from the macro level, but also can discuss the institutions of economy, market and architecture from the micro level.<sup>139</sup> Having been developed by three

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<sup>137</sup> NIE theory has a lot of different definitions for institutions. This dissertation applies the most common definition. For more definitions, see for example: Armen Alchian and Harold Demsetz, 'The Property Right Paradigm' (1973) 33 (1) *Journal of Economic History* 16, 16; Douglass C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990) 3; Oliver E. Williamson, 'A Comparison of Alternative Approaches to Economic Organisation' in Eirik Furubotn and Rudolf Richter (eds), *The New Institutional Economics* (Mohr Siebeck, 1991) 104, 107; Malcolm Rutherford, *Institutions in Economics* (Cambridge University Press, 1994) 182; Randall Calvert, 'Rational Actors, Equilibrium, and Social Institutions' in Jack Knight and Itai Sened (eds), *Explaining Social Institutions* (University of Michigan Press, 1995) 57; Robert Goodin, 'Institutions and Their Design' in Robert Goodin (eds), *The Theory of Institutional Design* (Cambridge University Press, 1996) 10; Masahiko Aoki, 'Endogenizing Institutions and Institutional Change' (2007) 3 (1) *Journal of Institutional Economics* 1; John Campbell, *Institutional Change and Globalization* (Princeton University Press, 2004) 9-30; Hugh Heclo, *On Thinking Institutionally* (Paradigm Publishers, 2008) 46-79; Daniel Cole, 'The Varieties of Comparative Institutional Analysis' (2013) (2) *Wisconsin Law Review* 383; John Selby, *A New Institutional Economics Analysis of the History of the Regulation of the .AU Country-Code Top-Level Domain* (PhD Thesis, The University of New South Wales, 2013) 51.

<sup>138</sup> Some NIE scholars come from the Chicago School of Law, which introduced the four constraints of laws, norms, market, architecture (which originated from the Chicago School of Law) into the constraints on institutions. See John Selby, 132, 32; Lawrence Lessig, 'The New Chicago School' (1998) 27 (S2) *The Journal of Legal Studies* 661, 667; Lawrence Lessig, *Code and Other Laws of Cyberspace* (Basic Books, 2000); Eric Posner, *Law and Social Norms* (Harvard University Press, 2nd edn, 2002).

<sup>139</sup> See for example: Nicholas Mercuro, above n136, 90-95; Oliver E. Williamson, 'The New Institutional Economics: Taking Stock, Looking Ahead', (2000) 38 *Journal of Economic Literature* 595; Claude Menard, 'Methodological Issues in New Institutional Economics' (2001) 8(1) *Journal of Economic Methodology* 85; Dragan Petrovic and Zoran Stefanovic, 'Methodological Position(s) of Institutional Economics' (2009) 6(2) *Economics and Organisation* 105, 110-113.

Nobel Prize winners – Oliver Williamson, Douglass North, and Ronald Coase – and other scholars' contributions, NIE theory was focused on research on institutions and the interaction between institutions and the economy under the context of basic hypotheses of opportunism<sup>140</sup>, bounded rationality<sup>141</sup>, incomplete and asymmetric information<sup>142</sup>, transaction costs<sup>143</sup>, agency costs<sup>144</sup> and so forth. Because legal scholars have not often applied NIE theory, it may be unfamiliar to legal academia. Accordingly, chapter 3 of this dissertation provides a succinct yet detailed introduction to its theoretical framework and basic hypotheses. Besides NIE theory, Legal Transplant Theory could also provide a transplanted perspective to study institutions, which is considered to be an auxiliary theoretical framework for this dissertation and is introduced in the next section.

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<sup>140</sup> See Chao Chen, Mike Peng and Patrick Saporito, 'Individualism, Collectivism and Opportunism: A Cultural Perspective on Transaction Cost Economics' (2002) 28 (4) *Journal of Management* 567; Oliver E. Williamson, *Markets and Hierarchies* (The Free Press, 1975) 255; Oliver E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting* (MacMillan, 1985); Geoffrey Hodgson, 'Opportunism is not the Only Reason Firms Exist' (2004) 13 (2) *Industrial and Corporate Change* 401.

<sup>141</sup> See Herbert Simon, 'A Behavioural Model of Rational Choice' (1955) 69 (1) *The Quarterly Journal of Economics* 99; Jack Vromen, *Economic Evolution: An Enquiry into the Foundations of New Institutional Economics* (Routledge, 1995) 47-48; Oliver E. Williamson, *The Economic Institutions of Capitalism* (The Free Press, 1985) 27; Oliver E. Williamson, 'A Comparison of Alternative Approaches to Economic Organisation' (1990) 146 (1) *Journal of Institutional and Theoretical Economics* 61, 68; Paul Pierson, 'The Limits of Design: Explaining Institutional Origins and Change' (2000) 13(4) *Governance: An International Journal of Policy, Administration and Institutions* 475.

<sup>142</sup> See Joseph Stiglitz, 'Monopoly, Non-Linear Pricing, and Imperfect Information: The Insurance Market' (1977) 44 (3) *Review of Economic Studies* 407; George Akerlof, 'The Market for Lemons' (1970) 84 (3) *Quarterly Journal of Economics* 488; Charles Hill and Thomas Jones, 'Stakeholder – Agency Theory' (1992) 29 (2) *Journal of Management Studies* 131.

<sup>143</sup> See Ronald H. Coase, 'The Nature of the Firm' (1937) 4 *Economica* 386; Ronald H. Coase, 'The Problem of Social Cost' (1960) 3 *Journal of Law and Economics* 1; Michael Spence, *Market Signaling: Informational Transfer in Hiring and Related Screening Processes* (Harvard University Press, 1974); Oliver E. Williamson, above n140; Oliver E. Williamson, 'Transaction-Cost Economics: The Governance of Contractual Relations' (1979) 22 (2) *Journal of Law and Economics* 233; Oliver E. Williamson, *The Mechanics of Governance* (Oxford University Press, 1996); Jeffrey Macher and Barak Richman, 'Transaction Cost Economics: An Assessment of Empirical Research in the Social Sciences' (2008) 10 (1) *Business and Politics* 1; Alex Robson and Stergios Skaperdas, 'Costly Enforcement of Property Rights and the Coase Theorem' (2008) 36 (1) *Economic Theory* 109.

<sup>144</sup> See Kathleen Eisenhardt, 'Agency Theory: An Assessment and Review' (1989) 14 (1) *Academy of Management Review* 57; Armen Alchian and Harold Demsetz, 'Production, Information Costs and Economic Organisation' (1972) 62 (5) *American Economic Review* 777; Michael Jensen and William Meckling, 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure' (1976) 3 (4) *Journal of Financial Economics* 305; Andrew Whitford, 'A Test of the Political Control of Bureaucracies under Asymmetric Information' (2008) 20 (4) *Rationality and Society* 445.

### 2.1.2 Selection of Legal Transplants Theory

Alan Watson argued legal transplants theory was the best way to explore the internal relations among different legal systems. On the basis of historical relations, legal transplants studied the similarities and differences between legal systems, or legal rules between legal transplant donor and recipient, from the perspectives of legal transplantation and legal application.<sup>145</sup> Also, it discussed the practicability and rationality of legal transplants by identifying the factors that promoted legal change or hindered the development of laws.<sup>146</sup> Alan Watson also argued that the frequency of legal transplants and the high survival rate of legal rules proved that the design of legal rules was not to satisfy the needs of society;<sup>147</sup> the vitality and vigour of laws was inherent in the law itself.<sup>148</sup> Hence, Watson was committed to study legal change from the aspect of legal tradition, such as the legal rules, legal structure, and the legal system.<sup>149</sup> Conversely, Otto Kahn-Freund explored the practicability of legal transplants through the points of economics, society, culture, and politics,<sup>150</sup> as he thought that the development of similarities or differences between different legal systems was constrained by economic, political, ideological, religious, historical, geographical and demographic factors.<sup>151</sup>

Most of the contents in the first legal regulation upon the .cn ccTLD were transplanted from the Request For Comments (RFCs) which are international texts.<sup>152</sup> To study why this first legal regulation was transplanted, how it was practiced, and what kinds of factors played influence on the process of transplant, Legal Transplants Theory is a more suitable theoretical lens to be applied to analyse these questions. Based on the foundation of these two schools of thought, this thesis will build upon the developing

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<sup>145</sup> Alan Watson, *Legal Transplants: An Approach to Comparative Law* (Scottish Academic Press, 1974) 7, 9.

<sup>146</sup> Ibid, 16.

<sup>147</sup> Alan Watson, *Society and Legal Change* (Scottish Academic Press, 1977) 98.

<sup>148</sup> Alan Watson, 'Comparative Law and Legal Change' (1978) 37 (2) *Cambridge Law Journal* 313, 314-315.

<sup>149</sup> Alan Watson, 'Society's Choice and Legal Change' (1981) 9 (5) *Hofstra Law Review* 1473, 1484.

<sup>150</sup> Otto Kahn-Freund, 'On Uses and Misuses of Comparative Law' (1974) 37 (1) *The Modern Law Review* 1, 8.

<sup>151</sup> Michael Bogdan, *Comparative Law* (Kluwer Law and Taxation Publishers, 1994) 70.

<sup>152</sup> For more information, see chapter 4 in this dissertation.

stages of legal transplantation, localisation, and characteristics of China. However, the focus of this thesis is to explore how Chinese politics, economy, law, and technology impact on the institutional formation and change of the legal regulations of the .cn ccTLD, rather than to compare the legal application or change between different legal systems or rules. Therefore, Kahn-Freund's approach to the legal transplants theory will be used as an auxiliary theory to study institutional formation and change in China.<sup>153</sup>

Having clarified why NIE theory and Legal Transplants theory were chosen as the theoretical framework for this research, the research methods to be applied in this dissertation are introduced in the next section.

## 2.2 Research Methods

It can be argued that it is preferable to choose the research methods to be deployed based on the types of data that can be obtained.<sup>154</sup> If quantitative data with a sufficient sample size can be accessed, quantitative analysis can be applied by the dissertation. If only qualitative data or quantitative data with insufficient sample size can be obtained, it is better to use the qualitative analysis method.<sup>155</sup> Within the research timetable of this dissertation, most of the data relating to the institutional formation and change of the legal regulations of the .cn ccTLD that can be accessed is qualitative data. Thus, the qualitative analysis method is applied in this thesis. Under the framework of qualitative analysis, case studies, experimental method, questionnaire survey or interviews, historical analysis method, and economic analysis

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<sup>153</sup> Legal transplants theory was applied in the 4.4.2 Analysis of Domain Name Institutional Path Dependency of this dissertation.

<sup>154</sup> There is a scholarly debate on whether data determines method or method determines data. For more information, see for examples: Stanley Stevens, 'On the Theory of Scales of Measurement' (1946) 103 *Science* 677; John Gaito, 'Some Issues in the Measurement-Statistics Controversy' (1986) 27 (1) *Canadian Psychology* 63; C.J. Burke, 'Additive Scales and Statistics' (1953) 60 (1) *Psychology Review* 73; Arnold Binder, 'Restrictions on Statistics Imposed by Method of Measurement: Some Reality, Much Mythology' (1984) 12 *Journal of Criminal Justice* 467; Stanley Stevens, 'Mathematics, Measurement and Psychophysics' in Stanley Stevens (ed), *Handbook of Experimental Psychology* (Wiley, 1951); John Selby, above n137, 37.

<sup>155</sup> Norman K. Denzin and Yvonna S. Lincoln (eds), *The Landscape of Qualitative Research: Theories and Issues* (Sage Publications, 2nd ed, 2003); John Selby, above n137, 37.

method are generally adopted by social scientists.<sup>156</sup> Researchers should select the research methods to be used based on the type of problems to be studied, their ability to control the behaviour of the survey, and according to the contemporary or historical dimensions of the events.<sup>157</sup> This dissertation will analyse the institutional formation of and change in the administrative regulations of the .cn ccTLD from 1990 to 2004, including the relevant events that occurred during this time and the follow-up effects. Consequently, historical analysis will be deployed to analyse the causes and effects of historical events related to the administrative regulations of the .cn ccTLD. Case studies can be applied to analyse the specific process of institutional formation and change, and interviews will be accessed to obtain insights and thoughts from stakeholders who experienced these historical events. However, these more or less overlapping research methods have their own advantages and inherent defects.<sup>158</sup> Social science researchers should use various research methods to overcome the weaknesses of a single research method,<sup>159</sup> therefore this thesis will also use triangulation to enhance the reliability and credibility of the conclusions.

### 2.2.1 Qualitative Research Method

The qualitative research method applied humanism to explore social reality and interpret social order,<sup>160</sup> and comprehensively comprehends social life from people's insight, feelings, and perspectives.<sup>161</sup> Surveys and interviews, observation, and text files are the main sources of data.<sup>162</sup> The observation method will be excluded from this research project because it studies the historical events from 1990 to 2004 which

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<sup>156</sup> Robert K. Yin, *Case Study Research: Design and Methods* (Sage Publications, 4th ed, 2009) 2.

<sup>157</sup> Ibid.

<sup>158</sup> Ibid.

<sup>159</sup> Norman K. Denzin, *The Research Act: A Theoretical Introduction to Sociological Methods* (Prentice Hall, 3rd ed, 1989) 234.

<sup>160</sup> William J. Filstead, 'Qualitative Methods: A Needed Perspective in Evaluation Research' in Susan E. Salasin and Robert Perloff (ed), *Qualitative and Quantitative Methods in Evaluation Research* (Sage Publications, 1979) 33, 35.

<sup>161</sup> W. Lawrence Neuman, *Social Research Methods: Qualitative and Quantitative Approaches* (Allyn And Bacon, 4th ed, 2000) 126.

<sup>162</sup> Robert K. Yin, *Qualitative Research from Start to Finish* (The Guilford Press, 2011) 130; Michael Quinn Patton, *How to Use Qualitative Methods in Evaluation* (Sage Publications, 1987) 7.

could not be directly observed by the researcher. Qualitative analysis research methods which could be used in this dissertation include practical research, case studies, ethnography, ethnomethodology, feminist studies, grounded theory, biography, narrative survey, participants' observational studies, and phenomenological research.<sup>163</sup> Qualitative analysis has the following five characteristics: to study the meaning of human life in the real world, to show people's views and perspectives, to cover people's living environments, to comprehend the concepts explaining human social behaviour, and to deploy multiple sources of evidence rather than a single source of data.<sup>164</sup> Therefore, the advantages of using the qualitative research method to carry out this research are: (1) it can deeply dig into the questions, cases, or events related to institutional formation and change of the administrative regulations of the .cn ccTLD, and data collection is not to be limited to pre-set data categories; (2) it can interpret each case with different opinions and perspectives, can assess the responses of different people to the same question, and then compare and sort data, and finally can derive a wide range of general conclusions; (3) it can provide rich and detailed data to demonstrate the results of the research based on a small number of people and cases; (4) the open narrative style means there is no need to make a summary of the events or people's experiences in advance according to classifications or criteria;<sup>165</sup> (5) it can not only study the uniqueness of the specific events, but can also analyse general properties<sup>166</sup>; and (6) it focuses on the study of social reality and value, tries to answer how social events are forged and the significance of the implications, and pays more attention on analysis of the causal relationship between the variables.<sup>167</sup>

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<sup>163</sup> Robert K. Yin, above n162, 17.

<sup>164</sup> Ibid, 7-8.

<sup>165</sup> Michael Quinn Patton, above n162, 9-10; Robert K. Yin, above n162, 11; John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Method Approaches* (Sage Publications, 2003) 196.

<sup>166</sup> Robert K. Yin, above n162, 18.

<sup>167</sup> Norman K. Denzin and Yvonna S. Lincoln, 'The Discipline and Practice of Qualitative Research' in Norman K. Denzin and Yvonna S. Lincoln (eds), above n155, 13.

## 2.2.2 Historical Analysis

In the field of social science, the historical research method can be used to study the changing process of a system or a practice, the development of history and the influence on the later generations.<sup>168</sup> In order to understand the current development of a regulation or event, it is necessary to understand its past. Historical research method is the method used to explore historical development in the context of history,<sup>169</sup> and to support the researcher's interpretation of one or more cases through sufficient historical evidence.<sup>170</sup> Under the guidance of historical research, this thesis will systematically study the process of institutional formation and changes to administrative regulations of the .cn ccTLD and the effects on China's society. Under the framework of historical research, this dissertation will narrate a series of historical events constituted by reliable data and information,<sup>171</sup> provide an analysis of the causes and effects of these events,<sup>172</sup> and note the arguments proposing the new hypotheses of NIE theory tested by historical evidence or data.<sup>173</sup> Further, this research will use the historical research method to explore historical events spanning decades, provide a new evaluation strategy for stakeholders to make decisions, provide insights for the development of domain name administrative regulations, or a reference for personal practical decisions from multiple dimensions, such as ideology and economic perspectives.<sup>174</sup>

In relation to data acquisition, the historical research method extracts data from four kinds of historical evidence: first-hand information (original documents stored in public and private archives), second-hand information (the discourse of other scholars on the history), operational records (agency reports and case descriptions), and

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<sup>168</sup> Gilbert J. Garraghan, *A Guide to Historical Method* (Fordham University Press, 1946) 37.

<sup>169</sup> H. Sidgwick, 'The Historical Method' (1886) 11 (42) *Mind* 203, 204.

<sup>170</sup> Elizabeth Ann Danto, *Historical research* (Oxford University Press, 2008) 31.

<sup>171</sup> *Ibid*, 89.

<sup>172</sup> Ruth Ann Smith and David S. Lux, 'Historical Method in Consumer Research: Developing Causal Explanations of Change' (1993) 19 (4) *Journal of Consumer Research* 595, 595.

<sup>173</sup> Jack H. Hexter, *The History Primer* (Basic Books, 1971) 13.

<sup>174</sup> Elizabeth Ann Danto, above n170, 7.

memoir (autobiography, a memoir, or an oral history).<sup>175</sup> The advantages of these documents are that they can be read repeatedly, they are informative, and have a wide coverage.<sup>176</sup> This thesis will connect the data together and analyse the developing history of the administrative regulations of the .cn ccTLD using the framework of historical research.

### 2.2.3 Case Studies

When there is a need to explore specific issues or situations, or a need to obtain valuable information from particular events, case studies are a particularly effective research method.<sup>177</sup> Case studies propose that although the social reality was embedded in the specific background and history, it was forged by social interaction. Therefore, before research analysis and theorization, the first thing is to identify and describe the events or cases in historical detail and with historical background, then to analyse in-depth the causes and effects of cases to uncover hidden implications.<sup>178</sup> In this way, the researcher could link behaviour at the micro level with social structures at the macro level<sup>179</sup> and connect the history with the present day,<sup>180</sup> could demonstrate how social constraints shape and influence the outcome of a particular event and its causal relationship,<sup>181</sup> and could investigate the phenomenon of contemporary society in the context of real life.<sup>182</sup> Each small step of development in case studies is helpful for readers to understand the complex history and the development of modern society.<sup>183</sup> Further, between in-depth and extensive analysis,

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<sup>175</sup> Ibid, 5.

<sup>176</sup> Robert K. Yin, above n155, 102.

<sup>177</sup> Michael Quinn Patton, above n162, 19.

<sup>178</sup> Sheila Stark and Hargr Torrance, 'Case Study' in Bridget Somekh and Cathy Lewin (eds), *Research Methods in the Social Sciences* (Sage Publications, 2005) 33, 33; Michael Quinn Patton, above n162, 19.

<sup>179</sup> W. Lawrence Neuman, above n161, 33.

<sup>180</sup> Elizabeth Ann Danto, above n170, 91-92.

<sup>181</sup> John Walton, 'Making the Theoretical Case' in C. Ragin and H. Becker (eds), *What is a Case? Exploring the Foundations of Social Inquiry* (Cambridge University Press, 1992) 121, 122.

<sup>182</sup> Robert K. Yin, above n156, 18.

<sup>183</sup> Elizabeth Ann Danto, above n170, 91-92.

case studies research is more inclined to deep analysis. When resources or data were sufficient, case studies could be used to explore the development of cases through comparing different cases<sup>184</sup> or to improve hypotheses through identifying systematic relations, conventional relationships of a variety of variables, or different behaviour.<sup>185</sup> No other research method could have provided a detailed description or deep explanation of what had happened, how it happened, and/or why it happened in such a way.<sup>186</sup> Specifically, descriptive case studies introduced cases and examined them from internal and external perspectives<sup>187</sup> and explanatory case studies analysed and explained the development and causes of cases.<sup>188</sup> In addition, the case studies method, using a variety of research methods and multi-channel data sources to describe and analyse the cases in detail is descriptive, inductive, and heuristic.<sup>189</sup>

With case studies, researchers should use a variety of sources of evidence and use triangulation to synthesize these data to enhance the reliability and effectiveness of case analysis.<sup>190</sup> The data sources of case studies included documents, records, and interviews.<sup>191</sup> Thus, the case studies method also used direct observation data and interviews data which was not applied by historical analysis to analyse cases, which increased the multi-perspective interpretation of cases.<sup>192</sup> How to balance and select these kinds of data sources depends on the availability of data and the tradition of each discipline.<sup>193</sup> For instance, the interview method can obtain data from the perspective of participants such as why an event occurred, how it developed, or the follow-up and influences. Text analysis can help researchers to examine historical

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<sup>184</sup> Sheila Stark and Harrg Torrance, above n178, 35.

<sup>185</sup> William D. Crano and Marilyn B. Brewer, *Principles and Methods of Social Research* (Allyn and Bacon, 1986) 8.

<sup>186</sup> Robert K. Yin, *Applications of Case Study Research* (Sage Publications, 3rd edn, 2012) 5.

<sup>187</sup> *Ibid*, 49.

<sup>188</sup> *Ibid*, 89.

<sup>189</sup> Sheila Stark and Harrg Torrance, above n178, 35.

<sup>190</sup> Robert K. Yin, above n156, 2.

<sup>191</sup> *Ibid*, 99.

<sup>192</sup> *Ibid*, 11.

<sup>193</sup> Sheila Stark and Harrg Torrance, above n178, 35.

events from different angles and viewpoints.<sup>194</sup> Although the generality of research conclusions inferred from case studies was the most questioned aspect, supporters defended that one case was not a sample, and the objective of case studies was to extend and induce theory, rather than to calibrate frequency.<sup>195</sup> Therefore, this dissertation will apply the case studies method to deeply analyse the processes of institutional transplant, localization, and characterization of the administrative regulations of the .cn ccTLD respectively, and to predict their future development.

## 2.2.4 Interviews

Interview research methods can provide internal perspectives on external behaviour. Although researchers could not personally observe the events that happened in the recent past, they could access relevant information through interviews with participants in those historical events.<sup>196</sup> Generally, informal conversational interviews, general guided interviews, and standard open interviews are the three basic methods of collecting qualitative data.<sup>197</sup> Experience and behaviour, opinions and beliefs, feelings, and knowledge are the basic types of interview questions.<sup>198</sup> The interview method usually began with asking questions, listening and recording answers, and then asking follow-up questions according to the respondents' answers. This process not only requires well developed communication skills, but also requires sensitivity, concentration, understanding, insight, and ethical behaviour.<sup>199</sup> Therefore, an excellent interviewer is also good at simultaneous observation, reading body language, understanding how pre-set questions influence the respondent's answers, and carefully balancing the interaction between interviewer and interviewees.<sup>200</sup> Interaction between interviewer and interviewees is the biggest advantage of

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<sup>194</sup> Ibid.

<sup>195</sup> Robert K. Yin, above n156, 15.

<sup>196</sup> Michael Quinn Patton, above n162, 109.

<sup>197</sup> Ibid.

<sup>198</sup> Ibid, 112.

<sup>199</sup> Ibid, 108.

<sup>200</sup> Ibid, 13.

interviews, but also is the greatest shortcoming.<sup>201</sup> In order to avoid bias and preferences made during interviews and the analysis process, interviewers need to feed back the final report conclusions or specific descriptions to interviewees, and to consider their views on the results.<sup>202</sup> This research uses the semi-structured interview method. That is, a set of questions prepared in advance was asked of every interviewee,<sup>203</sup> and then follow-up questions were asked according to interviewees' answers. In such way, the researcher can not only focus on the topic of cases, but also can obtain specific analysis and interpretation from each participant.<sup>204</sup>

### 2.2.5 Triangulation

It is very risky to rely on only one document or one person's opinion to qualitatively analyse a judgment or position.<sup>205</sup> When a study relies on a single data source or a single analytical method, this weakens the validity and reliability of the results. Triangulation is a method that can help solve this problem. Triangulation reduces individual bias in qualitative analysis via data multiple testing, multiple theory verification, and the researcher's multiple analyses.<sup>206</sup> There are four types of triangulation, namely, data triangulation, investigator triangulation, theory triangulation, and methodological triangulation.<sup>207</sup> Through collecting different types of data and information,<sup>208</sup> data triangulation tests data and evidence from different sources to construct a consistent argument.<sup>209</sup> When researchers try to triangulate qualitative data, they need to compare the consistency of respondents' language before and after, the consistency between interview data and historical files, and the

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<sup>201</sup> William D. Crano and Marilyn B. Brewer, above n185, 229.

<sup>202</sup> John W. Creswell, above n165, 196.

<sup>203</sup> Michael Quinn Patton, above n162, 112; Wendy Olsen, *Data Collection* (Sage Publications, 2012) 33.

<sup>204</sup> Robert K. Yin, above n156, 102.

<sup>205</sup> William D. Crano and Marilyn B. Brewer, above n185, 4.

<sup>206</sup> Norman K. Denzin, above n159, 236; Michael Quinn Patton, above n162, 61; W. Lawrence Neuman, above n161, 124-125.

<sup>207</sup> Norman K. Denzin, above n159, 237; Michael Quinn Patton, above n162, 60.

<sup>208</sup> Robert K. Yin, above n162, 81.

<sup>209</sup> John W. Creswell, above n165, 196.

responses of different interviewees to the same question. Sometimes, the results concluded from the data are consistent, but sometimes they are very different. At this point, researchers should use triangulation to explore the reasons behind these differences to improve the overall reliability of the research results.<sup>210</sup> The investigator triangulation method refers to blending multiple insights and opinions from different researchers of varying backgrounds so as to reduce limitations in the understanding of a single researcher.<sup>211</sup> The theory triangulation method requires researchers to apply at least two theories to analyse or interpret data, experiments, events, cases, and so on. Methodological triangulation is defined as deploying multiple research methods in a study, such as triangulation of qualitative analysis and quantitative analysis.<sup>212</sup> This dissertation will apply data triangulation, theory triangulation, and methodological triangulation to analyse institutional formation and change to the administrative regulations of the .cn ccTLD.<sup>213</sup>

The qualitative research, historical analysis, case studies, and triangulation of research data are the research methods used in this dissertation. Research data gathered for this dissertation will be introduced and explained.

## 2.3 Research Data

### 2.3.1 Types of Data

Interviews, direct observation, and text data are the three types of data collected for qualitative analysis.<sup>214</sup> The research subject of this dissertation is the developing history of the administrative regulations of the .cn ccTLD from 1990 to 2004, data which is not suitable for collection by direct observation. Hence, this dissertation will

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<sup>210</sup> Michael Quinn Patton, above n162, 161-162.

<sup>211</sup> W. Lawrence Neuman, above n161, 125.

<sup>212</sup> Ibid.

<sup>213</sup> Data triangulation is applied in the sections of 4.2.1, 5.3.1, 5.5.1, 6.4.2, and 6.4.3; methodology triangulation is applied through Chapters 4 to 6; and the theory triangulation is mainly applied in Chapter 4 in this dissertation.

<sup>214</sup> Michael Quinn Patton, above n162, 7.

use interview data and data from various texts to demonstrate the process of institutional transplant, localization, and characterization. Interviews data is taken directly from interviewees' experiences, opinions, feelings, and knowledge. Text data includes excerpts, references, or entire paragraphs from records, letters, official reports, electronic information, and surveys.<sup>215</sup>

### **2.3.2 Limitations of the Data**

Interview data and text data are the two main types of data used in this dissertation. The interview data collected in this research has the following limitations:

- (1) The data is fragmented. First, some of the major participants in the registration of the .cn ccTLD in 1990 are now dead, which meant that the researcher could not interview them. As a result, the interview data that was collected cannot build a seamless chain of evidence for the institutional formation and change of the administrative regulations of the .cn ccTLD. Second, although many of the people who experienced and witnessed these historical events are still alive, most of them refused to be interviewed for this research because they were afraid of being monitored or sanctioned by Chinese authorities if they unintentionally made inappropriate comments. The researcher could only obtain interview data from a few of them, and these views and feelings are very one-sided.
- (2) The data is incomplete. It is as complete as it was possible to collect at this point in time, but it is still imperfect. Due to the strict governance and control of disclosure and dissemination of information involving national or political secrets, and other sensitive topics by the Chinese government, interviewees could not comprehensively introduce and analyse the developing process of administrative regulations of the .cn ccTLD. They were only able to cautiously and selectively share their insights and views, and could not discuss sensitive information or topics. Analogously, the text data gathered by this research is also

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<sup>215</sup> Ibid.

fragmented and incomplete. First, some of legislative files and information about the administrative regulations of the .cn ccTLD released in 1997, 2002, and 2004 are not publicly accessible; only fragmented legislative materials can be collected. Second, while the Ministry of Industry and Information Technology, the Chinese Academy of Sciences, and the China Internet Network Information Center (CNNIC) are the administrative authorities that manage the .cn ccTLD, only CNNIC published relevant information and data on the regulations of the .cn ccTLD on its website.

Although the research methods and data deployed by this dissertation have been used to write a critical academic PhD thesis, there still exists some inherent limitations to the methodologies used. For critical research, the limitations are analysed below.

## 2.4 Limitations of the Methodology

### 2.4.1 Limitations of the Qualitative Research Method

The effectiveness and reliability of qualitative data analysis is, to a large extent, dependent on the researchers' analytical skills, data sensitiveness, and accessing capacity to data. Content analysis of the qualitative data is not only needed to take into account the literal meaning, but an understanding is also needed of behavioural; norms, knowledge, training, practice, endeavour and so on.<sup>216</sup> Therefore, the qualitative analysis method is heavily reliant on the analyst's capability and subjective sense. Thus, subjectivity is one of the most questioned aspects of the analysis.<sup>217</sup> Further, it has been argued that the analytical results from qualitative analysis are not generally applicable, because the qualitative analysis method relied on a small scale sample.<sup>218</sup> In conclusion, the subjectivity and the generality is the qualitative research method's weak point.

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<sup>216</sup> Michael Quinn Patton, above n162, 8.

<sup>217</sup> Ibid, 178.

<sup>218</sup> Ibid, 179.

## 2.4.2 The Limitations of Historical Analysis

Historical research mainly relies on historical documents and data which may be lost or important files which may be destroyed.<sup>219</sup> Moreover, file data has the disadvantage of weak traceability; it can be selectively recorded, recorded in a biased way, and selectively disclosed. Besides these shortcomings, archive records may also not be publicly available for privacy, national secret and other reasons.<sup>220</sup> Actually, all records of historical events are dependent on the judgment of recorders, and cannot be verified by statistics. Moreover, most qualitative historical data is fragmented and the degree of reliability of these data is also widely divergent.<sup>221</sup>

## 2.4.3 The Limitations of Case Studies

The results of many case studies have been shown to be generalizable, but general conclusions cannot be induced in the statistical sense by analyzing one or several cases.<sup>222</sup> Hence, compared with a scientific theory that has been tested a great many times, the validity of a theoretical hypothesis that has only been tested once or twice is questionable.<sup>223</sup> The case studies method also has epistemological defects; namely: how to define case boundaries, what contents should be contained in a case, and what contents should be excluded. Different case boundaries may result in different conclusions.<sup>224</sup>

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<sup>219</sup> Elizabeth Ann Danto, above n170, 32.

<sup>220</sup> Robert K. Yin, above n156, 102.

<sup>221</sup> Elizabeth Ann Danto, above n170, 94.

<sup>222</sup> Sheila Stark and Harrg Torrance, above n178, 33-34.

<sup>223</sup> William D. Crano and Marilyn B. Brewer, above n185, 16.

<sup>224</sup> Sheila Stark and Harrg Torrance, above n178, 34.

#### 2.4.4 The Limitations of Interviews

No matter how comprehensive an interview or how persuasive an argument, historical evidence is always incomplete, biased, or not representative of all viewpoints. The reliability of memory and the validity of narrative is always questionable.<sup>225</sup> Witnesses sometimes unconsciously change the history they recount or change the words they use over time.<sup>226</sup> Furthermore, the ways of asking questions and the body language of interviewers can also influence the interview process. Interviewers might, consciously or otherwise, guide interviewees to say what they want to hear or record only what they are willing to believe.<sup>227</sup> Consequently, biases in questioning and answering can lead to bias in the data. The inaccuracy of recall and selective answers according to the interviewer's purpose are the main shortcomings of interviews.<sup>228</sup>

#### 2.4.5 The Limitations of Triangulation

Although the triangulation method is a relatively ideal analytical skill, its cost can be high. Most analysis studies are constrained by a limited budget and time schedule, and by political constraints. Despite the best analysis strategy being the use of multiple analysis methods, in the real world, limited resources mean the triangulation method cannot be used to an ideal level.<sup>229</sup>

### 2.5 Conclusion

This chapter mainly introduces the theoretical framework, research methods, and the limitations of data and methodology applied by this research. In the selection of theoretical framework for studying the developing path of the administrative

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<sup>225</sup> Elizabeth Ann Danto, above n170, 93.

<sup>226</sup> Ibid, 99.

<sup>227</sup> Ibid.

<sup>228</sup> Robert K. Yin, above n156, 102.

<sup>229</sup> Michael Quinn Patton, above n162, 61.

regulations of the .cn ccTLD and why they changed into the current regulatory pattern, this dissertation needs to interpret the relevant history around events that occurred from 1990 to 2004 from the multiple perspectives of politics, law, economics, and technology. New Institutional Economics theory, which combines multi-disciplinary research methods and theories, is the appropriate theory to comprehensively analyse the way historical events promoted or constrained the institutional formation and change of the administrative regulations of the .cn ccTLD. Legal transplants research theory explores the similarities and differences between donor and recipient of transplanted legal systems from the point of view of legal transplantation, and identifies how the factors of economy, politics, ideology, religion, history, geography, and population affected the development of the transplanted legal system from the perspective of legal application. Subsequently, using the framework of legal transplants, this research will construct its arguments upon the institutional development process, namely, legal transplantation, localization and characterization.

In choice of research methods, the kinds of data that may be accessed and the issues that need to be studied determine how to select research methods. Accordingly, qualitative analysis, historical analysis, case studies, interviews, and triangulation have been selected as methods for conducting this research. Qualitative analysis applies humanism to explore social reality, interpret social order, and pay attention to people's insights, feelings, and perspectives to fully understand social life. Historical analysis might study the evolution or change of a system or a practice and the influence of developed history on later generations. Case studies methodology improves or verifies hypotheses through the comparison of developing trends among different cases or through the identification of systematic or conventional relations among various variables or different behaviours. Interviews give an internal perspective to understand external behaviour through questioning the witnesses of historical events to obtain internal information and the objective and subjective feelings. The triangulation method reduces individual bias in the qualitative analysis by means of data triangulation, theory triangulation, methodology triangulation, and researcher triangulation.

This dissertation applies interview data and text information to explore the

institutional formation and change of the administrative regulations of the .cn ccTLD. However, these types of data have limitations of fragmentation and incompleteness. In the limitations of methodology, the subjective and non-general applicability of research results induced from qualitative analysis are the most questioned aspect; the incompleteness and different levels of reliability of data and information applied by historical analysis are also limitations; the shortcoming of the case studies is that a general conclusion cannot be reached through the analysis of one or several cases; the disadvantages of interviews are the subjectivity and one-sidedness of interview data; and the triangulation method is costly, even though it is the ideal analytical method.

In the next chapter, a detailed introduction will be given to the history, basic concepts, hypotheses, main theories, and institutional change theory of NIE so as to have a comprehensive understanding of this interdisciplinary theoretical approach.

### 3 New Institutional Economics Theory

This chapter introduces the main concepts of New Institutional Economics (NIE) and its Institutional Change theory. The goal of this overview is to summarise these interdisciplinary insights for legal scholars worldwide who have rarely applied NIE and are therefore maybe unfamiliar with it, and also for Chinese legal scholars who might consider deploying this western institutional theory to analyse Chinese legal regulations and laws.

#### 3.1 Development History of New Institutional Economics

The origin and development of NIE and the similarities and differences among NIE, Neoclassical Economics, and Old Institutional Economics will be discussed in this section.

##### 3.1.1 Origin of New Institutional Economics

New Institutional Economics theory (overcoming the weakness of Old Institutional Economics<sup>230</sup>) originated from Ronald Coase's two papers, the 'The Nature of the Firm'<sup>231</sup> and 'The Problem of Social Cost'<sup>232</sup>. He argued that firms existed in order to reduce transaction costs and explained why not all transactions were done through the market. This argument deduced an important assumption of NIE: transaction costs

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<sup>230</sup> For more details about the weakness of Old Institutional Economics theory and how New Institutional Economics theory overcome them, please see John Selby, above n137, 56-58; Malcolm Rutherford, 'Institutional Economics: Then and Now' (2001) 15(3) *Journal of Economic Perspectives* 173; Malcolm Rutherford, above n137; Oliver E. Williamson, 'Transaction Cost Economics: The Precursors' 28 (3) *Economic Affairs* 7; Carl Menger, *Problems of Economics and Sociology* (Louis Schneider) (University of Illinois Press, 1968); Thorstein Veblen, *The Theory of the Leisure Class: the Economic Study of Institutions* (The MacMillan Company, 1899); Thorstein Veblen, *The Instinct of Workmanship and the State of the Industrial Arts* (The MacMillan Company, 1914); John Commons, *The Legal Foundations of Capitalism* (MacMillan, 1924); John Commons, 'Institutional Economics' (1931) 21 *American Economic Review* 648; John Commons, *Institutional Economics* (MacMillan, 1934); Tjalling Koopmans, 'Measurement Without Theory' (1947) 29 *Journal of Political Economy* 161.

<sup>231</sup> Ronald H. Coase, above n143 (a), 386.

<sup>232</sup> Ronald H. Coase, above n143 (b), 100.

are positive.<sup>233</sup> After the publication of *Institutional Change and American Economic Growth* (1971) by North and Davis, *The Rise of the Western World* (1973) by North and Thomas, and *Markets and Hierarchies* (1975) by Williamson, New Institutional Economics theory was basically formed.<sup>234</sup> The concepts of transaction costs, property rights, and contracts are its cornerstones.<sup>235</sup> After years of development, NIE has become an approach for the integration of multiple disciplines. It studies the institutions and interactions between institutions and organisations from the concepts and methods of political science, sociology, law, anthropology, cognitive science, and evolutionary biology.<sup>236</sup> However, critics pointed out that although the proposal that institutions were important was of great significance, institutional analysis was vulnerable to the influence of economic theory.<sup>237</sup> Despite the fact that NIE is an imperfect theory, NIE research on institutional formation, operation, evolution, and change from diverse and international perspectives has been gradually accepted and pursued by legal scholars, political scientists, sociologists, anthropologists, and management experts in various countries.<sup>238</sup>

### 3.1.2 Comparison of Different Institutional Economics Theories

New Institutional Economics assimilates and evolves useful concepts, assumptions, and hypotheses from Neoclassical Economics theory and Old Institutional Economics theory, but it is different from them in the terms of its key assumptions and hypotheses. A comparative analysis follows.

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<sup>233</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 4.

<sup>234</sup> Claude Ménard and Mary M. Shirley, 'The Future of New Institutional Economics: from Early Intuitions to A New Paradigm?' (2014) 10 (4) *Journal of Institutional Economics* 541, 543.

<sup>235</sup> Ibid, 544.

<sup>236</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 1-2.

<sup>237</sup> R. C. O. Matthews, 'The Economics of Institutions and the Sources of Economic Growth' (1986) 96 (4) *The Economics Journal* 903, 903.

<sup>238</sup> Malcolm Rutherford, above n230 (a), 189; Claude Ménard and Mary M. Shirley (eds), above n136, 1-3.

### 3.1.2.1 New Institutional Economics and Neoclassical Economics

New Institutional Economics theory accepts Neoclassical Economics' assumptions of scarcity and competition, but it abandons the assumptions that 'individuals have perfect information and unbounded rationality, and that transactions are costless and instantaneous', because it proposes that individuals have incomplete information as well as bounded rationality and that transaction costs are positive.<sup>239</sup> Further, bounded rationality and opportunism of agents' behaviour proposed by NIE are also different from Neoclassical Economics.<sup>240</sup>

The focus on firms and governance of contracts argued by NIE also differs from Neoclassical Economics.<sup>241</sup> Neoclassical Economics has been dismissive of institutions, as its main task is to study how to coordinate the price system and the use of resources, rather than the mechanisms of internal operation of firms. In fact, Neoclassical Economics proposed that firms only have a productive function.<sup>242</sup> However, NIE argues that, because of opportunism, firms not only pursue maximum profits, but also their governance structures are integrated with multiple motivations.<sup>243</sup> In addition, as NIE has improved on the assumption of rationality, it adds the concept of institutions considered as the important constraint, analyses the functions of transaction costs, and broadens the economic theory via the analysis of incorporating thoughts and ideologies, modelling the political process, and explaining inefficient markets.<sup>244</sup> NIE also rejects instrumental rationality which argues that participants have specific objectives and know how to achieve them correctly.<sup>245</sup> Generally,

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<sup>239</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 1-2.

<sup>240</sup> Oliver E. Williamson, 'The Economics of Organization: The Transaction Cost Approach' (1981) 87 (3) *American Journal of Sociology* 548, 553.

<sup>241</sup> Oliver E. Williamson, 'The Theory of the Firm as Governance Structure: From Choice to Contract' (2002) 16 (3) *The Journal of Economic Perspectives* 171, 191.

<sup>242</sup> Ibid, 178; Oliver E. Williamson, above n139, 595.

<sup>243</sup> Oliver E. Williamson, 'Economic Organization: The Case for Candor' (1996) 21 (1) *The Academy of Management Review* 48, 56; Oliver E. Williamson, above n241, 191.

<sup>244</sup> Douglass C. North, 'Institutions and Economic Theory' (1992) 36 (1) *The American Economist* 3, 5.

<sup>245</sup> Ibid.

Neoclassical Economics is a static theory and NIE is a dynamic theory.<sup>246</sup>

### 3.1.2.2 New Institutional Economics and Old Institutional Economics

New Institutional Economics theory and Old Institutional Economics (OIE) theory both argue that institutions are very important, adopt the assumption of bounded rationality of behaviour, draw lessons from cognitive psychology, evolutionary psychology, and game theory, and apply interdisciplinary research methods.<sup>247</sup> The differences between NIE and OIE are: (1) OIE just vaguely proposed the concept of transaction cost, but NIE made a clear definition of the transaction cost and studies the functions and economic development of organisations, contracts, and institutions through this concept.<sup>248</sup> (2) OIE did not concern itself with property rights, but NIE clearly put forward problems of property rights and separated the rights of ownership and use.<sup>249</sup> (3) NIE tried to renew the theory of firms based on resource and competition proposed by OIE.<sup>250</sup> (4) OIE tried to create a new theory, but lacked a theoretical framework.<sup>251</sup> However, NIE attempted to expand the theory of Neo-Classical Economics through the study of institutions; that is, NIE identified how to reduce transaction costs and uncertainties, external effects' internalization, and collective interests generated by collaborative or cooperative behaviour through the analysis of institutions and institutional change.<sup>252</sup> (5) NIE's theoretical assumptions were different from those of OIE and it applied a more sophisticated theoretical basis and more modern methodologies than OIE.<sup>253</sup> (6) NIE explained why not all institutions were efficient, how institutions could fail to generate social benefits, and

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<sup>246</sup> Claude Ménard and Mary M. Shirley (ed), above n136, 3.

<sup>247</sup> Malcolm Rutherford, above n230 (a), 186-188; Oliver E. Williamson, 'The Institutions of Governance' (1998) 88 (2) *The American Economic Review* 75, 75; John Selby, above n137, 58.

<sup>248</sup> Malcolm Rutherford, above n230 (a), 186-187.

<sup>249</sup> ZHANG Wuchang, 'Xin Zhi Du Jing Ji Xue De Xian Zhuang Ji Qi Fa Zhan Qu Shi' (2008) 284 (7) *Dang Dai Cai Jing* 5, 5; Malcolm Rutherford, above n230 (a), 187.

<sup>250</sup> Malcolm Rutherford, above n230 (a), 189.

<sup>251</sup> John Harriss, Janet Hunter, and Colin M. Lewis (eds), *The New Institutional Economics And Third World Development* (Routledge, 1997) 4.

<sup>252</sup> Malcolm Rutherford, above n230 (a), 187.

<sup>253</sup> Ibid; John Selby, above n137, 58.

how institutions with low efficiency might occur and survive.<sup>254</sup> (7) NIE not only paid attention to the research of formal rules and governance structures, but also studied the roles of informal norms and social networks to economic development.<sup>255</sup> In short, there existed between NIE and OIE differences and complementary aspects of formalism and anti-formalism, individualism and collectivism, rationality and law-abiding behaviour, evolution and design, and efficiency and reform.<sup>256</sup>

After this brief introduction to the developing history of NIE and a comparative analysis of NIE and some other institutional economics theories, the next section will set out the basic concepts, hypotheses, and main theories of NIE.

## 3.2 Basic Concepts, Hypotheses, and Main Theories of New Institutional Economics

In order to better understand the arguments of NIE, it is a prerequisite to learn its fundamental concepts and hypotheses. So as to be fully aware of the theoretical framework of NIE, it is necessary to know its main schools' theories.

### 3.2.1 Basic Concepts of New Institutional Economics

This section briefly introduces the general concepts of institutions, embeddedness, institutional environment,<sup>257</sup> institutional change,<sup>258</sup> transaction costs,<sup>259</sup> bounded rationality, opportunism, path dependency,<sup>260</sup> asset specificity, and the make-or-buy

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<sup>254</sup> Douglass C. North, above n244, 5; Malcolm Rutherford, above n230 (a), 188.

<sup>255</sup> Malcolm Rutherford, above n230 (a), 188.

<sup>256</sup> For more details, see Malcolm Rutherford, above n137.

<sup>257</sup> The principle of institutional environment is applied in the sections of the 4.1, 5.1, and 6.3 in this dissertation.

<sup>258</sup> The principle of institutional change is applied throughout Chapters of 5 and 6 of this dissertation.

<sup>259</sup> The principle of transaction costs is applied in section of 5.4 of this dissertation.

<sup>260</sup> The principle of path dependency is applied in sections of 4.4.3, 5.3.1, and 5.3.2 of this dissertation.

choice.<sup>261</sup>

‘Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.’<sup>262</sup> Institutions regulating politics, economy, society, and interactions among each other are constituted by an interdependent institutional matrix of rules systems, political organisations, and economic organisations.<sup>263</sup>

Embeddedness is social institutions, such as norms, customs, mores, and religion. They ‘differ among groups and nation states and operate as societal supports, or the lack thereof, for credible contracting’.<sup>264</sup>

Institutional environment refers to the basic political, social, and legal rules, which provide the most basic guidelines for the exchange and distribution of goods.<sup>265</sup> The specific rules of institutional environments include polity institutions, judicial institutions, contract law, and the law of property rights.<sup>266</sup> Further, the institutional environment is a powerful tool to test national development and transnational institutions.<sup>267</sup>

Institutional change is a process whereby:

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<sup>261</sup> The principle of ‘make-or-buy’ choice is applied in sections of 4.4.2, 4.4.3, 5.2.2, 5.4.2, 5.5.3, and 6.4.3 of this dissertation.

<sup>262</sup> Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge University Press, 1990) 3. Different institutional scholars have different opinions on the explanation of institutions. This dissertation uses the concept explained by North. For other scholars’ definitions of intuitions, see John Campbell, above n137, 9-30; Hugh Heclo, above n137, 46-79; Daniel Cole, ‘The Varieties of Comparative Institutional Analysis’ (2012) *Indiana University School of Public Affairs Research Paper No. 2012-10-03* 7-15; John Selby, above n137, 50-52.

<sup>263</sup> Douglass C. North, ‘Institutions’ (1991) 1 (5) *The Journal of Economic Perspectives* 97, 97, 109.

<sup>264</sup> Oliver E. Williamson, above n247, 77.

<sup>265</sup> Oliver E. Williamson, above n137, 107.

<sup>266</sup> Oliver E. Williamson, above n247, 75.

<sup>267</sup> Oliver E. Williamson, above n139, 608.

A change in relative prices leads one or both parties to an exchange, whether it is political or economic, to perceive that either or both could do better with an altered agreement or contract. An attempt will be made to renegotiate the contract. However, because contracts are nested in a hierarchy of rules, the renegotiation may not be possible without restructuring a higher set of rules (or violating some norm of behaviour). In that case, the party that stands to improve his or her bargaining position may very well attempt to devote resources to restructuring the rules at a higher level. In the case of a norm of behaviour, a change in relative prices or a change in tastes will lead to its gradual erosion and to its replacement by a different norm. Over time, the rule may be changed or simply be ignored and unenforced.<sup>268</sup>

Transaction costs are the 'costs of specifying and measuring the characteristics of what is being exchanged and the cost of enforcing agreements',<sup>269</sup> which are mainly composed of the cost of information (such as the costs of gathering and analyzing information), the cost of calculating the exchange value (measuring the price of what is being exchanged for instance), the cost of protecting rights (including the expenses of lawyers, lawsuits, arbitration, and so forth), and the cost of supervising and executing agreements (the costs of sources of social, political, and economic institutions).<sup>270</sup>

Bounded rationality means that humans have limits on the ability to adapt optimally or satisfactorily to a complex environment.<sup>271</sup> As a consequence of bounded rationality, institutional designs proposed by stakeholders:

... may have both intended and unintended consequences; their short-term timeframes

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<sup>268</sup> Douglass C. North, above n262, 86.

<sup>269</sup> Douglass C. North, 'A Revolution in Economics' in Claude Menard, *Institutions, Contracts and Organizations* (Edward Elgar Publishing, 2000) 37, 38.

<sup>270</sup> Douglass C. North, above n262, 27.

<sup>271</sup> Herbert A. Simon, 'Bounded Rationality and Organizational Learning' (1991) 2 (1) *Organization Science* 125, 132.

may lead to design proposals which will prove sub-optimal in the longer-term life of the institution; institutional designs which have been successful in other institutional environments may not be acceptable or successful in this particular institutional environment; the context in which the institutional design was proposed may be so uncertain or changing so rapidly that by the time any one proposal finds significant support it is no longer appropriate; and some of the stakeholders involved in the formative process may disengage or leave before the process is completed.<sup>272</sup>

Opportunism refers to the strategy of seeking private gain by means of deception, including but not limited to lying, theft, and fraud, also including the use of information asymmetry and other advantages to deceive dexterously.<sup>273</sup> The opportunism tendency of the economic actor is influenced by the culture of individualism or collectivism and is also related to the moral responsibility.<sup>274</sup>

Path dependency not only refers to the gradual process of institutional evolution, it also refers a variety of opportunities provided by past institutional frameworks to present organisations, politicians, or entrepreneurs.<sup>275</sup> In the system of path dependency, the initial event that prompted the institution to develop in a direction prompts the next institution to develop in the same direction.<sup>276</sup> Although stakeholders in every period can seek a different development direction, path dependency theoretically limits the possibility of those selections. Path dependency is the series of historical decisions, present decisions, and future decisions through time.<sup>277</sup> Within in an institution, institutional change is usually subject to path dependency,<sup>278</sup> which is shaped by:

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<sup>272</sup> Herbert Simon, above n141; Paul Pierson, above n141; John Selby, above n137, 88.

<sup>273</sup> Oliver E. Williamson, above n141, 47-48.

<sup>274</sup> Chao C. Chen, Mike W. Peng, and Patrick A. Saporito, 'Individualism, Collectivism, and Opportunism: A Cultural Perspective on Transaction Cost Economics' (2002) 28 (4) *Journal of Management* 567, 568, 573-576.

<sup>275</sup> Douglass C. North, above n263, 109.

<sup>276</sup> Adrian Kay, 'Path Dependency and the CAP' (2003) 10 (3) *Journal of European Public Policy* 405, 411.

<sup>277</sup> Douglass C. North, above n137, 98-99.

<sup>278</sup> Malcolm Rutherford, above n230(a), 174.

(1) the lock-in that comes from the symbiotic relationship between institutions and the organisations that have evolved as a consequence of the incentive structure provided by those institutions and (2) the feedback process by which human beings perceive and react to changes in the opportunity set.<sup>279</sup>

Asset specificity refers to the extent that an asset investment is specialized to a particular transaction. The lower the asset specificity, the smaller the risks to organisations. Asset specificity can be divided into site specificity, physical asset specificity, and human asset specificity.<sup>280</sup>

Asset specificity can arise in any of three ways: site specificity, as when successive stations are located in cheek-by-jowl relation to each other so as to economize on inventory and transportation expenses; physical asset specificity, as where specialized dies are required to produce a component; and human asset specificity that arises from learning by doing.<sup>281</sup>

The make-or-buy choice means when a firm is facing the decision of whether to make a new thing or to buy it from a third party (outsourcing it), it experiences the 'make-or-buy' choice.<sup>282</sup> When this 'make-or-buy' concept is applied to the drafting regulations by authorities, it means a government or its agencies face the choice to either formulate regulations themselves or to borrow all or most of them from other countries'/international organisations' similar regulations.<sup>283</sup> With respect to government regulation, political transaction costs greatly influence this decision

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<sup>279</sup> Douglass C. North, above n262, 7.

<sup>280</sup> Oliver E. Williamson, above n240, 555.

<sup>281</sup> Ibid.

<sup>282</sup> Ronald H. Coase, above n143.

<sup>283</sup> Sidney Shapiro, 'Outsourcing Government Regulation' (2003) 53 *Duke Law Journal* 389; Stefan Voigt, 'Constitutional Political Economy: Analyzing Formal Institutions at the Most Elementary Level' in Eric Brousseau and Jean-Michel Glachant (eds), *New Institutional Economics: A Guidebook* (Cambridge University Press, 2008) 363; John Selby, above n137, 120, 142.

making process.<sup>284</sup>

### 3.2.2 Basic Hypotheses of New Institutional Economics

New Institutional Economics divides institutions into a hierarchy of four levels; and the institutions in higher levels constrain those in the lower levels which simultaneously feed information back to the superior institutions.<sup>285</sup> The first level of institutions is embeddedness, including norms, customs, mores, traditions, religion and so forth. The second level is the institutional environment; that is, formal rules, such as polity, Constitution, laws, and governmental bodies. The third level is governance, which consists of the operating rules of law enforcement, dispute resolution, market, business, government agencies, etc. The fourth level is transactional: the resource allocation institutions and the employment institutions for individuals, including the price and quantity institutions, and the incentive rules and so on.<sup>286</sup> The dark arrows in Figure 3-1, below, mean that the higher institutions have a direct constraint on lower ones, and the white arrows mean that the lower institutions have a feedback function to the higher ones.<sup>287</sup> See Figure 3-1 for an intuitive description. Research on the four levels of institutions is mainly applied by Sociological Theory, Property Rights Economics and Positive Political Theory, Transaction Cost Economics and Neoclassical Economics, and Agent Theory, respectively.<sup>288</sup>

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<sup>284</sup> For more information about political transaction costs, please see Sidney Shapiro, above n283, 395-406.

<sup>285</sup> Oliver E. Williamson, above n139, 596.

<sup>286</sup> Ibid, 596-599, 608; Oliver E. Williamson, above n247, 75; Oliver E. Williamson, above n139, 597, 600.

<sup>287</sup> Oliver E. Williamson, above n139, 596.

<sup>288</sup> Ibid, 597.

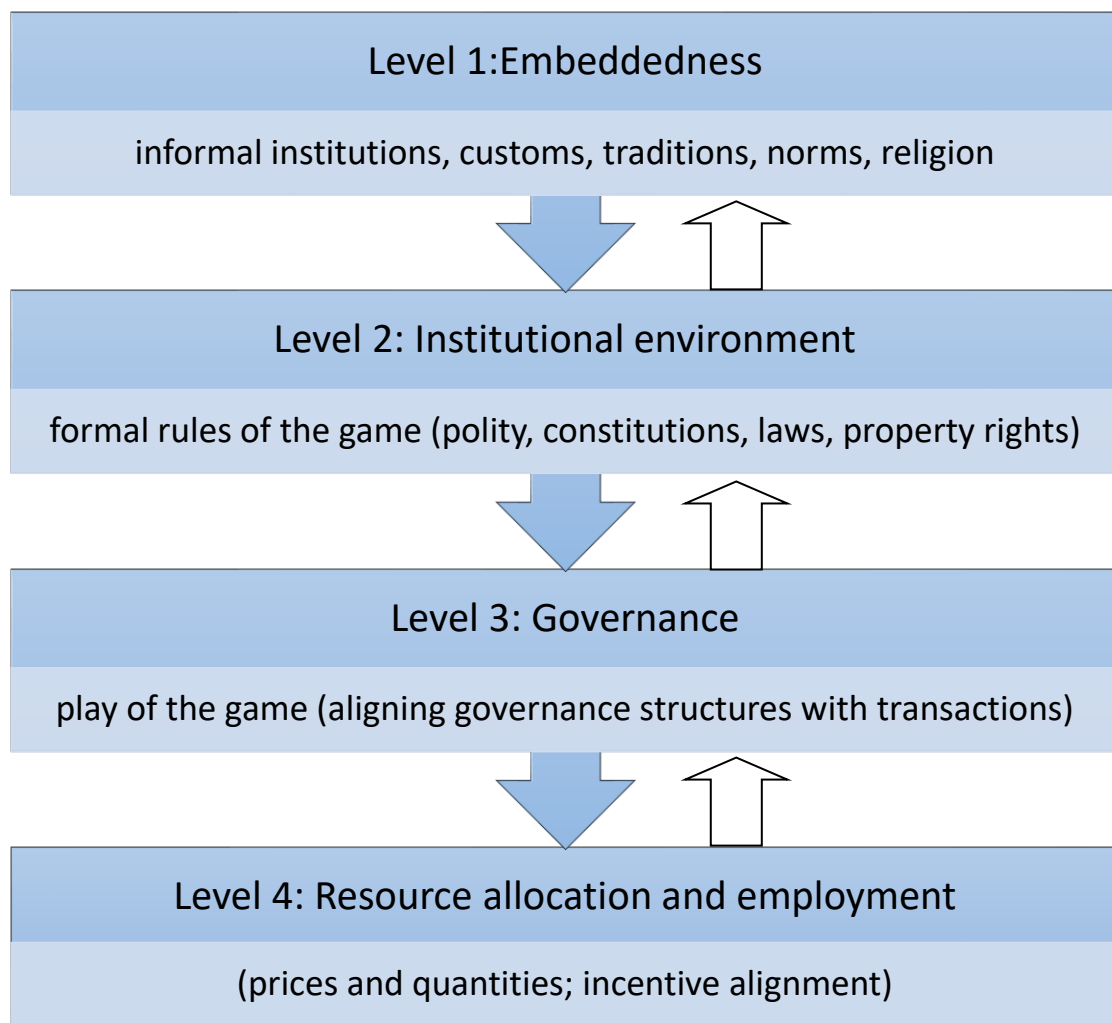


Figure 3- 1 Hierarchy of institutions

Source: Oliver E. Williamson, 'The New Institutional Economics: Taking Stock, Looking Ahead' (2000) 38 (3) *Journal of Economic Literature* 595, 597.

### 3.2.2.1 Hypotheses of Institutions

#### A. Classification of Institutions

Institutions can be divided into those with formal constraints and those with informal constraints. Formal institutions include a variety of rules (Constitution, laws, etc.) designed by humans, informal institutions are sanctions, taboos, customs, traditions,

norms, etc.<sup>289</sup> Formal institutions are hierarchical; ordered from high to low in terms of the law, they are the Constitution, ordinances and the common law, specific rules and regulations, and lastly private contracts.<sup>290</sup> Informal institutions' binding force comes from the inheritance of cultural values, from the expansion and application of formal institutions to solve disputes, and the coordination of solutions to problems.<sup>291</sup> They adjust, supplement, and extend formal institutions.<sup>292</sup>

## B. The Functions of Institutions

In a world where everyone has access to a complete information environment, institutions are not as important as formerly because decentralized law enforcement is strong enough to punish violations.<sup>293</sup> However, when information is not complete or where information gathering is costly, institutions are important.<sup>294</sup> In the imperfect market in which individuals rely on incomplete information and bounded rationality to process information, institutions not only reduce the uncertainty of social life, but also promote or inhibit the growth of the economy and political freedom.<sup>295</sup> 'Together with the standard constraints of economics, they [institutions] define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity.'<sup>296</sup>

## C. Enforcement of Institutions

Because measuring the effects of institutional enforcement is costly and different interests between the principal and agent can lead to opportunistic behaviour by

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<sup>289</sup> Douglass C. North, above n262, 4; Douglass C. North, above n263, 97.

<sup>290</sup> Douglass C. North, above n262, 47.

<sup>291</sup> Ibid, 144.

<sup>292</sup> Ibid, 87.

<sup>293</sup> Paul R. Milgrom, Douglass C. North, and Barry R. Weingast, 'The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs' (1990) 2 (1) *Economics & Politics* 1, 21.

<sup>294</sup> Ibid.

<sup>295</sup> Douglass C. North, above n244, 3-4; Douglass C. North, above n262, 3; Douglass C. North and Barry R. Weingast, 'Constitutions and Commitment: The Evolution of Institutional Governing Public Choice in Seventeenth-Century England' (1989) 49 (4) *The Journal of Economic History* 803, 831.

<sup>296</sup> Douglass C. North, above n263, 97.

agents, the enforcement of institutions is usually not perfect.<sup>297</sup> Moreover, nation-states, in formulating and implementing formal state institutions, have a comparative advantage in presiding over legal authorities within a certain region.<sup>298</sup> Therefore, if the leadership of the rulers of nation states is going to pursue a strategy intended to maximise wealth, the enforcement of institutions must have the following three characteristics: (1) the state provides a set of services such as legal protections or fairness in return for income; (2) the state plays as the discriminating monopolist to divide citizens into several groups, and each group is designated different property rights for maximization of national wealth; (3) the state is constrained by the opportunity cost grasped by citizens, because each state has to contend with potential competitors that can provide the same services.<sup>299</sup> Hence, the enforcement of institutions is imperfect, which is one of the motivations for the domain name dispute resolution mechanism to undergo institutional change, as discussed in Section 3 of Chapter 5.

### 3.2.2.2 Institutions and Organisations

Organisations are individual groups set up to achieve consistent goals. They include political groups (political parties, parliaments, legislatures), economic groups (companies, labour unions, family farms, cooperatives), social groups (churches, clubs, sports associations), and educational groups (schools, colleges, vocational training centres).<sup>300</sup> The institutional framework fundamentally affects the existence and evolution of organisations. Conversely, organisations also influence the evolution of institutional frameworks, and are also the agents of institutional change.<sup>301</sup> Organisations usually use the architecture of social institutions to achieve wealth,

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<sup>297</sup> Douglass C. North, 'Institutions and Economic Growth: An Historical Introduction' (1989) 17 (9) *World Development* 1319, 1321.

<sup>298</sup> Douglass C. North, 'A Framework for Analyzing the State in Economic History' (1979) 16 (3) *Explorations in Economic History* 249, 250.

<sup>299</sup> Ibid, 264.

<sup>300</sup> Douglass C. North, above n244, 4-5.

<sup>301</sup> Douglass C. North, above n262, 5.

income maximization, or other purposes.<sup>302</sup> In order to achieve political or economic goals, organisations with sufficient bargaining power seek to gradually re-shape the institutional framework when it is expected that the benefits from changing the existing constraints will exceed the costs of investing in them.<sup>303</sup> The way in which organisations with significant bargaining power changed the institutions of the .cn ccTLD is analysed in chapters 5 and 6.

### 3.2.2.3 Institutions and Opportunism

Opportunism involves adverse selection, moral hazard, evasion, the pursuit of other goals, and other forms of strategic behaviour.<sup>304</sup> No matter how institutions are formed, evolved, and changed, there are rules that restrict the possibility of choices to a great extent. At times, individuals will take advantage of the loopholes in these rules to obtain benefits by fraud, theft, or opportunism.<sup>305</sup> One example of this is the issue of domain name cybersquatting which has occurred worldwide.<sup>306</sup> Because of the existence of opportunistic behaviour, Williamson has argued that: (1) firms are not only pursuit of profit maximization organisations, but are also governance structures (including marketing plan, investment plan, organisational form, and accounting procedures) integrated with a variety of motivations (such as the motive that the firm's agents take advantage to further their own privileges);<sup>307</sup> (2) there are many risks in the process of signing and fulfilling contracts; (3) not all market failures can be solved by governments because not all forms of organisations (including governments) operate effectively.<sup>308</sup>

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<sup>302</sup> Ibid, 73.

<sup>303</sup> Ibid, 73, 79.

<sup>304</sup> Oliver E. Williamson, above n139, 601.

<sup>305</sup> Douglass C. North, above n297, 1322.

<sup>306</sup> For more information, please see Section 3, Chapter 1 in this dissertation.

<sup>307</sup> Oliver E. Williamson, above n243 (a), 49-50, 55-56;

<sup>308</sup> Ibid, 56; Oliver E. Williamson, above n241, 191.

### 3.2.2.4 Institutions and Economic Performance

Douglass North has pointed out that institutions are not necessarily or even usually formulated to be socially efficient because founders or executives design institutions in their own interests and the transaction can result in an inefficient design prevailing.<sup>309</sup> Formal institutions must at least meet the interests of groups with negotiating power. In a world of zero transaction costs, bargaining power does not affect economic efficiency, but in the world of positive transaction costs, bargaining power not only affects economic efficiency, but also shapes the long-term development of economic change.<sup>310</sup> New Institutional Economists believe that the performance of the market economy depends on formal institutions, informal institutions, and organisational mode.<sup>311</sup> Institutions exert influence on economic performance via exchange cost and productive cost.<sup>312</sup> Under the framework of benefits maximization of individual/organisational behaviour and asymmetry of transaction information, North argues, institutions shape the social incentive structure, political institutions, and economic institutions. Therefore, institutions are the most fundamental determinants of economic performance, which shape the direction of development towards economic growth, stagnation, or recession.<sup>313</sup>

A series of institutional constraints regulate the exchange relations between politics and the economy, and also determine the way in which the political system and economic system operate. The various laws and regulations, which are constantly changing, also greatly affect the performance of the economy.<sup>314</sup> Whilst Western government responses to the 2008 Global Financial Crisis may have challenged the validity of these claims, It is arguable that during the 1990s and early 2000s (when the

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<sup>309</sup> Douglass C. North, above n244, 5; Douglass C. North, above n262, 7.

<sup>310</sup> Douglass C. North, above n244, 5.

<sup>311</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 1.

<sup>312</sup> Douglass C. North, above n262, 5.

<sup>313</sup> Douglass C. North, above n263, 97-98; Douglass C. North, 'Economic Performance Through Time' (1994) 84 (3) *The American Economic Review* 359, 359; Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge University Press, 1990) 7.

<sup>314</sup> Douglass C. North, above n313(b), 112.

events covered in this dissertation were occurring), it was widely thought that better economic performance was generally associated with institutions that can limit economic intervention of governments. Consequently, governments allowed private rights and the market economy to flourish in most of sections of the economy during that time.<sup>315</sup> A successful economy reduces transaction costs through institutional innovation, so that stakeholders can get more revenue from transactions and then expand the market.<sup>316</sup>

### 3.2.2.5 Institutions and Transaction Costs

Institutions, efficiency of law enforcement, and related technologies determine the level of transaction costs.<sup>317</sup> The design of institutions should not only consider the cost of compliance, cost of measurement of violation, and cost of custody of offenders, their design and implementation also represents interest groups with political advantages, so the institutions does not necessarily have to reduce transaction costs overall.<sup>318</sup> When a transaction cost is positive, the structure of property rights changes resource allocation.<sup>319</sup> For instance, if the devising of a property rights structure promotes the domain name registration market, more resources will be invested in it by governments and also organisations. Where other conditions are unchanged, a governance structure reducing transaction costs will eventually replace a governance structure that cannot reduce transaction costs as much. But in non-commercial organisations, reduction of transaction costs may have to be sacrificed for some value goal, such as power.<sup>320</sup> For example, with the intention of reducing transaction costs, the Ministry of Information Industry (MII) as the domain name registry in China

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<sup>315</sup> Douglass C. North and Barry R. Weingast, above n295, 808. In research on the rights to natural resources, there is a challenge or even a contrast to general arguments in the aspects of resource governance and their solutions. See for example: Daniel Cole and Elinor Ostrom, 'The Variety of Property Systems and Rights in Natural Resources' in Daniel Cole and Elinor Ostrom (eds) *Property in Land and Other Resources* (Lincoln Institute, 2011); Thrainn Eggertson, *Economic Behaviour and Institutions* (Cambridge University Press, 1990), 254.

<sup>316</sup> Douglass C. North, above n262, 108.

<sup>317</sup> Douglass C. North, above n263, 98.

<sup>318</sup> Douglass C. North, above n262, 48; Douglass C. North, above n297, 1321.

<sup>319</sup> Douglass C. North, above n262, 28.

<sup>320</sup> Oliver E. Williamson, above n240, 574.

delegated the rights of the domain name registration service to all levels of domain name registrars in 2002.<sup>321</sup>

### 3.2.3 Main Theories of New Institutional Economics

Since its rapid development over the last four decades, New Institutional Economics has enjoyed a lot of fruitful research from different disciplines, mainly including state theory, property rights theory, transaction cost economics, agent theory, and institutional change theory.<sup>322</sup> This dissertation mainly applies the theoretical framework of institutional change, so a detailed introduction of that aspect of NIE theory will be found in Section 3.3 of this chapter.

#### 3.2.3.1 State Theory

New Institutional Economists argue that political institutions and economic institutions are important parts of an effective institutional framework.<sup>323</sup> The same institutional arrangements may have different economic performance in different countries due to differences in political settlements. Only when institutional arrangements match political arrangements can the best performance of institutions be achieved.<sup>324</sup> Generally, political institutions guide economic institutions, but change to one of these may lead to change in the other.<sup>325</sup> Consequently, in order to stabilize an economy, correct for market failures, redistribute income, and improve the speed of economic development, it is inevitable that political institutions interact with

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<sup>321</sup> For more information, please see Section 4, Chapter 5 in this dissertation and see the *Administrative Measures on China's Domain Names 2002* (China) s 12-13.

<sup>322</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 281.

<sup>323</sup> Douglass C. North, above n263, 98.

<sup>324</sup> Mushtaq Khan, 'State Failure in Weak States: A Critique of New Institutional Explanations' in John Harriss, Janet Hunter and Colin M. Lewis (eds), *The New Institutional Economics and Third World Development* (Routledge, 1997) 71,71.

<sup>325</sup> Douglass C. North, above n262, 48.

economic institutions.<sup>326</sup>

By improving the arrangements surrounding property rights and the efficiency of law enforcement, political institutions can effectively reduce transaction costs. But the state does not have to do so. In fact, a lot of states not only do not protect property rights and do not promote the enforcement of contracts; they may actually pose a threat to them.<sup>327</sup> Usually, those states pay close attention to considering how different institutional arrangements affect government incentives and performance. How to balance the power of states to protect property rights and how to restrict the abuse of the power is a focal point in research applying this theory.<sup>328</sup>

### 3.2.3.2 Property Rights Theory

The process of institutionalization can produce a highly restricted and inefficient property rights system, but may also produce an open, non-regulatory, or efficient property rights system. When resources can be contested, some forms of rights or claims of exclusive rights are inevitable. In this context, the only questions are what kind of property rights system will appear and how the rights will be allocated.<sup>329</sup> Property rights theory explores why contracts may be imperfect (due to limited rationality), the nature of risks to the implementation of contracts (due to opportunistic behaviour), and the bilateral dependency of contract players (due to asset specificity) through the research of organisations' decisions to make or buy.<sup>330</sup> Property rights theory holds that there is a constant tension between property rights structures and efficient systems. Property rights structures can maximize the income of property owners, and an efficient system can reduce transaction costs and promote economic growth. The tension between these two is the fundamental challenge for

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<sup>326</sup> Heba Handoussa, 'The Role of the State: The Case of Egypt' in John Harriss, Janet Hunter and Colin M. Lewis (eds), *The New Institutional Economics And Third World Development* (Routledge, 1997) 133, 136-137.

<sup>327</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 4-5.

<sup>328</sup> Ibid, 5.

<sup>329</sup> Milton L. Mueller, above n3, 259.

<sup>330</sup> Oliver E. Williamson, above n139, 605.

the sustained growth of an economy.<sup>331</sup>

### 3.2.3.3 Transaction Cost Economics

Transaction Cost Economics pays attention to the ex-post stage of contracts<sup>332</sup>, which is governance.<sup>333</sup> This theory originated in the discussion about firms and markets in Ronald Coase's 1937 paper 'The Nature of the Firm', in which Coase first proposed the hypothesis that transaction costs were positive.<sup>334</sup> In the 1970s, this theory was used to study the vertical integration of firms from the perspectives of contract and governance. Then, it was used to analyse alternative modes of governance, autonomy and coordination mode to understand different transactions. After 1980, empirical testing and public policy research became popular. When Oliver Williamson studied the governance of contractual relations from the aspect of reducing transaction costs and combined legal, economic and organisational theories, Transaction Cost Economics was formally devised.<sup>335</sup>

Transaction Cost Economics mainly explores the degree of asset specificity in transactions and how institutional change affects transactions and the frequency of repeat transactions.<sup>336</sup> In the context of bounded rationality and opportunism, it proposed a discriminating alignment hypothesis. That is, 'transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to affect a (mainly) transaction-cost economizing result.'<sup>337</sup> The

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<sup>331</sup> Douglass C. North, above n298, 253.

<sup>332</sup> The ex-post stage of contracts refers to the period after the implementation of a contract. Claude Ménard and Mary M. Shirley (eds), above n136, 13.

<sup>333</sup> Oliver E. Williamson, above n139, 599.

<sup>334</sup> Oliver E. Williamson, above n247, 75.

<sup>335</sup> Oliver E. Williamson, 'Transaction Cost Economics: The Natural Progression' (2010) 100 (3) *The American Economic Review* 673, 687.

<sup>336</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 4.

<sup>337</sup> Oliver E. Williamson, above n335, 617; Oliver E. Williamson, above n247, 75.

transaction is the basic unit of analysis, and governance is a means to maintain order.<sup>338</sup> The cost of a transaction is raised because information is costly and players have asymmetrical information and 'because any way that the actors develop institutions to structure human interaction results in some degree of imperfection of the market.'<sup>339</sup> Moreover, significant changes in prices will gradually change norms and ideologies, the lower the cost of information is, the faster is the change of informal institutions.<sup>340</sup>

### 3.2.3.4 Agent Theory

Agent<sup>341</sup> theory focuses on ex ante incentive equivalence and effective risk taking.<sup>342</sup> In order to make and implement property rights, the state needs to authorize some authorities as its agents. Because the agent's utility function is not required to be consistent with the rulers', rulers have to develop a set of rules to constrain the behaviour of agents in completing the rulers' objectives, but these rules cannot perfectly constrain the agents' behaviour, so the interests of rulers will more or less lose to those of agents.<sup>343</sup> In some cases, agents and citizens will plot to carve up the monopoly income of rulers.<sup>344</sup>

Behavioural assumptions affect the design of political and economic institutions. Bounded rationality is a 'proper behavioural' hypothesis, which provides a cognitive framework for the study of the behaviour of self-interest.<sup>345</sup> Due to the bounded rationality of policy makers, there are bureaucratic behaviours in government and non-government organisations; and there are control deficiencies in these organisations,

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<sup>338</sup> Oliver E. Williamson, above n247, 76.

<sup>339</sup> Douglass C. North, above n262, 108.

<sup>340</sup> Ibid, 138.

<sup>341</sup> *Agent* may be defined as 'a person acting on behalf of another'. See *Oxford English Dictionary* (Third Edition, September 2012) <[www.oed.com](http://www.oed.com)>.

<sup>342</sup> Oliver E. Williamson, above n139, 600.

<sup>343</sup> Douglass C. North, above n298, 253.

<sup>344</sup> Ibid, 255.

<sup>345</sup> Oliver E. Williamson, above n243 (a), 49.

having the characteristics of hierarchical governance structures.<sup>346</sup> Distortion exists within the transmission of communicated information from the upper to lower levels of agents, which results in a minimum limit of control loss. Generally, the greater the differences in the objectives of various levels of managers, the more serious the loss of control is.<sup>347</sup> For example in China, when environmental protection became one of the evaluation factors in the performance of officials after the new Environmental Protection Law was implemented on 1 January 2015,<sup>348</sup> some local government officials tampered with air quality monitoring data in order to match environmental governance requirements of the central government.<sup>349</sup>

In conclusion, one school of NIE, State Theory, mainly studies institutions at the macro level; one school, Property Rights Theory, conducts research at the micro level; and Transaction Cost Economics and Agent Theory concentrates on the study of institutions from both macro and micro perspectives. These works concentrate on the 'institutions that shape the function of markets, firms, other form of organisations, and legal systems ... and the institutions that govern firms and their contractual relations'.<sup>350</sup>

In the next section there is a definition of Institutional Change Theory, a detailed introduction to its propositions, reasons, and the path dependency of institutional change and technological change.

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<sup>346</sup> Oliver E. Williamson, 'Hierarchical Control and Optimum Firm Size' (1967) 75 (2) *Journal of Political Economy* 123, 134-135.

<sup>347</sup> Ibid, 135.

<sup>348</sup> *Que Li Huan Bao Jiu Shi Zheng Ji Guan Nian* (30 March 2015) Chinanews <<http://finance.chinanews.com/ny/2015/03-30/7169149.shtml>>.

<sup>349</sup> *Huan Bao Ju Shu Ju Zao Jia Nan Dao Zhi You Xi An?* (26 October 2016) Sina <<http://news.sina.com.cn/pl/2016-10-26/doc-ifxwztrt0473106.shtml>>.

<sup>350</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 3.

## 3.3 Institutional Change Theory

This section introduces the propositions of Institutional Change Theory, institutional change's concepts, reasons, and path dependency, in addition to technological change.

### 3.3.1 The Propositions of Institutional Change Theory

Institutional Change Theory mainly studies the relationship between institutional change and economic development. Institutional change has significant regularities which have been exhibited by empirical studies, and it affects economic development and social progress.<sup>351</sup> Some basic institutions change very slowly, and the changing speed of firm governance is slower than some political, legal, and government-affiliated institutions in the transitional economies of Eastern Europe.<sup>352</sup> Douglass North initially put forward five propositions on institutional change which have since been tested, revised, supplemented, and criticized by other scholars. They are:

- (1) The continuous interaction between institutions and organisations in the economic setting of scarcity, and hence competition, is the key to institutional change.
- (2) Competition forces organisations to continually invest in skills and knowledge to survive. The kinds of skills and knowledge individuals and their organisations acquire will shape evolving perceptions about opportunities and hence choices that will incrementally alter institutions.
- (3) The institutional framework provides the incentives that dictate the kind of skills and knowledge perceived to have the maximum pay-off.
- (4) Perceptions are derived from the mental constructs of the players.
- (5) The economies of scope, complementarities, and network externalities of an institutional matrix make institutional change overwhelmingly incremental and

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<sup>351</sup> Claude Ménard and Mary M. Shirley (eds), above n136, 15.

<sup>352</sup> Ibid, 16.

path dependent.<sup>353</sup>

NIE scholars in evolutionary theories have since conducted analytical and empirical studies to propose that institutional change is conceived as rational adaptations to external circumstances.<sup>354</sup> However, scholars in social science have argued that institutional change no longer appeared ‘as rational, smooth, and deterministic, but rather as outcomes of social struggles and unequal power relations’ from the perspective of social conflicts.<sup>355</sup> The consequences of institutional change were the game outcomes of formal and informal negotiations between stakeholders.<sup>356</sup> Some academics believe that political regulation on who can participate in the process of policymaking is vital for the direction of institutional change.<sup>357</sup> ‘A strong institutionalization of cultural categories can sanction negatively defection and reinterpretation of formal rules, thus containing the institutional change triggered by’ these factors; institutional incumbents who control the timing of the institutional reform agenda can resist bottom-up pressure for institutional change by delaying action until the salience of reform among the target population has waned, thus making it harder for political entrepreneurs to assemble and sustain a coalition for institutional change.<sup>358</sup>

‘Existing institutions can shape their own change by generating different sets of incentives for decision-makers, but are based on the tacit assumption that institutional change is the outcome of deliberate political strategies of “policy subversion” on the part of powerful elites.’<sup>359</sup> ‘A long-term orientation towards institutional change and

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<sup>353</sup> Douglass C. North, above n244, 4-5.

<sup>354</sup> Gissur Ó. Erlingsson, Jörgen Ödalen, and Erik Wångmar, ‘Understanding Large-Scale Institutional Change: Social Conflicts and the Politics of Swedish Municipal Amalgamations, 1952–1974’ (2015) 40 (2) *Scandinavian Journal of History* 195, 196.

<sup>355</sup> *Ibid*, 210.

<sup>356</sup> Kaori Baba, ‘Power and Institutional Change: Re-Reforms of Latin American Pension Systems in a Comparative Perspective’ (2015) 48 (14) *Comparative Political Studies* 1847, 1857.

<sup>357</sup> *Ibid*, 1855.

<sup>358</sup> Giovanni Capoccia, ‘When Do Institutions ‘Bite’? Historical Institutionalism and the Politics of Institutional Change’ (2016) 49 (8) *Comparative Political Studies* 1095, 1097.

<sup>359</sup> *Ibid*, 1101; Pepper D. Culpepper, *Quiet Politics and Business Power* (Cambridge University Press, 2011) 194.

a willingness to learn and modify transitional institutions are two factors that can be used as predictors of the direction of institutional change.'<sup>360</sup> Power-stakeholders controlling the timing of institutional change have 'a very strong position to affect the shape, the sustainability, and even the possibility of reform coalitions, and to resist undesired institutional change'.<sup>361</sup> Since competitive pressures exist, the selected solutions for institutional change were 'probably not transaction cost minimising, but rather at least transaction cost reducing'.<sup>362</sup>

### 3.3.2 The Process of Institutional Change

North argued that the one-way process of institutional change was as follows: the change of relevant price led to political or economic exchange for one party or both parties, and the change of informal or formal agreement could better achieve this kind of exchange. Therefore, the organisation would devote efforts and input resources to reconstruct the rules. As time went by, the rules would be changed or there would be fewer constraints, and in this way institutional change would happen gradually.<sup>363</sup> Although informal institutional change did not require a large number of purposeful activities by individuals or organisations, a change of formal rules or implementation of rules was needed to invest significant resources or at least to overcome the free rider problem.<sup>364</sup> Usually in a dispute, neither of the disputing parties was likely to win by its own strength alone, so they had to form a coalition and win the support of other interest groups.<sup>365</sup> A typical example of this in China is the domain name disputes between trade mark holders and domain name registrants who both seek help from governmental authorities and form coalitions with others to maintain and expand their

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<sup>360</sup> Julieta Matos-Castaño, Ashwin Mahalingam, and Geert Dewulf, 'Unpacking the Path-Dependent Process of Institutional Change for PPPs' (2014) 73 (1) *Australian Journal of Public Administration* 47, 62-63.

<sup>361</sup> Giovanni Capoccia, above n358, 1114.

<sup>362</sup> Achim Schlüter and Markus Koch, 'Institutional Change in the Forest Sector: Trust and Mental Models' (2011) 130 (3) *European Journal of Forest Research* 383, 386.

<sup>363</sup> Douglass C. North, above n262, 86.

<sup>364</sup> *Ibid.*

<sup>365</sup> *Ibid.*, 90.

own interests.<sup>366</sup>

Following North's proposition, which was based on studies at macro and micro levels, NIE scholars have often argued that institutional change usually reflected the processes of 'imperfect compliance, rule reinterpretation, and coalition-building among social and political actors. Thus, without excluding the possibility of abrupt institutional breakdown and replacement due to an exogenous shock, scholars in this tradition of analysis maintain that institutional change will more typically be endogenous, gradual, and transformative.'<sup>367</sup> However, there was a debate over whether institutional change was more likely to be gradual or via a process of punctuated equilibrium, which is not the focus of this section.<sup>368</sup>

### 3.3.3 The Reasons for Institutional Change

Various factors have been considered as the fundamental reasons for institutional change. Mueller argued that changes in relevant price was the source of institutional change, and technological innovation was also a factor that promoted institutional change.<sup>369</sup> As will be shown in Chapter 5, the first institutional change of the administrative measure of the .cn ccTLD triggered by the development of domain name technology is an example of this.<sup>370</sup> Interactions between institutions and organisations shaped the institutional change.<sup>371</sup> From the analysis perspective, with

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<sup>366</sup> Please see section 4 of Chapter 5 in this dissertation for more information.

<sup>367</sup> Giovanni Capoccia, above n358, 1099; Douglass C. North, above n262, 6.

<sup>368</sup> Giovanni Capoccia, above n358, 1099; John Selby, above n137, 90. See, for example, James Mahoney and Kathleen Thelen, 'A Theory of Gradual Institutional Change' in James Mahoney and Kathleen Thelen (eds), *Explaining Institutional Change: Ambiguity, Agency and Power* (Cambridge University Press, 2010); Elaine Romanelli and Michael Tushman, 'Organizational Transformation as Punctuated Equilibrium' (1994) 37 (5) *Academy of Management Journal* 1141; Wolfgang Streeck and Kathleen Thelen (eds), *Beyond Continuity: Institutional Change in Advanced Political Economies* (Oxford University Press, 2005); Christopher Kingston and Gonzalo Caballero, 'Comparing Theories of Institutional Change' (2009) 5(2) *Journal of Institutional Economics* 151.

<sup>369</sup> Milton L. Mueller, above n3, 255; Douglass C. North, above n262, 7.

<sup>370</sup> Details on how the technology related to domain names promoted institutional change in the regulation of the .cn ccTLD is in section 5 of Chapter 5 in this dissertation.

<sup>371</sup> Douglass C. North, above n313 (b), 361.

citizens as demanders and government as a provider, institutional change was the result of the interaction between demand and supply in society.<sup>372</sup> A series of changes in the legal regulations or laws and so forth would lead to a great change of institutional structure. Alternatively, interest groups with sufficient bargaining power could alter the formal rules and cause a significant change in the formal institutional framework.<sup>373</sup> As will be shown in Chapter 5, for example, the MII in China, with its significant administrative power, seized the administrative rights on the .cn ccTLD from the Office of Information Work Leader Group of the State Council and released a new administrative measure of the .cn ccTLD in 2002.<sup>374</sup> If the institutional framework had not evolved, players on both sides of the transaction would not have had the institutional arrangements necessary to resolve their disputes, and the potential benefits obtained from transactions could not be confirmed; entrepreneurs (primarily acting as agents of their organisations) would strategize to break the deadlock through forming coalitions, strikes, violence, or other means.<sup>375</sup>

Other scholars have proposed that changes in the variables of transaction costs and benefits or changes in laws, rules, or power resources are sufficient to trigger institutional change generally.<sup>376</sup> Government policy orientation, economic factors, the long-term balance of power, and executive control of the legislature might all be able to trigger institutional change.<sup>377</sup> Rule defection and reinterpretation as well as shifts in the social coalitions embedded in an institutional arrangement could trigger endogenous institutional change.<sup>378</sup> Direct determinants of institutional change were: 1) to what extent new institutional forms fitted well with the political and social

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<sup>372</sup> Lee J. Alston, Thrainn Eggertsson, and Douglass C. North (eds), *Empirical Studies In Institutional Change* (Cambridge University Press, 1996) 26-27.

<sup>373</sup> Douglass C. North, above n262, 68; Holly A. Ritchie, 'Unwrapping Institutional Change in Fragile Settings: Women Entrepreneurs Driving Institutional Pathways in Afghanistan' (2016) 83 (7) *World Development* 39, 39.

<sup>374</sup> For more information, please see Chapter 5 in this dissertation.

<sup>375</sup> Douglass C. North, above n262, 90.

<sup>376</sup> Andreas Thiel, 'Developing an Analytical Framework for Reconstructing the Scalar Reorganization of Water Governance as Institutional Change: The Case of Southern Spain' (2014) 107 (11) *Ecological Economics* 378, 382.

<sup>377</sup> Kaori Baba, above n356, 1849, 1852-53.

<sup>378</sup> Ibid, 1849, 1110; James Mahoney and Kathleen Ann Thelen, 'A Theory of Gradual Institutional Change' in James Mahoney and Kathleen Ann Thelen (eds), *Explaining Institutional Change* (Cambridge University Press, 2010) 1-38.

perceptions; and 2) to what extent policy makers wanted to harmonize those new institutional forms with existing political and social institutions; and 3) the extent to which those policy makers desired to play a coordinating role in the process.<sup>379</sup>

### 3.3.4 Path Dependency of Institutional Change

Increasing returns and the imperfect market affected by significant transaction costs shaped the path of institutional change.<sup>380</sup> The initial design for institutional change shaped the subsequent possibilities and contents of institutional change.<sup>381</sup> The long-term balance of power shaped the political environment favourably or unfavourably towards certain paths of institutional change.<sup>382</sup> Previous policy design had a long-term influence on the future choices of institutional change.<sup>383</sup> 'In path-dependency models, the stability of institutions is attributed to their influence on the resources and incentives of actors and to the development of institution-specific assets.'<sup>384</sup> Organisations may take advantage of the opportunities and as organisations were evolving, they changed institutions.<sup>385</sup> For example, as will be shown in Chapter 5, when the responsibilities of the MII evolved, it altered the administrative regulations of the .cn domain names subsequently.<sup>386</sup> The path of institutional change was determined by the lock-in effect and the information feedback process.<sup>387</sup> The governance upon cyberspace speech in China by administrative measures of the .cn ccTLD illustrates this argument.<sup>388</sup>

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<sup>379</sup> Julieta Matos-Castaño, Ashwin Mahalingam, and Geert Dewulf, above n360, 62.

<sup>380</sup> Douglass C. North, above n262, 95.

<sup>381</sup> Kaori Baba, above n356, 1871.

<sup>382</sup> Ibid, 1856.

<sup>383</sup> Ibid, 1849.

<sup>384</sup> Giovanni Capoccia, above n358, 1098.

<sup>385</sup> Douglass C. North, above n262, 7.

<sup>386</sup> For more information, please see Chapter 5 in this dissertation.

<sup>387</sup> Douglass C. North, above n262, 7.

<sup>388</sup> For more information, please see Chapter 6 in this dissertation.

When a set of the same rules were implemented in two different societies, the changes in the relevant price or in the implementation of the rules leads to different social institutional arrangements.<sup>389</sup> As in different societies, each social group has a different negotiation ability, and the subjective model and decision selection strategy of the stakeholders are also different, so the path of institutional change is different too.<sup>390</sup>

### 3.3.5 Institutional Change and Technological Change

The development direction of technology has created the path dependency of technological development because once the technology has developed in a specific direction and has the characteristics of increasing returns, alternative development paths and alternative technologies may become blocked, so the technology will continue to develop in the existing direction.<sup>391</sup> For instance, China's domain name technology was mainly inherited from international domain name technology and then developed in a similar (but not identical) direction.<sup>392</sup> Technological change can lead to economic, political, and social institutional change.<sup>393</sup> Importantly, technological change has an influence on the distribution of transaction costs and benefits.<sup>394</sup> Conversely, institutional change can also promote technological change.<sup>395</sup> As will be shown in Chapter 5, technological change in the resolution of Chinese

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<sup>389</sup> Douglass C. North, above n262, 101.

<sup>390</sup> Ibid.

<sup>391</sup> Ibid, 76.

<sup>392</sup> For the development of China's domain name technology, please see section 2 of Chapter 4 in this dissertation.

<sup>393</sup> See Ulrich Dolata, 'Technological Innovations and Sectoral Change Transformative Capacity, Adaptability, Patterns of Change: An Analytical Framework' (2009) 38 (6) *Research Policy* 1066, 1066; Totti Konnola, Gregory C. Unruh, and Javier Carrillo-Hermosilla, 'Prospective Voluntary Agreements for Escaping Techno-Institutional Lock-In' (2006) 57 (2) *Ecological Economics* 239, 249; Paul Upham, Paula Kivimaa, and Venla Virkaki, 'Path Dependence and Technological Expectations in Transport Policy: The Case of Finland and the UK' (2013) 32 *Journal of Transport Geography* 12, 14.

<sup>394</sup> Holly A. Ritchie, above n373, 41.

<sup>395</sup> Grazia Cecere et al, 'Lock-in and Path Dependence: An Evolutionary Approach to Eco-innovations' (2014) 24 (5) *Journal of Evolutionary Economics* 1037, 1055-1056; Jiang Yu, 'From 3G to 4G: Technology Evolution and Path Dynamics in China's Mobile Telecommunication Sector' (2011) 23 (10) *Technology Analysis & Strategic Management* 1079, 1090.

domain names led to institutional change of the administrative measures of the .cn ccTLD, which promoted technological change of Chinese domain names afterwards.<sup>396</sup> Technological change and institutional change are both basic elements of social evolution and economic evolution, and they all have the characteristics of path dependency. One common theory of these changes is that increasing returns are important factors for both; the differences are that participants' insights play a more central role in institutional change, and the lock-in effect and path dependency are more complicated in institutional change.<sup>397</sup>

Technological change arising from new technology can be divided into endogenous technology and exogenous technology.<sup>398</sup> Endogenous technology refers to the development and application of new technology as the inherent phenomenon of the relevant institutions. Domain name technology, for example, is an integral part of the formation, evolution, and change of domain name regulations. Exogenous technology refers to the development and application of new technology as functional and auxiliary effects to the formation, evolution and change of the relevant institutions.<sup>399</sup> For instance, digital publishing technology in the publishing industry has functional and marginal effects upon China's Regulations on the Administration of Publication. However, research on the specific patterns, forms, and dynamics of institutional change caused by technological change is still limited.<sup>400</sup>

### 3.4 Conclusion

This chapter first introduces the origin of New Institutional Economics theory, and then compares and analyses similarities and differences between NIE and New Classical Economics and Old Institutional Economics. Second, it introduces the basic concepts of NIE, including institutions, embeddedness, institutional environment, institutional

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<sup>396</sup> One of these examples is in section 5 of Chapter 5 in this dissertation.

<sup>397</sup> Douglass C. North, above n262, 103.

<sup>398</sup> Ulrich Dolata, above n393, 1067.

<sup>399</sup> Ibid, 1068.

<sup>400</sup> Ibid; Oliver E. Williamson, above n139, 600.

change, transaction costs, bounded rationality, opportunism, path dependency, asset specificity, and make-or-buy choice. Third, it summarizes the basic hypotheses of NIE, including institutions' hypotheses, institutions and organisations, institutions and opportunism, institutions and economic performance, and institutions and transaction costs. Fourth, it briefly sets out the main theories of NIE, namely state theory, property rights theory, Transaction Cost Economics, agent theory, and institutional change theory. Finally, it discusses the characteristics, reasons, and path dependency of NIE, and the relationship between institutional change and technological change.

In the next chapter, the process of institutional formation of the regulation of the .cn ccTLD from 1990 to 1997 will be analysed in detail and a hypothesis of NIE according to the evidence derived from institutional formation will be tested.

## 4 Institutional Formation of the .cn ccTLD (1990-1997) – Legal Transplantation

This chapter first analyses the institutional environment in the period from the initial registration of the .cn ccTLD in 1990 to the release of the first Chinese administrative regulation of domain names in 1997, and then discusses the delegation process of the .cn ccTLD and the specific contents of the <Interim Administrative Measures on Domain Name Registration> (IAMoDNR). Finally, it sets forth a hypothesis of New Institutional Economics, tests institutional path dependency through a comparative analysis between the IAMoDNR and the RFCs, and proposes a relationship between domain name institutional path dependency (IPD) and domain name technological path dependency (TPD).

### 4.1 Institutional Environment

Whether an institution can be transplanted smoothly not only involves the institution itself, but also depends on differences between the institutional environments in those countries.<sup>401</sup> Thus, it is better to first study the institutional environment an institution is imbedded within. Therefore, this section will analyse the political environment and legal environment between 1990 and 1997 in which the institutional formation of the regulation of the .cn ccTLD occurred so as to better understand how the institutional environment influenced and constrained the registration of the .cn ccTLD and the release of the 1997 regulation of the .cn ccTLD.

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<sup>401</sup> John Selby, above n137, 59.

### 4.1.1 Political Environment

In late 1980s and early 1990s, the foreign policies of the United States and Germany had a significant impact on the import and development of internet and domain name technologies in China. Unsurprisingly, Chinese foreign policy and domestic political policies also played an important role in this area. This section will give a brief introduction to the relevant aspects of American, German and Chinese foreign policies, and Chinese domestic political policies. Second, legal, formal, and informal constraints from international organisations, international rules<sup>402</sup>, and China's domestic legal environment put constraints on the draft and release of the first administrative regulation of the .cn ccTLD to different extents. Hence, this section will also analyse the international and domestic legal environment in detail.

#### 4.1.1.1 United States Foreign Policy

In contrast to their former isolationist policies, after World War II, capitalist countries, led by the United States, conducted a political and military confrontation with socialist countries, led by the Soviet Union, namely the 'Cold War'. President Nixon's 1972 visit to Beijing finally ended more than twenty years' alienation between China and America.<sup>403</sup> This visit was the first step toward normalization of Sino-American diplomatic relations and also a key measure to maintaining Asian peace.<sup>404</sup> The Carter Administration strengthened the Sino-US relationship as a response to their common rivals, the Soviet Union.<sup>405</sup>

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<sup>402</sup> In this dissertation international rules refer to international norms, policies, agreements, treaties, and laws.

<sup>403</sup> Robert Accinelli, 'In Pursuit of a Modus Vivendi: The Taiwan Issue and Sino-American Rapprochement, 1969-1972' in William C. Kirby, Robert S. Ross, and Gong Li (eds), *Normalization of U.S. – China Relations: An International History* (The Harvard University Asia Center, 2005) 9, 9.

<sup>404</sup> Jean Garrison, 'Constructing the 'National Interest' in U.S.–China Policy Making: How Foreign Policy Decision Groups Define and Signal Policy Choices' (2007) 3 (2) *Foreign Policy Analysis* 105, 112.

<sup>405</sup> Ibid, 112-113.

Since 1985, socialist communities in Eastern Europe have developed along a divergent path from socialism.<sup>406</sup> In 1989, socialist polities in Eastern Europe collapsed. Poland, Hungary, East Germany, Czechoslovakia, Bulgaria and Romania started to practise democratic politics and market economy.<sup>407</sup> The drastic changes in Eastern Europe were a prelude to the end of the Cold War and pushed the Bush Administration to change its foreign policies. The United States exerted political power over formerly Communist countries in Europe and other regions through market institutions and economic activities rather than devoting itself to a nuclear weapons race so as to exhibit military strength.<sup>408</sup> At that time, there were economic trades in the field of computer equipment between China and America.<sup>409</sup> In 1989, however, the incident at Tiananmen Square in Beijing caused the Bush Government to immediately ban the weapons trade and high-level military exchange with China.<sup>410</sup> This ban resulted in a delay to the Chinese computer connection with the American-controlled international network, which was supported and financed by the American military through ARPA/DARPA<sup>411</sup>.

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<sup>406</sup> Michael Mandelbaum, 'Ending the Cold War' (1989) 68 (2) *Foreign Affairs* 16, 22.

<sup>407</sup> Michael Mandelbaum, 'The Bush Foreign Policy' (1990-91) 70 (1) *America and the World* 5, 5. For more details, see Paul Hollander, 'Why Communism Collapsed in Eastern Europe' (1993) 30 (2) *Society* 43-51.

<sup>408</sup> Jean Garrison, above n404, 115-116; Michael Mandelbaum, above n407, 6.

<sup>409</sup> See for example: Peter F. Cowhey, 'The International Telecommunications Regime: The Political Roots of Regime for High Technology' *International Organization* (1990) 44 (2) 169; Benjamin H. Flowe, 'Export Licensing of Computer Equipment and Technology – A Practitioner's Perspective' (1985) 10 (3) *North Carolina Journal of International Law and Commercial Regulation* 633; Ed Zschau, 'Export Controls and America's Competitive Challenge' (1986) 1 (1) *High Technology Law Journal* 1.

<sup>410</sup> Rosemary Foot, *The Practice of Power: US Relations with China since 1949* (Clarendon Press, 1995) 244; Li Nanjun and Werner Zorn, *Zhong Guo Jie Ru Hu Lian Wang De Zao Qi Gong Zuo Hui Gu* (22 November 2006) People <<http://media.people.com.cn/GB/40628/5076637.html>>.

<sup>411</sup> For more information about ARPA and DARPA, see Jon Postel and Stephen Crocker, *The ARPANET Transition Opportunities and Gateway Considerations Report* (29 March 1978) <<http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA052021&Location=U2&doc=GetTRDoc.pdf>>; Jon Postel, Paul Mockapetris, and Dan Cohen, *Annual Technical Report: A Research Program on Technology from July 1981 to June 1982* (25 April 1983) <<http://www.dtic.mil/dtic/tr/fulltext/u2/a127288.pdf>>; Jon Postel et al, *Network Communication Research Final Report* (December 1990) <<http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA236542&Location=U2&doc=GetTRDoc.pdf>>; SAC067: *Overview and History of the IANA Functions* (15 August 2014) SSAC <<https://www.icann.org/en/system/files/files/sac-067-en.pdf>>.

In the initial years of the post-Cold War era, developed countries formed a neoliberal consensus of de-regulation, privatization, and export-led growth to promote economic growth in developing countries and developed countries. Countries that wanted to avoid economic depression and stagnation had to integrate into this neoliberal economics through political and economic reforms.<sup>412</sup> The desire for economic growth gave the United States a chance to influence international economic structure for the purpose of controlling international political architecture, communication technologies as a force of commercial expansion and political aggression to be considered priority.<sup>413</sup> In addition, America would suffer economic loss if it blockaded or isolated China.<sup>414</sup> Under this background, the United States implemented a range of policies to facilitate China and Russia to gradually participate in the post-Cold War order which was dominated by western countries. Democracy, the free market and active political participation were the main characteristics of the new world order and also the primary method to westernize China and Russia.<sup>415</sup>

While the Bush and Clinton administrations tried to maintain American economic hegemony, they also expected to shape culture and politics at a global scale. The USA promoted its human rights agenda in China by promoting economic liberalization and democratic expansion.<sup>416</sup> America wanted to build a new world order which was: regional security dominated by the United States, democratic Russia complying with

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<sup>412</sup> Sherle R. Schwenninger, 'World Order Lost: American Foreign Policy in the Post-Cold War World' (1999) 16 (2) *World Policy Journal* 42, 42; HONG Yu, 'Colonial Legacies and Peripheral Strategies: Social-spatial Logic of China's Communications Development Since 1840' (2015) 11 (2) *Global Media and Communication* 89, 99.

<sup>413</sup> Rosemary Foot, above n410, 224.

<sup>414</sup> Ibid, 246. See also Xinghao Ding, 'Managing Sino-American Relations in a Changing World' (1991) 31 (2) *Asian Survey* 1160; Carol Lee Hamrin, 'Elite Politics and the Development of China's Foreign Relations' in Thomas W. Robinson and David Shambaugh (eds), *Chinese Foreign Policy: Theory and Practice* (Clarendon Press, 1996) 92-93.

<sup>415</sup> Michael Mandelbaum, 'Westernizing Russia and China' (1997) 76 (3) *Foreign Affairs* 80, 95.

<sup>416</sup> Jean A. Garrison, *Making China Policy: From Nixon to G.W. Bush* (Lynne Rienner Publishers, 2005) 133.

western countries, non-nuclear diplomacy, and neoliberalism leading world political and economic development.<sup>417</sup> Within the constraints of this diplomatic policy and the increasing influential power of China in regional economics and politics, the Clinton Administration pursued a strategy of cooperation to promote Chinese economic and political reforms.<sup>418</sup> In this period, the United States had the ability to lead the reforming process of information technology due to its dominant position, such as the Domain Name System (DNS) technology<sup>419</sup> which was a core technology of the internet and also the primary foundation for all levels of domain names, including ccTLD.

#### 4.1.1.2 German Foreign Policy

During the Cold War, West Germany was described as a 'trading state', as its foreign policy was aimed at ensuring economic interests superseded military and political interests.<sup>420</sup> The diplomatic relationship between China and West Germany was not normalized due to the self-isolation of China and because Germany was unwilling to publicly confront the Soviet Union when China and the Soviet Union were rivals in the 1960s.<sup>421</sup> Sino-German diplomatic relations revived<sup>422</sup> when Nixon visited Beijing in 1972 and China actualized its opening-up policy in 1978; Germany also refused to build an official relationship with Taiwan.<sup>423</sup> After the termination of bipolar confrontation,

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<sup>417</sup> Sherle R. Schwenninger, above n412, 42.

<sup>418</sup> Ibid, 60.

<sup>419</sup> Ibid, 43.

<sup>420</sup> Steve Marsh, 'The Dangers of German History: Lessons from a Decade of Post-Cold War German Foreign and Security Policy' (2002) 3 (3) *Perspectives on European Politics and Society* 389, 391.

<sup>421</sup> Chen Jian and Yang Kuisong, 'Chinese Politics and the Collapse of the Sino-Soviet Alliance' in Odd Arne Westad (ed), *Brothers in Arms: The Rise and Fall of the Sino-Soviet Alliance, 1945–1963* (Stanford University Press, 1998) 246–294.

<sup>422</sup> Martin Albers, 'Business with Beijing, Détente with Moscow: West Germany's China Policy in a Global Context, 1969–1982' (2014) 14 (2) *Cold War History* 237, 237.

<sup>423</sup> Ibid, 241.

Germany's economic development emphasis transferred from a West European-Atlantic focus to a worldwide focus.<sup>424</sup> Then, Germany and China gradually began to cooperate with respect to economy, education, law and technology.<sup>425</sup> The Chinese government sponsored a large number of students and scholars to study in Germany so as to gain advanced knowledge and technology, which made Germany the second most popular country to attract Chinese attention in the 1980s.<sup>426</sup> When Germany unified in 1990, its economic power was far behind that of America and Japan. Its GDP was less than half of that of Japan, one-quarter of that of America, and only composed 7% of the world's GDP.<sup>427</sup> Hence, Germany endeavoured to develop its national economy<sup>428</sup> and actively built and developed its relationship with Asian countries through cooperation and communication – in terms of politics, economy and education – for its long-term economic interests.<sup>429</sup> This new German foreign policy provided a good cooperative foundation for German exports to help China, connecting a Sino-Germany network, and facilitating Chinese experts to register the .cn ccTLD.

#### 4.1.1.3 Chinese Foreign Policy

After the third Plenary Session of the 11th Central Committee in 1978, Chinese political elites ended the ideological battle which arose during the Cultural Revolution and started a path of reform and opening-up, under which economic construction was the central task for the Communist Party and for the state, and developing productivity

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<sup>424</sup> Steve Marsh, above n420, 394.

<sup>425</sup> Martin Albers, above n422, 252-254.

<sup>426</sup> Ibid, 254.

<sup>427</sup> PAN Qichang, 'De Guo Dong Bu Di Qu Fa Zhan Qian Jing He De Guo Wai Jiao Zou Shi – Zai Lun De Guo Tong Yi Wen Ti' (1991) (6) *Xi Ou Yan Jiu* 17, 22.

<sup>428</sup> CHEN Xuansheng, 'De Guo Wai Jiao De San Ge Bian Hua' (2000) 18 *Shi Jie Zhi Shi* 20, 20.

<sup>429</sup> ZHANG Min, 'Lian Bang De Guo Wai Jiao Zheng Ce De Tiao Zheng Ji Qi Te Dian' (1994) (1) *Ou Zhou* 29, 33.

was a priority, even an emergency.<sup>430</sup> The second generation of central leadership put modernization as a primary aim and endeavoured to have a peaceful international environment as its main foreign policy.<sup>431</sup> Since then, China has ended self-isolation and begun to return to the international community.<sup>432</sup> Xiaoping Deng started a pragmatic diplomatic era for China in which China actively integrated into the world and carried out modernization in late 1970s and early 1980s.<sup>433</sup> This foreign policy was written into the preface of the Constitution of China (1982) which explained that China insisted on an independent and autonomous foreign policy to all other countries, which meant mutual respect with sovereignty and territorial integrity, mutual non-aggression, non-interference in each other's internal affairs, and peaceful coexistence.<sup>434</sup> It guided China's diplomatic relations with other countries and promoted economic and cultural communication.<sup>435</sup> It indicated China would no longer continue to isolate and seclude itself; instead, it made efforts to catch up the world developing pace with respect to politics, economy, culture, and so on.

In 1987, the report of the 13th National Congress of the Communist Party of China (13th report) proposed an explicit general principle for China's foreign policy. It stated that China would concentrate on peace and development, adjust diplomatic policy and foreign relations in order to attain its objectives of independence and autonomy, non-hegemonism and the maintenance of world peace according to the international situation and its desire to modernize.<sup>436</sup> In the specific way of developing an initial

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<sup>430</sup> *Deng Xiao Ping Wen Xian (Di San Juan)* (Renmin Chu Ban She, 1993) 321

<sup>431</sup> XIAO Zongzhi, 'Jian Guo 50 Duo Nian Lai Zhong Guo Wai Jiao De Ji Ben Te Zheng Lun Xi' (2002) 24 (3) *Shang Hai Li Gong Da Xue Xue Bao* 64, 65.

<sup>432</sup> Martin Albers, above n422, 238.

<sup>433</sup> LI Chenghong, 'Dang Dai Zhong Guo Wai Jiao De Ji Ben Zhuan Xing Yu Fen Qi Wen Ti – Yi Ge Wai Jiao Zheng Ce Fen Xi Li Lun De Shi Jiao' (2008) 107 (6) *Wai Jiao Ping Lun* 27, 27.

<sup>434</sup> *Constitution 1982* (China) paragraph 12 of Preface.

<sup>435</sup> *Constitution 1982* (China).

<sup>436</sup> ZHAO Ziyang, *Yan Zhe You Zhong Guo Te Se De She Hui Zhu Yi Dao Lu Qian Jin*, Zhong Guo Gong Chan Dang Di Shi San Ci Quan Guo Dai Biao Da Hui Shang De Bao Gao, 25 October 1987.

stage of socialism, Ziyang Zhao stated China must persist in its opening-up policy. In an environment of strengthening international ties between countries, no country can have progress under a policy of isolation. In order to develop socialism on the foundations of poor infrastructure and a tattered economy, the promotion of communication and cooperation in economics and technology with foreign countries was essential. China made strenuous efforts to assimilate advanced culture from the world to gradually narrow the gaps between it and developed countries. Otherwise, closing the communication door to foreign countries must result in falling behind.<sup>437</sup>

The foreign policies mentioned above stimulated Chinese technologists and officers to cooperate with German scientists and institutions.<sup>438</sup> Nevertheless, the drastic changes in Eastern Europe gave China an enormous shock. Leaders in China had varying thoughts on this international situation and foreign policy.<sup>439</sup> In such a political intersection, Chinese President Jiang restated the principles of dealing with the Sino-American relationship in a formal meeting between himself and American President Bush in 1989, which were ‘increasing trust, reducing troubles, developing cooperation, and avoiding confrontation’.<sup>440</sup> Along with the stability of China’s foreign policy after the Cold War, the relationship between China and western countries had moved towards cooperation instead of confrontation, which provided beneficial conditions for China to actively participate in international progress. The spirit of ‘economic integration, security cooperation and political consultation’ sped up the pace of multilateral diplomacy and achievement of economic aims.<sup>441</sup> Furthermore, the report of 14th National Congress of the Communist Party of China (14th report) stated

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<sup>437</sup> Ibid.

<sup>438</sup> For more details, see Technological Support in this Chapter.

<sup>439</sup> *Anthology of Xiaoping Deng* (Renmin Press, 3rd Edition, 1993) 321.

<sup>440</sup> ZHONG Zhicheng, *Wei Le Shi Jie Geng Mei Hao – Jiang Ze Min Chu Fang Ji Shi* (Shi Jie Zhi Shi Chu Ban She, 2006) 31-32.

<sup>441</sup> WANG Liyong, ‘Leng Zhan Hou Zhong Guo Wai Jiao Zhan Lue De Zhong Da Fa Zhan’ (2000) (2) *Zhong Gong Fu Jian Sheng Wei Dang Xiao Xue Bao* 38.

that China steadfastly implemented an opening-up policy, and had a strong will to continually broaden and reinforce cooperation and communication with all countries worldwide within the fields of economy, technology, culture, education, hygiene and sport, under the framework of equality and mutual benefits.<sup>442</sup>

In conclusion, in the late 1980s and early 1990s, the United States applied a strategy of actively participating in Chinese economic construction, with the goal of continually westernizing China and influencing Chinese economic development rather than isolating China. Germany developed political, educational and technological cooperation with Asian countries – such as China – to re-energize its national economy. The reality of poor infrastructure and economy pushed the Chinese Communist Party (CCP) to carry out reforms and the opening-up policy for increasing economic growth and trying to catch up to the GDP amounts of western countries. Consequently, it was a good time for technological cooperation between the scientists of China, the United States and Germany.

#### 4.1.1.4 China's Domestic Political Environment

After the Third Plenary Session of the 11th Central Committee, the CCP transferred its work priorities towards a socialist modernization drive.<sup>443</sup> Subsequently, China started to reform and open up. These policies were confirmed in the 13th report, which specified six points: (1) concentrating strengths and energy to develop modernization; (2) insisting on comprehensive reform; (3) persisting in opening up; (4) vigorously developing the planned commodity economy with public ownership remaining

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<sup>442</sup> JIANG Zemin, *Jia Kuai Gai Ge Kai Fang He Xian Dai Hua Jian She Bu Fa Duo Qu You Zhong Guo Te Se She Hui Zhu Yi Shi Ye De Geng Da Sheng Li*, Zhong Guo Gong Chan Dang Di Shi Si Ci Quan Guo Dai Biao Da Hui Shang De Bao Gao, 12 October 1992.

<sup>443</sup> *Zhong Guo Gong Chan Dang Di Shi Yi Jie Zhong Yang Wei Yuan Hui Di San Ci Quan Ti Hui Yi Gong Bao* (22 October 1978) <[http://news.xinhuanet.com/ziliao/2005-02/05/content\\_2550304.htm](http://news.xinhuanet.com/ziliao/2005-02/05/content_2550304.htm)>.

dominant; (5) trying hard to build democratic politics on the premise of stability and solidarity; (6) and making efforts to build a spiritual civilization under the guidance of Marxism.<sup>444</sup> Within the guideline of comprehensively rebuilding the economy, Ziyang Zhao stated governments should first and foremost develop science, technology and education, and should advance technology and improve workers' skills as the correct way to stimulate an economic boom;<sup>445</sup> elites and specialists should seize opportunities to study high technologies, especially the research of microelectronic techniques, information technology, bioengineering techniques, and new material technology; and governments should continue to invest in basic research and develop soft science.<sup>446</sup> Consequently, under the spiritual guidance of the 13th report, successive Chinese governments have provided substantial financial aid and put in place beneficial policies for the research of information technology.<sup>447</sup>

Nevertheless, the upheavals that occurred between socialist countries worldwide in 1989 were a shock for all people, and the incident at Tiananmen Square in China was a huge test for Chinese socialism. This incident sabotaged the normal social order, disturbing the progress of the economy. However, under the leadership of Xiaoping Deng, the triumph of counterinsurgency underpinned the socialist position in China and consolidated the fruits of ten years of reform and opening-up.<sup>448</sup> After a short-term rest and reorganisation of the CCP, Xiaoping Deng's speech on his 1992 southern tour designated an explicit way for the future of the Chinese economy. He deemed that China should seize the time and opportunities to develop, especially to promote the economy;<sup>449</sup> and that rapid economic development should rely on technology and

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<sup>444</sup> ZHAO Ziyang, above n436.

<sup>445</sup> Ibid.

<sup>446</sup> Ibid.

<sup>447</sup> For more details, see Technological Support from Chinese Governments in this Chapter.

<sup>448</sup> *Zhong Guo Gong Chan Dang Shi Shang De 80 Jian Da Shi – 1989 Nian Zheng Zhi Feng Bo* (13 June 2001) <<http://www.people.com.cn/GB/shizheng/252/5301/5302/20010613/488133.html>>.

<sup>449</sup> DENG Xiaoping, *Deng Xiao Ping Nan Xun Jiang Hua Quan Wen* IFENG

education.<sup>450</sup> The idea of building the state with science and technology became the main political topic at that time<sup>451</sup>, and this provided a political guarantee and policy support for importing domain name technology, registering the .cn ccTLD and enacting the first administrative regulation of domain names.<sup>452</sup>

The 14th report in 1992 proposed the concept of building socialism with Chinese characteristics and reemphasized that developing productivity must be the priority; economic development as the central task of the CCP could promote every aspect of social progress; opening-up was requisite for reforming and developing; China should assimilate and take full advantage of all the civilized achievements for developing socialism, including advanced achievements from developed capitalist countries; the theoretical controversy between socialism and capitalism should not impede the government's decision to develop the economy; capital, resources, technology, experts and private economy from capitalist countries could be beneficial supplements for developing socialism.<sup>453</sup> In order to revitalize the economy, JIANG Zemin pointed out that technology should be revitalized first. Only by firmly improving technology could China survive in the fierce competition. At that time, the Chinese economy was confronted with the big challenges of accelerating development, adjusting structure, and improving economic performance. To achieve this orientation, the whole society needed to understand the importance of science and technology, and governments and institutions needed to increase all kinds of investment in technology. A flourishing

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<<http://finance.ifeng.com/opinion/zjgc/20111231/5389402.shtml>>.

<sup>450</sup> Ibid.

<sup>451</sup> CPC, *Zhong Gong Zhong Yang Guan Yu Zhi Ding Guo Min Jing Ji He She Hui Fa Zhan Shi Nian Gui Hua He 'Ba Wu' Ji Hua De Jian Yi* (30 December 1990) People <<http://www.people.com.cn/GB/other4349/4456/20010228/405430.html>>. Its 30th to 48th Articles specified the tasks and policies for developing technology, education and culture.

<sup>452</sup> See the examples in section 4.2 'The Delegation of the .cn ccTLD' and section '4.3 'Interim Administrative Measures on Domain Name Registration' in this chapter.

<sup>453</sup> JIANG Zemin, above n442.

economy should really rely on scientific and technological progress.<sup>454</sup> Drafting and enacting the first administrative regulation of domain names in China was situated within this political environment, which actively promoted the development of technology and its combination with the economy. In addition to this political environment, the next section examines how the legal environment in which the registration of the .cn ccTLD occurred played a significant role in the application to delegate the .cn ccTLD for China.

### **4.1.2 Legal Environment**

International organisations and international domain name rules not only constrained the registration of the .cn ccTLD, but to a large extent also had an influence on the enactment of China's domain name regulations. Furthermore, the legal environment in socialist China both directly constrained and promoted the formation of the regulation of the .cn ccTLD.

#### **4.1.2.1 International Domain Name Organisations**

In the period of registration of the .cn ccTLD and enactment of the first administrative regulation of domain names in China from 1900 to 1997, the internet Assigned Numbers Authority (IANA) and the Internet Engineering Task Force (IETF) constrained the delegation, registration and management of ccTLDs.

#### **A. IANA**

Since 1970, the IANA<sup>455</sup>, has been responsible for distributing the various numeric

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<sup>454</sup> Ibid.

<sup>455</sup> IANA is one department of ICANN after its reform. Its main task is in charge of DNS root server, IP address and

identifiers needed to operate the internet.<sup>456</sup> Since the early 1970s, internet protocols have required publication of the list of internet numbers and names, and this project was originally led by Steve Crocker.<sup>457</sup> When Crocker was leaving the University of California to join the ARPA in June 1971, he asked Jon Postel, a PhD student enrolled in the University of Southern California Information Sciences Institute (USC-ISI), to take over the job of recording and updating the list.<sup>458</sup> In March 1990, RFC 1060 confirmed that IANA presided over the task of recording and updating the list.<sup>459</sup> Since then, IANA has begun to formally distribute, manage and monitor three types of internet identifiers, namely: protocol parameter, IP address and domain name.<sup>460</sup> The main duties of IANA are to (1) coordinate the assignment of technical internet protocol parameters; (2) manage the responsibilities associated with internet DNS root zone management; (3) allocate the internet numbering resources; and (4) manage other services related to the management of the .ARPA and .INT top-level domains.<sup>461</sup> These functions were originally performed by USC-ISI,<sup>462</sup> which had a formal written contract with the Department of Defense Advanced Research Project Agency (DARPA).<sup>463</sup> Furthermore, under this administrative framework of the DNS root zone, every request influencing root zone or registration data in the IANA must be explicitly

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worldwide coordination of other Internet protocol resources nowadays. See *Introducing IANA* <<http://www.iana.org/>>.

<sup>456</sup> See *ibid*; ICANN, *An introduction to IANA* (29 September 2008) slide 5 IANA <<https://www.iana.org/about/presentations/davies-atlarge-iana101-paper-080929-en.pdf>>; V. Cerf, *RFC 1174: IAB Recommended Policy on Distributing Internet Identifier Assignment and IAB Recommended Policy Change to Internet 'Connected' Status* (August 1990) IETF <<https://tools.ietf.org/html/rfc1174>>.

<sup>457</sup> *Background on the IANA Functions* NRO <<https://www.nro.net/nro-and-internet-governance/iana-oversight/background>>.

<sup>458</sup> SAC067, above n411, slide 6.

<sup>459</sup> J. Reynolds and J. Postel, *Assigned Numbers* (March 1990) IETF <<http://tools.ietf.org/html/rfc1060>>.

<sup>460</sup> Above n457.

<sup>461</sup> See *IANA Functions Contract* NTIA <<http://www.ntia.doc.gov/page/iana-functions-purchase-order>>; SAC067, above n411, slide 6.

<sup>462</sup> V. Cerf, above n456.

<sup>463</sup> There was an informal, unwritten contract between USC-ISI and DARPA. John Selby found evidence of a formal contract in the Annual Technical Reports sent by the USC-ISI to DARPA in 1983-85. See John Selby, above n137, 218; Above n457; SAC067, above n411, slides 6-7.

approved by the National Telecommunications and Information Administration (NTIA) of the US Department of Commerce (DoC).<sup>464</sup> Accordingly, DARPA had an invisible influence on the IANA, and the DoC had an administrative effect on the delegation of ccTLDs.<sup>465</sup> If China wanted to apply for its ccTLD, which would affect the root zone of the domain name database, the processing progress and result of the application were significantly dominated by NTIA of the US Government DoC. It was beyond doubt that the relationship between China and the US would have influence on when and how the delegation of the .cn ccTLD was processed.

## B. IETF

The Internet Engineering Task Force (IETF) was founded in 1986 to identify and resolve internet engineering issues, as well as undiscussed policy issues on administration or procurement.<sup>466</sup> It is a large and open international community composed of internet designers, operators, suppliers and researchers endeavouring to improve the internet structure and to ensure its continuing stable operation.<sup>467</sup> Its major task is to provide high quality relevant technology and engineering documents, such as protocol standards, best practice methods and various information documents which have made internet operation better and better by changing the ways people designed, used and managed the internet.<sup>468</sup> One type of document with a worldwide influence released by the IETF is RFCs, which regulate the enactment and enforcement of domain name regulations and policies in a formal or informal way. The specific influences of RFCs upon ccTLDs are introduced and analysed in the next section.

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<sup>464</sup> SAC067, above n411, slide 22.

<sup>465</sup> Ibid.

<sup>466</sup> Phillip Gross, *Proceedings of the 16-17 January 1986 DARPA Gateway Algorithms and Data Structures Task Force* (1986) slide 9 IETF <<https://www.ietf.org/proceedings/01.pdf>>.

<sup>467</sup> *About the IETF* <<https://www.ietf.org/about/>>.

<sup>468</sup> H. Alvestrand and Cisco Systems, *A Mission Statement for the IETF* (October 2004) IETF <<https://www.ietf.org/rfc/rfc3935.txt>>.

#### 4.1.2.2 International Domain Name Rules

In 1983, Jon Postel, Paul Mockapetris and other scientists started to design the domain name system<sup>469</sup> and then released ccTLD policies.<sup>470</sup> Before China drafted the first administrative regulation of domain names for the .cn ccTLD, RFCs and ISO-3166 were the two major international rules to constrain the application and registration of ccTLDs and to bind the enactment of ccTLD regulations upon all countries.

##### A. RFCs

RFCs were created by Steve Crocker in 1969 with an initial function to unofficially record the development of the Advanced Research Projects Agency Network (ARPANET)<sup>471</sup>. After many years' evolution, RFCs had become the official record for internet specifications, internet protocols, internet procedures and big events.<sup>472</sup> Their document series contained the record of technology and organisations covered by the internet fields of protocols, procedures, programs, concepts and meeting notes.<sup>473</sup> Eventually, the RFCs power reached every corner of the internet all over the world. RFC 799, 819, 881, 882, 883, 897, 920, 1032, 1033, 1034, 1035 and 1591 chiefly bound the registration of the .cn ccTLD and influenced the legislation for the .cn ccTLD in China, which will be specifically detailed in section of 4.4.2 of this chapter.

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<sup>469</sup> P. Mockapetris, *RFC 882: Domain Names – Concepts and Facilities* (November 1983) IETF <<https://www.ietf.org/rfc/rfc882.txt>>.

<sup>470</sup> J. Postel and J. Reynolds, above n5.

<sup>471</sup> 'ARPANET was the first wide area packet switching network, the "Eve" network of what has evolved into the Internet we know today.' See William Stewart, *ARPANET – The First Internet* (7 January 2000) Living Internet <[http://www.livinginternet.com/i/ii\\_arpanet.htm](http://www.livinginternet.com/i/ii_arpanet.htm)>.

<sup>472</sup> See Steve Crocker, *RFC 1: Host Software* (7 April 1969) IETF <<https://tools.ietf.org/html/rfc1>>; William Stewart, *Internet Request For Comments (RFC's)* (7 January 2000) Living Internet <[http://www.livinginternet.com/i/ia\\_rfc.htm](http://www.livinginternet.com/i/ia_rfc.htm)>.

<sup>473</sup> *Request for Comments (RFC)* IETF <<https://www.ietf.org/rfc.html>>.

## (1) The Origin of Domain Name Regulations

In 1981, RFC 799 stated that 'it will not be practicable for every internet host to include all internet hosts in its name-address tables'<sup>474</sup>. In order to deal with compatibility problems between the naming systems for different networks, RFC 779 proposed to build a root file corresponding names with addresses and then resolved by forwarders.<sup>475</sup> It described a prototype of the naming principle of domain names and devised a forwarder method to resolve domain names. In 1982, RFC 819 set forth a composite name system – domain name system – to replace the simple name system for adapting the development of the network. A tree-structured administrative dependent of the domain name system substituted a strictly topology dependent system. This new system could subpackage its naming services and also could have a hierarchy management. An independent application system of domain names could be resolved worldwide.<sup>476</sup> In 1983, RFC 881 listed the plan and schedule for carrying out the domain name system in Defense Data Network/Advanced Research Projects Agency (DDN/ARPA) network communities.<sup>477</sup> RFC 882 introduced 'domain style names, their use for ARPA internet mail and host address support, and the protocols and servers used to implement domain name facilities.'<sup>478</sup> RFC 883 discussed 'the implementation of domain name servers and resolvers, [specified] the format of transactions, and [discussed] the use of domain names in the context of existing mail systems and other network software.'<sup>479</sup> In 1984, the RFC 897 was 'a policy statement

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<sup>474</sup> D. L. Mills, *RFC 799: Internet Name Domains* (September 1981) IETF <<https://www.ietf.org/rfc/rfc799.txt>>.

<sup>475</sup> Ibid.

<sup>476</sup> Zaw-Sing Su and Jon Postel, *RFC 819: The Domain Naming Convention for Internet User Applications* (August 1982) IETF <<https://www.ietf.org/rfc/rfc819.txt>>.

<sup>477</sup> Jon Postel, *RFC 881: The Domain Names Plan and Schedule* (November 1983) IETF <<https://www.ietf.org/rfc/rfc881.txt>>.

<sup>478</sup> P. Mockapetris, above n469.

<sup>479</sup> P. Mockapetris, *RFC 883: Domain Names – Implementation and Specification* (November 1983) IETF <<https://tools.ietf.org/html/rfc883>>.

on the implementation of the Domain Style Naming System in the Internet'<sup>480</sup> and also 'an official policy statement of the ICCB<sup>481</sup> and the DARPA'<sup>482</sup>. It updated the parts of RFC 881, detailed the implementation schedule for the Domain Style Naming System, and explained how this system worked in the references.<sup>483</sup>

## (2) The Origin of the ccTLD Regulations

RFC 920, released in 1984, was a policy statement for the requirements of building new domain names in ARPA and DARPA and also an official policy statement of the Internet Architecture Board (IAB) and DARPA. This RFC restated and re-regulated the objectives of domain names, common requirements for domain names, qualifications of responsible persons, domain name servers, minimum length of domain name, registration rules, the requirements of the ccTLD and second domain names, and the power of the Network Information Center (NIC).<sup>484</sup> Specifically, RFC 920 stipulated domains required a central and hierarchical management. The domain system was a tree-structured global name space that had some top-level domains which could be subdivided into second-level domains which could also be subdivided into third-level domains, and so on.<sup>485</sup> The initial top-level domains were ARPA (temporary ARPA-internet hosts), GOV (government), EDU (education), COM (commercial), MIL (military), and ORG (organisation). It also set the rules for a country's domain name, which usually was the English two letter code that represented a country according to the International Organisation for Standardization (ISO). Furthermore, it delegated the

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<sup>480</sup> Jon Postel, *RFC 897: Domain Name System Implementation Schedule* (February 1984) IETF <<https://tools.ietf.org/html/rfc897>>.

<sup>481</sup> The Internet Configuration Control Board (ICCB) was established in 1981 by DARPA for helping manage the DARPA Internet Program. See J. Postel and J. Reynolds, *RFC 902: ARPA-Internet Protocol Policy* (July 1984) IETF <<https://www.ietf.org/rfc/rfc902.txt>>.

<sup>482</sup> Jon Postel, above n480.

<sup>483</sup> Ibid.

<sup>484</sup> J. Postel and J. Reynolds, above n5.

<sup>485</sup> Ibid.

NIC two rights: (1) NIC was the registrar for all ccTLDs; (2) NIC was the administrator of several top-level domains and some second-level domains under those top-level domains.<sup>486</sup>

### (3) Domain Administrator

In 1987, RFC 1032 systematically elaborated the entity, responsibility, technological requirements and other things about domain name administrators. It established the domain name registration procedure within NIC in DDN and the domain name administrative guidelines mainly applied to domain administrators. It also stated that the Defense Communications Agency (DCA) of the United States delegated the right to NIC to provide the domain name registration service under the network of DDN and DARPA.<sup>487</sup> 'As registrar of top-level and second-level domains, as well as administrator of the root domain name servers on behalf of DARPA and DDN, the NIC is responsible for maintaining the root server zone files and their binary equivalents. In addition, the NIC is responsible for administering the top-level domains of "ARPA", "COM", "EDU", "ORG", "GOV", and "MIL" on behalf of DCA and DARPA until it becomes feasible for other appropriate organisations to assume those responsibilities.'<sup>488</sup> RFC 1032 defined the role of domain administrator as a coordinator, manager, and technician. Every level of domain administrators was to register with their direct manager and comply with all the regulations made by their managers. As the choices of domain or server names were local affairs, the NIC would not involve itself in local domain name disputes or the decision procedure in any domain name disputes. Even in property

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<sup>486</sup> J. Postel and J. Reynolds, above n5. There are a number of exceptions that the two English letter ISO-3166 code representing a ccTLD originally is not represented a ccTLD anymore. For example, .gb is the two-letter ISO-3166 code for the United Kingdom, but that country was issued the .uk ccTLD in 1986. In 1999 .tv was delegated as the ccTLD for Tuvalu. However, since 2000, it has in-practice been used as a gTLD because Tuvalu signed over the right to manage its .tv suffix to a corporation in return for monetary payments. See 'Tuvalu Reaps Rewards from .tv Suffix' (15 December 2000) *Internet Business News* 1.

<sup>487</sup> M. Stahl, *RFC 1032: Domain Administrators Guide* (November 1987) IETF <<https://tools.ietf.org/html/rfc1032>>.

<sup>488</sup> Ibid.

right disputes within top-level domains, the NIC would not act as a referee.<sup>489</sup> It also gave an instruction on domain name allocation, which was ‘first come, first served’.<sup>490</sup> Top-level domains would not assign to an individual server within the management jurisdiction of NIC and must abide by ISO-3166.<sup>491</sup> In 1987, RFC 1033 provided instructions for domain administrators on how to operate domain name servers and how to maintain a database.<sup>492</sup>

Further changes were made in 1994 when RFC 1591 set forth the structure information for DNSs and administration information for domain names (including top-level domains).<sup>493</sup> It stipulated that IANA was the institution responsible for allocating IP addresses, domain names and other internet parameters, and also responsible for generally coordinating and managing domain names and delegating some top-level domains.<sup>494</sup> The Internet Registry (IR) and regional registries were in charge of daily allocations of IP addresses, autonomous system numbers, and most top- and second-

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<sup>489</sup> Ibid.

<sup>490</sup> The principle of ‘first come, first served’ designed for dismissing trade marks issues by Internet engineer technicians contributed to many conflicts between holders of domain names and trade marks. See for example: Marshall Leaffer, ‘Domain Names, Globalization, and Internet Governance’ (1998) 6 (1) *Indiana Journal of Global Legal Studies* 139, 145-146; Christie L. Bransont, ‘Was \$7.5 Million a Good Deal for Business.com? The Difficulties of Obtaining Trademark Protection and Registration for Generic and Descriptive Domain Names’ (2001) 17 (2) *Santa Clara Computer & High Technology Law Journal* 285; Kenneth S. Dueker, ‘Trademark Law Lost in Cyberspace: Trademark Protection for Internet Addresses’ (1996) 9 (2) *Harvard Journal of Law & Technology* 483; Jessica R. Friedman, ‘A Lawyer’s Ramble Down the Information Super Highway’ (1995) 64 *Fordham Law Review* 705; Gary W. Hamilton, ‘Trademarks on the Internet: Confusion, Collusion or Dilution?’ (1995) 4 (1) *Texas Intellectual Property Law Journal* 1; Alexander Gigante, ‘Blackhole in Cyberspace: The Legal Void in the Internet’ (1997) 15 (3) *The John Marshall Journal of Computer & Information Law* 413.

<sup>491</sup> M. Stahl, above n487.

<sup>492</sup> M. Lottor, *RFC 1033: Domain Administrators Operations Guide* (November 1987) IETF <<https://www.ietf.org/rfc/rfc1033.txt>>.

<sup>493</sup> For more detailed discussion of RFC-1591, see for example: A. Michael Froomkin, ‘Wrong Turn in Cyberspace: Using ICANN to Route around the APA and the Constitution’ (2000) 50 (1) *Duke Law Journal* 17; A. Michael Froomkin, ‘The Collision of Trademarks, Domain Names, and Due Process in Cyberspace’ (2001) 44 (2) *Communications of the ACM* 91; Marc Watkins, ‘Government Regulation of the Dot-ca Domain Name Space’ (2005) 2 (2) *University of Ottawa Law & Technology Journal* 145; Xunhua Wang and David Rine, ‘Secure Online DNS Dynamic Updates: Architecture and Implementation’ (2007) 2 (3) *International Journal of Information Technology and Web Engineering* 17.

<sup>494</sup> J. Postel, above n24.

level domain names. Domain administrators in every country handle their own country-code Top-Level domain and can sub-delegate the right to manage sub-level domain names. Most of the ccTLDs referenced the regulation of ISO-3166, as IANA could avoid having to decide whether an area was a country or not.<sup>495</sup> RFC 1591 explained that the right to create and manage top-level domains was usually delegated to a responsible person the once. This responsible person had to have the ability to take major responsibility and to conduct reasonable, fair, honest, and competitive work. However, if there were domain name disputes between domain name registrants and the owner of these names, the registrars did not take any responsibility but could provide the registered information of domain names for players.<sup>496</sup>

#### (4) Domain Name Protocol and Specification

In 1987, RFC 1034 obsoleted RFC 882, 883, and 973. It primarily illustrated the concept and functions of DNS, domain name equipment, and a formal domain name protocol which included query standards and data format of most network data types.<sup>497</sup> As the DNS was expanding constantly and new data types, new query types, new communicational protocols and so on were proposed, implemented and tested continually by researchers, RFC 1034 suggested the components of a formal protocol that should remain relatively stable and experimental behaviours that must be the extension of that formal protocol.<sup>498</sup> In 1987, RFC 1035 specified the DNS and its protocol, including the definition of domain name space, resource record (RR), message format and transportation, master files' format and zones, name server implementation (including architecture, standard query processing, zone refresh and reload processing, optional inverse queries, completion queries and responses),

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<sup>495</sup> Ibid.

<sup>496</sup> Ibid.

<sup>497</sup> P. Mockapetris, above n3.

<sup>498</sup> Ibid.

domain name resolver implementation (including transforming a user request into a query, sending queries, processing responses and using the cache) and mail support (including mail exchange binding and experimental mailbox binding).<sup>499</sup>

## B. ISO-3166

International Organisation for Standardization (ISO) 3166, published in 1974 for the first time, is the international standard for country codes and their sub-division codes. Using a two- or three-letter code or a three-digit numeric code to represent a country's name can save time and avoid mistakes.<sup>500</sup> In ISO-3166, CN represented China and AU represented Australia.<sup>501</sup> This standard is updated over time rather than remaining static. ISO 3166-1, ISO 3166-2 and ISO 3166-3 are the updated standards for ISO-3166. With the constraints from RFCs and ISO-3166, China registered the .cn as China's country-code top-level domain.<sup>502</sup>

Now that the international environment associated with domain name regulation has been introduced, the legal environment in China is discussed next.

### 4.1.2.3 Legal Environment in China

In 1987, the Report of the 13th National Congress of the CCP (the 13th Report) first

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<sup>499</sup> P. Mockapetris, *RFC 1035: Domain Names – Implementation and Specification* (November 1987) IETF <<https://www.ietf.org/rfc/rfc1035.txt>>.

<sup>500</sup> *Country Codes – ISO 3166* ISO <[http://www.iso.org/iso/home/standards/country\\_codes.htm](http://www.iso.org/iso/home/standards/country_codes.htm)>.

<sup>501</sup> *ISO 3166* <<https://www.iso.org/obp/ui/#search>>.

<sup>502</sup> Not all countries' ccTLDs remained the same letter codes with ISO-3166. For example, the United Kingdom's ccTLD is .UK but its letter-code in ISO 3166-1 is GB. Because the selection of the .UK as the ccTLD was preceded the use of ISO-3166 for determining codes of ccTLDs. John Selby, above n137, 200. Furthermore, not all political entities concluded in ISO-3166. For example, European Union is not listed in ISO 3166-1 although its .EU ccTLD was delegated in 2000. See Peter K. Yu, above n2, 391, 394.

proposed China should strengthen the construction of its socialist legal system. It argued that a socialist democracy and a socialist legal system could not be separated. Without social stability and solidarity, economic development, economic system reform and political system reform could not succeed. It stated that China should have laws to be abided by and to be enforced. It was essential to make sure the socialist legal system could cover most facets of political, economic and social life, and every aspect of democracy and dictatorship.<sup>503</sup> The building of a legal system was as significant as economic development and needed to run through the whole process of reform. On the one hand, China needed to enhance its legislative quality, improve its law enforcement activities, guarantee the independent exercise of laws, and increase citizens' legal consciousness. On the other hand, its legal system needed to secure economic order and reform, and could consolidate the fruits of reform.<sup>504</sup> For the first time since the Cultural Revolution, the CCP put forward the idea of rule by law.<sup>505</sup>

In 1992, the Report of the 14th National Congress of the CCP (the 14th Report) further reinforced that government should take the legal system design process seriously. It emphasized that legislation was an urgent requirement for building the socialist market economy system and authorities should formulate or improve the laws and regulations which could secure reform and opening-up, intensify macroeconomic management and regulate microeconomic activities, as soon as possible. It was necessary to strictly enforce the Constitution and laws, to enhance supervision of law enforcement, to resolutely correct the phenomenon of substituting one's words for legal provision and substituting fines for criminal punishment, to guarantee courts'

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<sup>503</sup> ZHAO Ziyang, above n436.

<sup>504</sup> Ibid.

<sup>505</sup> Rule by law 'refers to the characterization of the legal systems in Leninist states and authoritarian states, which include that of the CCP China, except during the lawless Cultural Revolution' and is usually used to describe the nature of the legal system and the central notion of the legal philosophy in China. See YE Zhusheng, *China's Transitive Legal System in the Reform Era: Between Rule by Law and Rule of Law* (PhD Thesis, The Chinese University of Hong Kong, 2014) 22-23. Cass defined the following four characteristics of the rule of law: '(1) fidelity to rules, (2) of principled predictability, (3) embedded in valid authority, (4) that is external to individual government decision.' See Ronald A. Cass, *The Rule of Law in America* (Johns Hopkins University Press, 2003) 4.

independent trials and procuratorates' (the institutions conducting prosecutions in China) independent procuratorial work, and to improve the quality of law enforcement by political legal departments.<sup>506</sup> Compared with the 13th Report, the 14th Report specified an explicit path and specific methods to build this socialist legal system. In the statement of relations among technology, legal system and economic development, it pointed out that technological work should mainly promote economic progress; governments should distribute resources reasonably in the fields of experimental research, high technology and its industry, and basic research; governments should set different ambitious goals for each research area.<sup>507</sup> In the area of high technology, China needed its own influential force. To accomplish this objective, governments were encouraged to build and to improve the efficient integrating mechanism between technology and the economy, to accelerate the commercialization of scientific and technological achievements, and to transform technology into real productivity, to improve regulations which can protect intellectual property rights, to supervise on assimilating, digesting and innovating imported advanced technology, to heighten the proportion of high technological progress in economic growth, and to push the entire economy in converting from extensive operations to intensive operations.<sup>508</sup> In short, the 13th Report proposed to pay attention to legislation, and the 14th Report specified that China should improve its legislation relating to technology and promote the effective integration between technology and the economy.

In 1993, a Constitutional Amendment stated that China would strengthen its economic legislation.<sup>509</sup> Within the context of a legislative wave in 1990s, many laws were

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<sup>506</sup> JIANG Zemin, above n442.

<sup>507</sup> Ibid.

<sup>508</sup> Ibid.

<sup>509</sup> *Constitutional Amendment 1993* (China) Article 7.

released or amended.<sup>510</sup> In terms of market economy, Corporation Law, Commercial Bank Law, Partnership Enterprise Law, Securities Law, Individual Proprietorship Enterprise Law, Contract Law (integrating Economic Contract Law, Foreign Interest of Economic Contract Law and Technical Contract Law) were released; in terms of market order, Product Quality Law, Anti Unfair Competition Law, Urban Real Estate Management Law, Arbitration Law, Advertising Law, Guarantee Law, Insurance Law, and Auction Law were released; in terms of monitoring and controlling macroeconomics, Budget Law, Tax Collection and Management Law, Auditing Law, Law of the People's Bank of China, and Price Law were released. In addition, Administrative Penalties Law, Administrative Supervision Law, Administrative Reconsideration Law, State Compensation Law, Judges' Law, Procurators' Law, China People's Police Law, Lawyer Law and so forth were released, as well as amendments to Criminal Law and Criminal Procedure Law. Thus, in this legislative wave in 1990s, the socialist legal environment was favourable for drafting and enacting the first administrative regulation of domain names in China. Domain name technological support from foreign countries and domestic governments and the delegating process of the .cn ccTLD is introduced in the next section.

## 4.2 The Delegation of the .cn ccTLD

Because China did not have an independent internet technology and knowledge, it accepted German computer equipment and technical guidance in the early 1990s. With help from German scientists and support from the Chinese government, China finally received the delegation of the right to manage the .cn ccTLD in 1994. At the domestic level, under the context of China's power politics led by the CCP, there was no dispute or contest in the domestic delegation of the right to govern the .cn ccTLD.

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<sup>510</sup> A Ji, '1990 Nian Dai: Shi Chang Jing Ji De Li Fa Gong Jian' (2011) (8) *Min Zhu Yu Fa Lv* 11, 14.

## 4.2.1 Technological Support

### 4.2.1.1 Technological Support from Germany

In 1982, the World Bank bought 19 Siemens BS2000 computers from Germany and sponsored taking them to China under the Chinese University Development Project II program. German computers were selected because the United States had forbidden its companies to sell computers to China, and Germany did not have this kind of restriction.<sup>511</sup> Since then, 19 universities in China have installed Siemens computers.<sup>512</sup> Furthermore, research institutions in China and in Germany began to cooperate in terms of computer technology and network research. One of the most memorable events was the first email China sent to Germany on 14 September 1987.<sup>513</sup> After that, with the help of the University of Karlsruhe and its computer scientists, China successfully registered the .cn ccTLD in 1990, then transferred and installed the .cn root server in China in 1994. During these twelve years of cooperation, German scholars and scientists helped China to connect to the internet and taught Chinese computer scientists relevant operational theory and practices.<sup>514</sup>

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<sup>511</sup> Jay Hauben, 'Across the Great Wall' *The China-Germany Email Connection 1987-1994* (October 2004) Columbia <[www.columbia.edu/~hauben/china-email.doc](http://www.columbia.edu/~hauben/china-email.doc)>. For more details, see Frank Cain, 'Computers and the Cold War: United States Restrictions on the Export of Computers to the Soviet Union and Communist China' (2005) 40 (1) *Journal of Contemporary History* 131.

<sup>512</sup> See Chen-Dong Tso, above n115, 115; Werner Zorn, above n115.

<sup>513</sup> Werner Zorn, above n115. The record made by CNNIC was 'In September 1987, with the help of the research group led by Professor Werner Zorn from Karlsruhe University of Germany, Professor Wang Yunfeng and Doctor Li Chengjiong, etc., set up an email node at Institute of Computer Application (ICA) in Beijing, and successfully sent an email to Germany on September 20. The content of this email was 'Across the Great Wall we can reach every corner in the world!'. See *The Internet Timeline of China 1986-2003* (28 June 2012) CNNIC <[http://www1.cnnic.cn/IDR/hlwfzdsj/201306/t20130628\\_40563.htm](http://www1.cnnic.cn/IDR/hlwfzdsj/201306/t20130628_40563.htm)>. However, the original record of the first email China sent to Germany was 'Received: from Peking by unika1; Sun, 20 Sep 87 16:55 (MET dst); Date: Mon, 14 Sep 87 21:07 China Time'. See Werner Zorn, above n115, 47. Although the date Germany received the email was 20 September 1987, it is reasonable to deduce that the email was sent on 14 September 1987. Hence, this dissertation accepts the time recorded by Professor Zorn.

<sup>514</sup> Werner Zorn, above n115.

In 1983, the first WASCO (West Germany Users of Siemens Computers Symposium) symposium was held in Beijing. Professor Werner Zorn from the University of Karlsruhe met and established a friendship with Professor Yunfeng Wang who was in charge of the Sino-German computer cooperation program.<sup>515</sup> This friendship made a big contribution to cooperation with respect to network connection and registration of the .cn ccTLD. During preparations for the second WASCO/CASCO symposium, demand from German academics to build internet connections with China was strong because of communications obstacles between the two countries.<sup>516</sup> Hence, Professor Zorn sought help on 16 July 1985 from Lothar Späth, a former minister president of Baden-Württemberg, requesting a separate node computer and its running costs. Using a separate node computer for an internet connection between Germany and China would not affect the internet connection between Germany and the United States. In autumn of 1985, this fund application was approved. Although conservative opinions in Germany thought the internet connection with China would damage Germany's connection with the United States, Professor Zorn insisted that an independent node-to-node connection could resolve this problem.<sup>517</sup> However, using American technology to build a Sino-German internet connection was also a political issue. Professor Zorn had to take advice from Professor Lawrence Landweber from the University of Wisconsin, who was charge of Computer Science Network (CSNET). After getting a positive answer, the German research group, taking relevant software and carrying the ambitions, went to China to test the internet connection on 20 August 1986.<sup>518</sup> From 15 to 27 May 1986, researchers had connected the internet between China and Germany and begun to test it.<sup>519</sup> On 26 August 1986, the Sino-German

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<sup>515</sup> Jay Hauben, above n511.

<sup>516</sup> See Werner Zorn, above n115, 37; Wesley Shrum et al (ed), *Past, Present and Future of Research in the Information Society* (Springer, 2007) 52-53.

<sup>517</sup> Werner Zorn, above n115, 37.

<sup>518</sup> Ibid, 39-40.

<sup>519</sup> Ibid, 38.

internet was finally successfully connected.<sup>520</sup>

Nevertheless, permission obtained from CSNET to connect the internet between China and Germany was only oral approval rather than an official approval. Therefore, the researchers from the University of Karlsruhe actively applied for official approval from the National Science Foundation (NSF), which was responsible for this. On 8 November 1987, the NSF officially approved the internet connection between China and BITNET (the 'Because It's Time' network, a university computer network), as well as CSNET at the same time.<sup>521</sup> On 28 November 1990, the application to register the .cn ccTLD was processed by 'Douglas'<sup>522</sup> (hostmaster@nic.ddn.mil) with the help of Professor Zorn and the efforts of Professor Yunfeng Wang.<sup>523</sup> China's root server for the .cn ccTLD was installed temporally at the University of Karlsruhe in Germany from 1990 to 1994, as China did not have a full internet connection with the international internet during this time.<sup>524</sup> On 21 May 1994, the Computer Network Information Center (CNIC) of the Chinese Academy of Sciences finally installed the root server for the .cn ccTLD in China.<sup>525</sup>

#### 4.2.1.2 Technological Support from Chinese Governments

Under the guidelines of the 13th Report, which encouraged governments to invest in

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<sup>520</sup> Ibid, 39-40; Wesley Shrum et al (eds), above n516, 53.

<sup>521</sup> See Werner Zorn, above n115, 48; CNNIC, above n513; Wesley Shrum et al (eds), above n516, 53.

<sup>522</sup> Elizabeth 'Jake' Feinler, Internet Hall of Fame winner, who worked at the SRI NIC until 1989, said it was a possibility that 'Douglas' was Douglas MacGowan who was an employee at DDN NIC at the time. (Elizabeth 'Jake' Feinler, email correspondence, 9 June 2017, on file with researcher's supervisor, Dr John Selby.) Attempts to communicate with Douglas MacGowan by email using an address supplied by Jake Feinler were, unfortunately, unsuccessful.

<sup>523</sup> See CNNIC, above n513; Wesley Shrum et al (eds), above n516, 53. For more details, see next section, 'Technological Support from Chinese Governments' in this chapter.

<sup>524</sup> Ibid.

<sup>525</sup> CNNIC, above n513.

research on information technology<sup>526</sup>, in March 1988, the Chinese Academic Net (CANET)<sup>527</sup> was launched. Its purpose was to organize Chinese universities and research institutions to connect with computer networks all over the world.<sup>528</sup> In May 1989, the China Research Network (CRN) connected with the German Research Network (Deutsches Forschungsnetz, DFN).<sup>529</sup> In November 1989, the State Planning Commission (now known as the National Development and Reform Commission), Chinese Academy of Sciences, National Natural Science Foundation and National Education Commission together invested and supported the program of the National Computing and Networking Facility of China (NCFC), loaned from the World Bank.<sup>530</sup> In 1990, a slogan that science and technology was the first productivity advocated by the CCP<sup>531</sup> inspired concentrated efforts by Chinese scientists. Consequently, 'in March 1991, the computer network between the Institute of High Energy Physics of Chinese Academy of Sciences and Stanford Linear Accelerator Center (SLAC) of Stanford University in the U.S. was successfully connected.'<sup>532</sup> In 1992, the CCP continued to encourage governments and institutions to increase all kinds of investments in technology.<sup>533</sup> Subsequently, on 2 March 1993,

the 64KDECnet special line, where the Institute of High Energy Physics of the Chinese Academy of Sciences hired the international satellite channel of AT & T Company to

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<sup>526</sup> ZHAO Ziyang, above n436.

<sup>527</sup> There are different full names for CANET. C represented China or Chinese; A represented Academic or Academy; NET represented Net or Network. This dissertation adopts Chinese Academic Net for CANET due to the original record of the .cn ccTLD application form from NIC. See Werner Zorn, *Connecting China to the International Computer Networks* (19 September 2007) Columbia University <<http://www.columbia.edu/~hauben/netizens/tunis-ppf/wzorn.pdf>>.

<sup>528</sup> See CNNIC, *CNNIC*, above n513; Werner Zorn, above n115, 49.

<sup>529</sup> *Ibid.*

<sup>530</sup> CNNIC, above n513; Chen-Dong Tso, above n115, 117.

<sup>531</sup> CPC, above n451. Its 30th to 48th Articles specified the tasks and policies for developing technology, education and culture.

<sup>532</sup> CNNIC, above n513.

<sup>533</sup> JIANG Zemin, above n442.

access Stanford Linear Accelerator Center (SLAC) of Stanford University of the U.S., was officially put into operation. After this, with the strong support of the National Natural Science Foundation of China, the persons in charge of the important projects of many disciplines were able to dial and access this special line of the Institute of High Energy Physics of the Chinese Academy of Sciences, and a few hundred scientists were able to use emails in China.<sup>534</sup>

On 12 March 1993, Vice Premier Rongji Zhu proposed to build a national network of public economic information (the Golden Bridge Project) to promote effective cooperation between technology and the economy.<sup>535</sup> On 27 August 1993, the initial construction of the Golden Bridge Project was funded by Premier Peng Li's budget reserve which was \$3 million US.<sup>536</sup> On 10 December 1993, the State Economic Informatization Joint Meeting for enforcing the building of the China economic information network and pushing the healthy development of the information industry was approved by the State Council.<sup>537</sup> In regard to international endeavours, at the meeting of INET'93 in June 1993, experts from the NCFC restated that China wanted to connect with the internet. In a sub-meeting of the Coordinating Committee for Intercontinental Research Networking (CCIRN), this appeal was supported by most of the participants.<sup>538</sup> In April 1994, China's request to access the internet was approved by the NSF in a meeting of the Sino-US Science and Technology Cooperation Joint Committee Conference.<sup>539</sup> On 20 April 1994, the NCFC's 64K international special line that connected the internet via Sprint was put into operation, which meant

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<sup>534</sup> CNNIC, above n513.

<sup>535</sup> China Association for Science and Technology, *Report on Golden Bridge Project* (15 May 2006) People <<http://scitech.people.com.cn/GB/25509/56813/63493/63757/4372635.html>>.

<sup>536</sup> CNNIC, above n513.

<sup>537</sup> 'The State Economic Informatization Joint Meeting' (1994) (2) *Electronic Science & Technology Review* 39, 39.

<sup>538</sup> Lynn Behnke, *Final Minutes CCIRN Bodega Bay* (7 October 1993) slide 8 CCIRN <<http://ccirn.net/general/BodegaBayAug1993.pdf>>; CNNIC, above n513.

<sup>539</sup> Ross Garnaut, *China: New Engine of World Growth* (ANU E Press, 2012) 278-288.

China accomplished a global connection with the internet.<sup>540</sup> Possessing access to a global internet, China could finally put energy and efforts into an attempt to install the .cn root server in Chinese territory.

## 4.2.2 The Process of the Delegation of the .cn ccTLD

### 4.2.2.1 International Delegation

On 18 October 1990, after a request by Professor Tianbai Qian, Professor Werner Zorn, representing him, sent a preliminary request to NIC in the US, seeking to register the .cn ccTLD.<sup>541</sup> On 26 November 1990, Professor Zorn sent an official application from zorn@ira.uka.de to hostmaster@nic.ddn.mil of NIC to register the .cn ccTLD. Chinese Academic Net (CANET) was the registration entity.<sup>542</sup>

On 28 November 1990, NIC approved the .CN as China's ccTLD.<sup>543</sup> On 3 December 1990, the .cn ccTLD became operational.<sup>544</sup> On 3–19 January 1991, the computer scientists' panel from the University of Karlsruhe in Germany helped the Institute for Computer Application in China to allocate the DNS root server, relevant software, LAN and a dialling service in preparation for operating the .cn ccTLD.<sup>545</sup> From January 1991 to May 1994, the University of Karlsruhe was in charge of operating the .cn master root server as China did not have a global internet connection.<sup>546</sup>

On 9 January 1992, China installed the .cn root server at the Institute for

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<sup>540</sup> Ibid.

<sup>541</sup> See Werner Zorn, above n115 (a), 49; Werner Zorn, above n115 (b); Werner Zorn, above n527; IANA, *Root Zone Database* IANA <<http://www.iana.org/domains/root/db>>.

<sup>542</sup> Ibid.

<sup>543</sup> Ibid.

<sup>544</sup> Ibid.

<sup>545</sup> Ibid.

<sup>546</sup> Ibid.

Computer Application in Beijing.<sup>547</sup> On 21 May 1994, CNNIC took over the .cn master root server, which had been temporarily installed at the University of Karlsruhe owing to the global connection with the internet China had accessed on 20 April 1994.<sup>548</sup>

#### 4.2.2.2 Domestic Delegation

On 30 May 1997, the China Internet Network Information Center (CNNIC) was delegated the right to manage and operate the .cn ccTLD by the Office of Information Work Leader Group of the State Council (O-IWLG-SC), which was the administrative authority of the .cn ccTLD.<sup>549</sup> China Education and Research Network (CERNET) was delegated the right to manage the 'edu.cn' by the O-IWLG-SC.<sup>550</sup> On 3 June 1997, CNNIC was founded and began to exercise its responsibilities.<sup>551</sup>

After this detailed introduction to the international and domestic delegation of the right to manage the .cn ccTLD, the first administrative regulation of the .cn ccTLD is introduced in the next section.

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<sup>547</sup> Ibid.

<sup>548</sup> Ibid; Ross Garnaut, above n539, 278-288.

<sup>549</sup> *Interim Administrative Measures on Domain Name Registration 1997* (China) s 4.

<sup>550</sup> CNNIC, *1997 Nian – 1999 Nian Hu Lian Wang Da Shi Ji* (26 May 2009) CNNIC <[http://www.cnnic.cn/hlwfzyj/hlwdsj/201206/t20120612\\_27416.htm](http://www.cnnic.cn/hlwfzyj/hlwdsj/201206/t20120612_27416.htm)>.

<sup>551</sup> Ibid.

## 4.3 Interim Administrative Measures on Domain Name

### Registration

One of the most significant ways a country can manage its ccTLD through its government's agencies is legislation.<sup>552</sup> A country might have two main objectives for regulating domain names via legislation: (1) the legislation can set the administrative entity of ccTLD, the structure, rights and obligations of registrars and/or; (2) the legislation can establish an explicit policy guide for domain name registration, revocation and disputes resolution and so forth.<sup>553</sup> Because of this, the CCP considered the legal system to be as important as economic development,<sup>554</sup> and it is therefore no surprise China utilized legislation to achieve these two goals. The Interim Administrative Measures on Domain Name Registration (IAMoDNR (1997)) was released by O-IWLG-SC on 30 May 1997.<sup>555</sup> It had six chapters: General Provisions, Structural System of China's Internet Domain Names, Registration Application of Domain Names, Registration Approval of Domain Names, Amendment and Cancellation of Registered Domain Names, together with Supplementary Provisions. The main contents of this administrative measure and its typical articles are introduced in the following subsections.

#### 4.3.1 Administrative Institutions and Their Responsibilities

O-IWLG-SC was the administrative institution for China's DNS and its duties were:

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<sup>552</sup> Marc Watkins, above n7, 157.

<sup>553</sup> Ibid.

<sup>554</sup> ZHAO Ziyang, above n436.

<sup>555</sup> Office of Information Work Leader Group of the State Council, *Announcement on <Interim Administrative Measures on Domain Name Registration 1997>*, [1997]027, 30 May 1997.

- (1) to formulate policies and measures on creation, distribution and management of China's domain names;
- (2) to select, delegate or cancel the administrative institutions of the top-level domain and second-level domains;
- (3) to supervise and inspect the registration services of all levels' domain names.<sup>556</sup>

CNNIC, as the daily office of the CNNIC committee authorized by O-IWLG-SC, assisted O-IWLG-SC to manage China's internet domain name system, formulated implementation rules for the registration of domain names, and was responsible for management and operation of the .cn ccTLD.<sup>557</sup> Proposals for adding, revoking and renaming second-level domains made by the CNNIC committee could be submitted to O-IWLG-SC.<sup>558</sup>

The right to manage third-level and lower level domain names was granted through hierarchic delegation. Every level's administrative institutions were responsible for their sub-level domain name registration.<sup>559</sup>

### 4.3.2 Structural System of Domain Names

Under the .cn ccTLD, a hierarchical structure was adopted to establish sub-levels of domain names.<sup>560</sup> Second-level domain names are divided into category domain names and administrative region domain names. Category domain names are AC,

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<sup>556</sup> Above n549, s 2.

<sup>557</sup> Ibid, s 3, 4.

<sup>558</sup> Ibid, s 9.

<sup>559</sup> Ibid, s 5.

<sup>560</sup> Ibid, s 7.

COM, EDU, GOV, NET and ORG.<sup>561</sup> There were also second-level domains for 34 administrative region domain names, which apply to provinces, autonomous regions and municipalities, such as BJ (Beijing), TW (Taiwan), HK (Hong Kong), and MO (Macao).<sup>562</sup>

### 4.3.3 Naming Principles of Domain Names

Third-level domain names are composed of letters (A–Z, a–z.), digitals (0–9) and connector (-), with solid dot (.) connecting every hierarchy domain name; and its length could not exceed 20 characters.<sup>563</sup> Furthermore, there were also restrictions on third-level and lower level domains:<sup>564</sup>

- (1) Without formal approval from the relevant governmental departments, ‘CHINA’, ‘CHINESE’, ‘CN’, ‘NATIONAL’ and other similar words could not be registered.
- (2) Public names, such as the names of countries or regions, places, and international organisations could not be registered.
- (3) Without the approval of local governments, the full names or abbreviations for the county or above administrative region names could not be registered.
- (4) Industry names or generic names of commodities could not be registered.

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<sup>561</sup> AC: research institutions; COM: industrial, commercial, financial, and other enterprises; EDU: educational institutions; GOV: governmental departments; NET: network information center (NIC) and network operation center (NOC); ORG: non-profit organisations. See above n549, s 8.

<sup>562</sup> Above n549, s 8. There are no public data reports about the registration information on .tw.cn, .hk.cn and .mo.cn. Actually, .tw, .hk and .mo are also ccTLDs. They are categorized into the second level of the administrative region domain names due to political requirements rather than economic factors, as China consistently insists on the principle of ‘one China’. Hence, Taiwan, Hong Kong and Macao must be distributed into administrative region domain names.

<sup>563</sup> Above n549, s 10.

<sup>564</sup> Ibid, s 11.

- (5) Registered enterprise names or trade mark names could not be registered again.
- (6) Names harming the interests of the country, society, or the public could not be registered.

#### **4.3.4 Domain Name Registration**

Domain name applicants had to be an organisation (not an individual) which was legally registered in China and which could enter into contracts and be sued in its own name<sup>565</sup>. Therefore, domain names under the .cn ccTLD could be registered by governmental departments, institutions, enterprises, social groups, companies and so on, but could not be registered by individuals.

##### **4.3.4.1 Applicants' Conditions**

To apply for domain names, applicants had to satisfy the following conditions<sup>566</sup>:

- (1) Selected domain names had to comply with the provisions of the regulation.
- (2) The main domain name server had to be operated in China and it had to provide continuous services for its domain name.
- (3) There were one administrative contactor and one technical contactor designated for management and operation of its domain name server.

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<sup>565</sup> Ibid, s 6.

<sup>566</sup> Ibid, s 14.

#### 4.3.4.2 Applicants' Responsibilities

Applicants for domain names had to take on the following responsibilities<sup>567</sup>:

- (1) Applicants had to comply with China's laws and regulations relating to the internet.
- (2) Applicants were responsible for the domain names they registered.
- (3) Applicants had to guarantee the authenticity of the application documents, guarantee that the registered domain names did not violate the interests of any third party within the knowledge of the applicant, and guarantee the registered domain names would not be used for any illegal purpose.
- (4) Applicants became the management organisations for the registered domain names after their approval, and had to manage and operate the domain names according to this regulation.

#### 4.3.4.3 Registrars' Responsibilities

Registrars did not have the responsibility to query the Industrial and Commercial Administration Departments or trade mark Management Departments as to whether the registered domain names were in conflict with registered trade marks or enterprises' names. Any dispute related to this kind of conflict was the domain name applicant's own responsibility. Any legal liabilities and economic disputes relating to domain names were irrelevant to the domain name registrars.<sup>568</sup>

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<sup>567</sup> Ibid, s 19.

<sup>568</sup> Ibid, s 23.

#### 4.3.4.4 Approval Principles

The IAMoDNR (1997) regulated that the approval principles were ‘first come, first served’; pre-reservation of domain names was not acceptable.<sup>569</sup>

#### 4.3.4.5 Domain Name Alterations

The registered domain name could be modified or revoked, but could not be transferred or sold.<sup>570</sup>

After introducing the specific terms relating to Administrative Institutions and their Responsibilities, the Structural System of Domain Names, Naming Principles of Domain Names, and Domain Name Registration in the IAMoDNR (1997), these terms will be used as evidence to test a hypothesis about institutional path dependency of the administrative regulations of the .cn ccTLD and technological path dependency of China’s domain name technology in the next section.

### 4.4 Hypothesis Test

New Institutional Economics theorists have demonstrated the similarities and differences between technological path dependency (TPD) and institutional path dependency (IPD).<sup>571</sup> This section will test the relationship of these two variants of path dependency through a case analysis of the institutional formation of the AMoCDN.

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<sup>569</sup> Ibid, s 20.

<sup>570</sup> Ibid, s 24.

<sup>571</sup> For more information, please see section of 3.3.5 of chapter 3 in this dissertation.

#### 4.4.1 Hypothesis of New Institutional Economics

Douglass North argued that the developing path of technology shaped the path dependency of technological development because technology would develop towards the current path once it was characterized, with increasing returns, which impeded the development of alternative paths.<sup>572</sup> Technological change and institutional change have much in common: both have the features of path dependency and the basic essentials for societal progress and economic evolution. Also, they have two main differences: (1) the insights of players play a more central role in institutional change; (2) lock-in and path dependency can be less complicated in technological change.<sup>573</sup> Thus, North indirectly connected technological change and institutional change through societal evolution, economic evolution, path dependency and increasing returns through empirical research; some other institutional scholars have explained that technological change has led to changes in economic, political and societal institutions,<sup>574</sup> and vice versa.<sup>575</sup> Albeit, there still exist research gaps within the specific patterns, variants and dynamics of institutional change resulting from technological change.<sup>576</sup> This dissertation tries to identify specific relationships between technological change and institutional change through evidence distilled from the institutional formation of the administrative regulation of the .cn ccTLD to test whether TPD leads to relevant IPD.

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<sup>572</sup> Douglass C. North, above n262, 76.

<sup>573</sup> Ibid, 103-104.

<sup>574</sup> See Ulrich Dolata, above n393, 1066; Totti Konnola, Gregory C. Unruh and Javier Carrillo-Hermosilla, above n393, 249; Paul Upham, Paula Kivimaa, and Venla Virkaki, above n393, 14.

<sup>575</sup> Grazia Cecere et al, above n395, 1055-1056; Jiang Yu, above n395, 1090.

<sup>576</sup> Ulrich Dolata, above n393, 1068.

## 4.4.2 Analysis of Domain Name Institutional Path Dependency

Will the administrative regulation of the .cn ccTLD follow the developing path of international domain name rules? This will be tested in the following sections through comparing analysis between the IAMoDNR (1997) and the RFCs in terms of domain name administrative institution, structural system, naming principle, registration, and the role domain name administrative institutions played in domain name disputes.

### 4.4.2.1 Domain Name Administrative Institution

#### A. Administrative Mode

RFC 1591 formulated IANA as the authorized institution to allocate IP addresses, domain names and other network parameters, to coordinate and manage the domain name system, and to delegate parts of top-level domains. IR and regional registrars were responsible for the daily allocation of IP addresses, autonomous system names, most top-level domains, and second-level domain names.<sup>577</sup> NIC was the registrar for all top-level domains and was the management institution for some top-level domain names and second-level domain names.<sup>578</sup> Therefore, IANA was the central administrator, IR, NIC and other regional domain name administrators were under the leadership of IANA. It was obvious that the international domain name administrative mode was hierarchical.

The IAMoDNR (1997) stipulated O-IWLG-SC was the administrative institution for China's DNS;<sup>579</sup> the CNNIC committee assisted O-IWLG-SC in managing China's DNS,

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<sup>577</sup> J. Postel, above n24.

<sup>578</sup> J. Postel and J. Reynolds, above n5.

<sup>579</sup> Above n549, s 2.

and CNNIC was its daily office to manage the .cn ccTLD.<sup>580</sup> Thus, O-IWLG-SC was the central leader; the CNNIC committee was its subordinate; and CNNIC was its committee's subordinate. This belongs to a hierarchical administrative mode which is similar to the international domain name administrative mode.

### B. Administrative Responsibility

RFC 920 stated 'the responsible person for the top-level domain is ultimately responsible for the whole tree of sub-domains and hosts.'<sup>581</sup> The IAMoDNR (1997) stipulated O-IWLG-SC was responsible for the .cn ccTLD and its second-level domains.<sup>582</sup> Hence, the role O-IWLG-SC played in managing domain names was the role RFC 920 set for the top-level domain responsible person.

RFC 920 recorded 'the administrator of a level N domain must register with the registrar (or responsible person) of the level N-1 domain.'<sup>583</sup> The IAMoDNR (1997) stated domain name administrative institutions were responsible for their sub-level domain name registration.<sup>584</sup> Thus, no matter the top-level domain name administrator or its sub-level domain name administrators in China, their administrative responsibilities remained consistent with those set out in the rules noted in RFC 920.

### C. Administrative Method

RFC 819 stipulated the internet names were used to form a tree-structured

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<sup>580</sup> Ibid, s 3, 4.

<sup>581</sup> J. Postel and J. Reynolds, above n5.

<sup>582</sup> Above n549, s 2.

<sup>583</sup> J. Postel and J. Reynolds, above n5.

<sup>584</sup> Above n549, s 5.

administrative dependent hierarchy.<sup>585</sup> RFC 920 specified ‘the purpose and expected use of domains is to divide the name management required of a central administration and assign it to sub-administrations’.<sup>586</sup> The IAMoDNR (1997) detailed that management of the third-level and lower level domain names was hierarchically delegated.<sup>587</sup> It can be concluded that China’s domain name administrative method was the same as that of RFCs.

#### 4.4.2.2 Structural System

RFC 819 stated that ‘the naming hierarchy is called an “in-tree”, which is a rooted tree with all arcs directed towards the root’.<sup>588</sup> RFC 920 explained ‘the domain system is a tree-structured global name space that has a few top-level domains. The top-level domains are subdivided into second level domains. The second level domains may be subdivided into third level domains, and so on.’<sup>589</sup> In 1994, RFC 1591 stated that there already existed a flat (horizontal) structure of ccTLDs in some countries and a hierarchical structure in others.<sup>590</sup> But the IAMoDNR (1997) set forth that under the .cn ccTLD, the hierarchical structure was adopted to establish sub-level domain names rather than a flat structure.<sup>591</sup> Still, the hierarchical structural system of China’s domain names accorded with these RFCs.

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<sup>585</sup> Zaw-Sing Su and Jon Postel, above n476.

<sup>586</sup> J. Postel and J. Reynolds, above n5.

<sup>587</sup> Above n549, s 5.

<sup>588</sup> Zaw-Sing Su and Jon Postel, above n476.

<sup>589</sup> J. Postel and J. Reynolds, above n5.

<sup>590</sup> J. Postel, above n24.

<sup>591</sup> Above n549, s 7.

### 4.4.2.3 Naming Principles

#### A. Characters

RFC 897 stated 'each element of the structured name will be a character string (with the same constraints that previously applied to the simple names). For example: F.ISI.USC.ARPA.'<sup>592</sup> RFC 1032 suggested 'each segment of a domain name may contain up to 64 characters, but the NIC strongly advises DAs to choose names that are 12 characters or fewer.'<sup>593</sup> RFC 1033 proposed 'only the following characters are recommended for use in a host name (besides the dot separator): "A–Z", "a–z", "0–9", dash and underscore.'<sup>594</sup> The IAMoDNR (1997) stipulated third-level domain names were composed of letters (A–Z, a–z.), digitals (0–9) and connector (-), with solid dot (.) connecting hierarchy domain names, and its length cannot exceed 20 characters.<sup>595</sup> Characters of one Pinyin,<sup>596</sup> mostly used to register Chinese domain names, are usually longer than one English word,<sup>597</sup> which resulted in the character length of Chinese domain names being longer than the length RFC 1032 strongly advised, but they were still less than the 64 characters set by RFC 1032.

#### B. Domain Name Category

RFC 1591 introduced 'in some country domains the second levels are generic categories (such as, AC, CO, GO, and RE), in others they are based on political geography, and in still others, organisation names are listed directly under the country

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<sup>592</sup> J. Postel, above n480.

<sup>593</sup> M. Stahl, above n487.

<sup>594</sup> M. Lottor, above n492.

<sup>595</sup> Above n549, s 10.

<sup>596</sup> Pinyin is Chinese characters written using the Latin phonetic scheme, promulgated by the People's Republic of China.

<sup>597</sup> MA Jinglu, 'Wang Zhan Yu Ming De Yu Yan Xue Fen Xi' (2013) 30 (4) *Jiang Han Da Xue Xue Bao (She Hui Ke Xue Ban)* 77, 80.

code.’<sup>598</sup> The initial top-level domain names formulated by FRC-920 were<sup>599</sup>:

Temporary

ARPA: The current ARPA-internet hosts.

Categories

GOV: Government

EDU: Education

COM: Commercial

MIL: Military

ORG: Organisation

‘NET: This domain is intended to hold only the computers of network providers, that is the NIC and NOC computers, the administrative computers, and the network node computers.’<sup>600</sup>

The IAMoDNR (1997) regulated that second-level domain names were to be divided into category domain names and administrative region domain names.<sup>601</sup> Category domain names were<sup>602</sup>:

AC: research institutions

COM: industrial, commercial, financial, and other enterprises

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<sup>598</sup> J. Postel, above n24.

<sup>599</sup> J. Postel and J. Reynolds, above n5.

<sup>600</sup> J. Postel, above n24.

<sup>601</sup> Above n549, s 8.

<sup>602</sup> Ibid.

EDU: educational institutions

GOV: government departments

NET: network information centers (NIC) and network operation centers (NOC)

ORG: non-profit organisations

There are 34 administrative region domain names which apply to provinces, autonomous regions and municipalities in China.<sup>603</sup> For example, BJ represents Beijing, TW represents Taiwan, HK represents Hong Kong, and MO represents Macao.<sup>604</sup> It can be concluded that second-level domain name categories were in line with these RFCs.

### C. Restrictions on Naming the Domain Names

RFC 1032 proposed 'domain or host name choices and the allocation of domain name space are considered to be local matters.'<sup>605</sup> The IAMoDNR (1997) detailed some names could not be registered as third-level domain names and some names were registered with conditions.<sup>606</sup> Thus, restrictions on naming the third-level domain names in China did not conflict with RFC 1032.

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<sup>603</sup> For more details, see above n549.

<sup>604</sup> There are no public data reports about the registration information on the .tw.cn, .hk.cn and .mo.cn. Actually, the .tw, .hk and .mo are the ccTLDs. They are categorized into the second level of the administrative region domain names due to the political requirements rather than economic factors. Because China consistently insists on the principle of 'one China' policy, the Taiwan, Hong Kong, and MO must be distributed into the category of administrative region domain names.

<sup>605</sup> M. Stahl, above n487.

<sup>606</sup> Above n549, s 11.

#### 4.4.2.4 Domain Name Registration

##### A. Domain Name Application

RFC 1032 explained ‘the NIC has chosen not to register individual hosts directly under the top-level domains it administers’.<sup>607</sup> The IAMoDNR (1997) stipulated domain name applicants had to be an organisation which was legally registered in China and could take on civil liabilities independently.<sup>608</sup> Individuals did not have the right to register ccTLDs from NIC<sup>609</sup>; analogously, they did not have the right to register domain names under the .cn ccTLD either.

RFC 819 proposed ‘an entity is named depending upon the position of the naming entity relative to that of the named entity’.<sup>610</sup> The IAMoDNR (1997) specified applicants had the right to choose which higher level domain names to register. When registering under the ‘category domain names’, applicants should choose a domain name based on their position.<sup>611</sup> Therefore, the rule of choosing domain name categories in China is the same as stipulated in RFC 819.

##### B. Applicants’ Responsibility

RFC 1591 specified ‘the registration of a domain name does not have any trade mark

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<sup>607</sup> M. Stahl, above n487.

<sup>608</sup> Above n549, s 6.

<sup>609</sup> In the 1980s, except NIC, Jon Postel, who worked in the Information Sciences Institute at the University of Southern California from 1977 to 1998 also had the technical power to delegate ccTLDs to organisations and individuals. For example, he initially delegated the right to manage the .au ccTLD to an individual, Robert Elz in 1985–1986. For more information about the delegation of the .au ccTLD by Jon Postel, see John Selby, above n137, 179-204. It is unclear as to why Werner Zorn helped China to register its ccTLD from NIC rather than Jon Postel applying for registration of the .cn ccTLD. As more information is released into the public domain over time, this may become clear.

<sup>610</sup> Zaw-Sing Su and Jon Postel, above n476.

<sup>611</sup> Above n549, s 12.

status. It is up to the requestor to be sure he is not violating anyone else's trade mark.<sup>612</sup> The IAMoDNR (1997) considered that applicants were responsible for the domain names they registered, pledged the registered domain names did not violate the interests of any third party within the knowledge of the applicants, and guaranteed the registered domain names would not be used for any illegal purpose.<sup>613</sup> Although the applicants' responsibilities written in the IAMoDNR (1997) were beyond the scope of that regulated in RFCs, they had the same central idea that domain name applicants were responsible for the domain names they chose.

### C. Approval Principle

RFC 1032 stipulated 'domain name assignments are made on a first-come-first-served basis'.<sup>614</sup> The IAMoDNR (1997) wrote the approval principle is 'first come, first served'.<sup>615</sup> There was no difference between China's regulation and RFC 1032 with respect to the approval principle of domain names.

#### 4.4.2.5 The Role Domain Name Administrative Institutions Played in Domain Name Disputes

RFC 1032 detailed:

in the event of conflicts, it is the policy of the NIC not to get involved in local

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<sup>612</sup> J. Postel, above n24.

<sup>613</sup> Above n549, s 19. Chinese domain name registries did not want to involve any disputes relating to the registration of domain names, so the IAMoDNR (1997) promulgated the domain name registrants to have full responsibilities, rather than considering the protection of intellectual properties.

<sup>614</sup> M. Stahl, above n487.

<sup>615</sup> Above n549, s 20.

disputes or in the local decision-making process. The NIC will not act as referee in disputes over such matters as who has the 'right' to register a particular top-level or second-level domain for an organisation. The NIC considers this a private local matter that must be settled among the parties involved prior to their commencing the registration process with the NIC. Therefore, it is assumed that the responsible person for a domain will have resolved any local conflicts among the members of his domain before registering that domain with the NIC.'<sup>616</sup>

RFC 1591 noted 'in case of a dispute between domain name registrants as to the rights to a particular name, the registration authority shall have no role or responsibility other than to provide the contact information to both parties.'<sup>617</sup> The IAMoDNR (1997) explained registrars were not responsible to query from relevant departments to check out whether a registered domain name conflicted with registered trade marks or enterprises' names. Any dispute related to this kind of conflict was the domain name applicants' own responsibility. Any legal liabilities and economic disputes regarding to domain names were irrelevant to domain name registrars.<sup>618</sup> Hence, the neutral role domain name administrative institutions played in domain name disputes and the exception from liabilities regulated in the IAMoDNR (1997) remained the same with RFC 1591.

After comparing the IAMoDNR (1997) and the RFCs in terms of domain name administrative institution, structural system, naming principle, registration and the role domain name administrative institutions played in domain name disputes, it can be concluded that most of articles of the IAMoDNR (1997) (except those with respect

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<sup>616</sup> M. Stahl, above n487.

<sup>617</sup> J. Postel, above n24.

<sup>618</sup> Above n549, s 23.

to China-specific politics and sensitive issues) were copied from RFCs when O-IWLG-SC faced the make-or-buy choice<sup>619</sup>, although there were some more country-specific regulations in the IAMoDNR (1997) than in the RFCs (see Figure 4-4 at the end of this chapter).

### **4.4.3 Analysis of Institutional Path Dependency and Technological Path Dependency**

It is beyond all doubt that China's domain name technology was inherited from international domain name technology, which has been proved in the previous section. Even though it was experiencing adaptation and improvement in China, the main developing path of China's domain name technology follows the developing path of international domain name technology. It can also be accepted that the administrative regulation of the .cn ccTLD was inherited from international rules through the above analysis. It is worth considering whether there is any connection between China's domain name IPD and TPD.

Generally speaking, China's domain name TPD does not inevitably lead to the relevant IPD. For example, the design and enforcement of China's Domain Name Dispute Resolution (C-DNDR) relies on Chinese political policies, local social conditions, and the legal framework and its characteristics.<sup>620</sup> Even though the domain name system (DNS) is hierarchical (see Figure 4-1), C-DNDR is not.

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<sup>619</sup> 'Make-or-buy' choice applied in the public sector relating to legal regulations refers to making a legal regulation through its own internal processes or buying a production of this legal regulation from other countries. See John Selby, above n137, 120-121.

<sup>620</sup> See DENG Jiong, above n81; SUN Hanhui, above n108; ZHOU Chunhui, above n109, 60; DING Ying and JI Yanna, above n110.

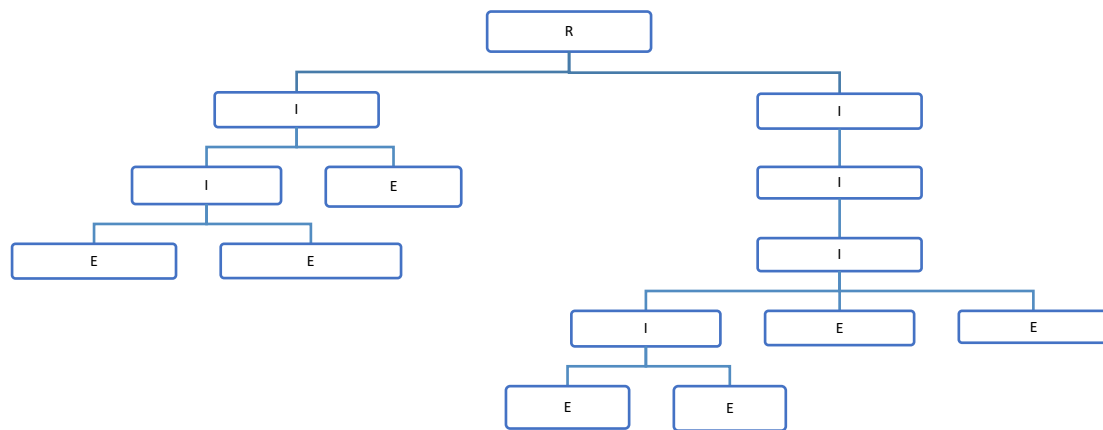


Figure 4-1 System of DNS

R: Root, I: Intermediate Domain, E: Endpoint Domain

Source: Zaw-Sing Su and Jon Postel, *RFC 819: The Domain Naming Convention for Internet User Applications* (August 1982) IETF <<https://www.ietf.org/rfc/rfc819.txt>>.

The relationship between the DNS and the regulations of the C-DNDR is described in Figure 4-2 (below). Black circles and triangles as a whole represent the hierarchical DNS; the first level of white circle represents the international rules on dispute resolution in the top-level domains; the second and third levels of white circles represent every country's regulations on domestic domain name disputes resolution. Dotted double arrows mean the direct interaction between the DNS and DNDRs. This figure shows that despite the hierarchical nature of the DNS, the international DNDR has no hierarchical administrative power,<sup>621</sup> so every state can establish and develop its own DNDR. Thus, it can be deduced that the development of the DNS does not have an inevitable effect on the development of DNDR.

<sup>621</sup> Uniform Domain Name Dispute Resolution Policy approved by ICANN sets forth in its first paragraph that 'This Uniform Domain Name Dispute Resolution Policy (the "Policy") is incorporated by reference into your Registration Agreement, and sets forth the terms and conditions in connection with a dispute between you and any party other than us (the registrar) over the registration and use of an Internet domain name registered by you.' This passage illustrates that this international DNDR is a selective policy, rather than a mandatory resolution for registries and registrars. See *Uniform Domain Name Dispute Resolution Policy* (September 29, 1999) ICANN <<https://archive.icann.org/en/udrp/udrp-policy-29sept99.htm>>.

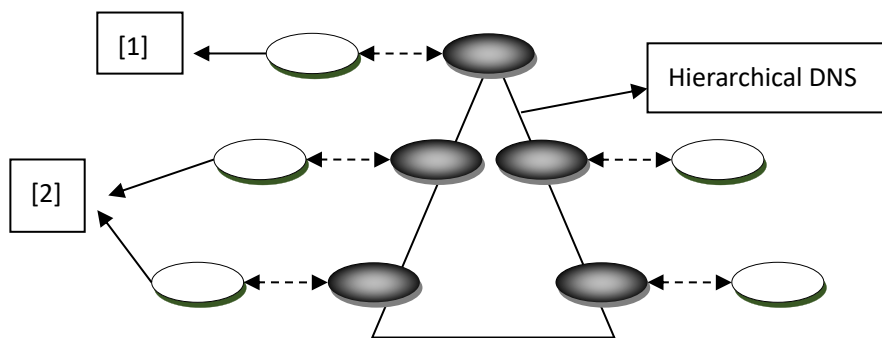


Figure 4-2 DNS and C-DNDR

[1]: International rules on dispute resolution of top-level domains.

[2]: Every country's regulations on domestic domain name dispute resolution.

However, the relationship between domain name administrative regulations designed by technologists is a hierarchical administrative mode just like the hierarchical structure of the DNS. The international domain name administrative rules situated in the top-level position constrain all the lower levels of domain name administrative regulations. Consequently, all lower levels of domain name registries and registrants have to comply with the various compulsory international rules or regulations made by top-level regulators. For instance, RFC 920 specified all top-level domains had to apply for delegation and to register within the NIC domain registrar; a domain name representing a country should be the English two-letter code, generally according to ISO-3166.<sup>622</sup> Therefore, China had no choice but to apply for delegation from NIC and register the .cn as its ccTLD. RFC 1032 proposed 'the role of the domain administrator (DA) is that of coordinator, manager, and technician.'<sup>623</sup> The role of O-IWLG-SC as the

<sup>622</sup> J. Postel and J. Reynolds, above n5. China came "too late to the party" to have the choice that earlier players had. For example, Great Britain, one of the earlier players, applied the .uk as its ccTLD rather than the .gb listed in ISO-3166.

<sup>623</sup> M. Stahl, above n487.

DA was limited within these three functions. Accordingly, when Chinese regulators began to draft China's domain name administrative regulations, they had to incorporate all compulsory articles made by international rules or regulations and considered whether customary practice of domain names should be included in Chinese administrative regulations. In reality, adopting a strategy similar to that of many other countries, Chinese regulators chose most of the customary practice (for example, in the RFCs)<sup>624</sup> as domain names are connective and hierarchical worldwide,<sup>625</sup> which led regulators to prioritise compatibility with other countries. In summary, when the O-IWLG-SC faced the make-or-buy choice, it preferred to "buy" most of its clauses from RFCs except for aspects mainly related to political and legal considerations, which are listed in Figure 4-4.

The relationship between DNS and China's domain name administrative regulations is shown clearly in Figure 4-3 (below). Black circles and a triangle as a whole represents the hierarchical and connective DNS; white circles and a triangle as a whole represents a hierarchical administrative mode of domain name administrative institutions; the top white circle is the international domain name rules or regulations at the top level; the lower white circles are countries' domain name administrative regulations; and the dotted double arrows mean the interaction between DNS and domain name administrative regulations. It is apparent that all levels of domain name administrative regulations are not separated and are not individual; they are part of an organic whole which is connected by mandatory administrative power from the top to the bottom.

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<sup>624</sup> Please see Analysis of Domain Name Institutional Path Dependency in this chapter. Most of the articles China inherited from international rules are customary practice rather than compulsory articles.

<sup>625</sup> If domain names are used separately, they are much less valuable. Every domain name is only a node in cyberspace which can be connected together by the Internet. Furthermore, the hierarchical structure of domain names made lower level domain names as the tree's nodes, which are controlled and managed by the root (the root described here includes root files and the root server), including the ccTLDs and gTLDs. Consequently, unless setting up another independent root system (which would have huge transaction costs, which is practicable in theory but has never happened in practice), the connectivity of domain names meant they could not be used independently and could only exist in the domain name system in order to maintain their value in use; the hierarchy of domain names made all lower level domain names depend on the root.

Hence, the development of the DNS as a whole inevitably has impacts on the development of domain name administrative regulations as a whole and vice versa. It is generally well known that the development of technologies is ahead of the development of laws or regulations.<sup>626</sup> So, the developing path of DNS as a whole inevitably has led the developing path of domain name administrative regulations as a whole to some extent when some conditions are satisfied. Taking the institutional formation of China's AMoCDN as the case, under the context of the DNS characterized with connectivity and hierarchy, and domain name administrative regulations featured with hierarchic administrative mode, domain name technological path dependency led to China's domain name administrative regulation's path dependency.

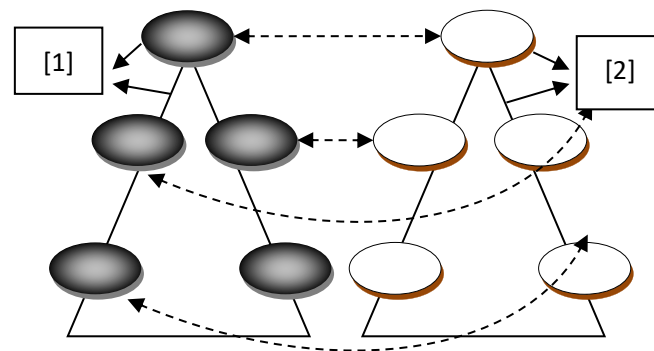


Figure 4-3 DNS and Hierarchical Administrative Regulations

[1]: Hierarchical and connective DNS.

[2]: Hierarchical administrative mode of domain name administrative institutions.

<sup>626</sup> See Roger Brownsword, 'Lost in Translation: Legality, Regulatory Margins, and Technological Management' (2011) 26 (3) *Berkeley Technology Law Journal* 1321; Deryck Beleveld and Roger Brownsword, 'Emerging Technologies, Extreme Uncertainty, and the Principle of Rational Precautionary Reasoning' (2012) 4 (1) *Law, Innovation and Technology* 35.

## 4.5 Conclusion

This chapter first introduces the political and legal environment in which the .cn ccTLD was registered and the first domain name administrative regulation in China was released. At the political level, the main foreign policy of the United States after the Cold War was that the USA actively engaged in China's economic reform for affecting China's politics, which contributed to the successful registration of the .cn ccTLD from NIC in 1990. German foreign policy was to develop its national economy through cooperating with Asian countries in terms of education and technology, which promoted computer technology cooperation, including domain name technology between China and Germany. Chinese foreign policy was to actively integrate into the world, which encouraged technological coordination between China and Germany as well as driving Chinese computer scientists to take necessary steps to apply for delegation of the .cn ccTLD from NIC. Chinese domestic policy, in which economic development was the central task of the CCP and scientific technology was seen as the primary area of productivity, provided guidelines and funding to Chinese scientists to learn advanced technologies, especially information technology, from other countries. At the legal level, IANA and IETF, which handled domain name delegation and management as well as RFCs proposing domain name regulations, constrained and managed the registration of the .cn ccTLD and strongly influenced the formation of domain name administrative regulation in China. In addition, the objective of actively improving the socialist legal system of China was propitious in urging and accelerating the enactment of the first domain name administrative regulation of the .cn ccTLD.

Under the program of the Chinese University Development Project II, sponsored by the World Bank in 1982, China and Germany built a cooperative relationship in the areas of information communication and computer technology. With the help of the University of Karlsruhe and the research group led by Professor Werner Zorn, China finally connected with the German network and successfully registered the .cn ccTLD.

Certainly, the policy support and funding aid from Chinese governments were also the significant factors for connecting the Sino-German network and the strong backup for registering the .cn ccTLD. Although the non-global internet connection between China and the United States resulted in the .cn master root server being installed in Germany for four years, the Chinese researcher group overcame various obstacles and finally installed it in the Institute for Computer Application in Beijing in 1994.

This chapter also introduced the IAMoDNR, which was released by the O-IWLG-SC in 1997. It detailed the domain name administrative institutions, structural system, registration application and approval processes, and the alteration of domain names. Then it conducted a comparative analysis between the IAMoDNR (1997) and RFCs, in terms of domain name administrative institution, structural system, naming principle, registration, and the role that domain name administrative institutions played in domain name disputes. The conclusion is that most of the articles in the IAMoDNR (1997) (except those with respect to China-specific politics and sensitive issues) are inherited from RFCs, although there are some more specific clauses than RFCs. That is, when the O-IWLG-SC faced the choice of 'make or buy', it 'bought' most of clauses of the IAMoDNR from the RFCs rather than making its own version of administrative regulation.

Lastly, this chapter tested and did not disprove a hypothesis of New Institutional Economics and concludes that, under the context of the DNS characterized by connectivity and hierarchy, and domain name administrative regulations featured with a hierarchical administrative mode, domain name technological path dependency led to China's domain name administrative regulation's path dependency.

In the next chapter, the first institutional change of the IAMoDNR, which occurred in 2002, will be analysed from the perspectives of politics, laws and regulations,

economic factors, and technology, and another proposed hypothesis tested.

**Figure 4-4 Make-or-Buy Choices in the IAMoDN**

<b>Make-or-Buy Choices in the IAMoDN</b>				
Aspects	Clauses of the IAMoDNR	Inherited from RFCs	Make-or-buy choice	Reasons for half buy/make
Domain name administrative institution: administrative mode	S 2, 3, 4	RFC-920, 1591	Buy	
Domain name administrative institution: administrative responsibilities	S 2, 5	RFC- 920	Buy	
Domain name administrative institution: administrative method	S 5	RFC-819, 920	Buy	
Structural system	S 7	RFC-819, 920	Buy	
Naming principles: characters	S 10	RFC-897, 1032, 1033	Half buy and half make	Differences in the length between Chinese and English words
Naming principles: domain name category	S 8	RFC-920, 1591	Half buy and half make	Political consideration
Naming principles: restrictions on naming the domain names	S 11	RFC-1032	Make	Political consideration
Domain name registration: domain name application	S 6, 12	RFC-1032, 819	Buy	
Domain name registration: applicants' responsibility	S 19	RFC- 1591	Half buy and half make	Legal consideration
Domain name registration: approval principle	S 20	RFC-1032	Buy	
The role of domain name administrative institutions played in domain name disputes	S 23	RFC-1032, 1591	Buy	

## 5 The First Institutional Change in 2002 – Legal

### Localisation

This chapter first introduces the political institutional environment and legal institutional environment in which the first institutional change of the administrative regulation of the .cn ccTLD is situated. Second, it discusses the causes of institutional change through the comparison and analysis of the main clauses in the Interim Administrative Measures on Domain Name Registration<sup>627</sup> (IAMoDNR) and the Administrative Measures on China's Domain Names<sup>628</sup> (AMoCDN), from the perspectives of political, economic, legal, and technological factors respectively. Finally, it proposes a new hypothesis of New Institutional Economics and tests whether the evidence derived from the first institutional change is consistent with this hypothesis.

### 5.1 Institutional Environment in which Institutional Change is Situated

The administrative regulation of the .cn ccTLD first released in 1997 experienced its first institutional change in 2002. Between 1997 and 2002, China's political environment, and international and domestic legal environment, which constrained the TLD's administrative regulations, underwent great changes. According to NIE theory about hierarchical institutions, these changes directly affected the institutional change of the IAMoDNR because changes in higher-level institutions might drive or create opportunities for institutional changes in lower-level institutions.<sup>629</sup> This section mainly analyses the political and legal environment in which the first institutional change was situated, through an introduction to Chinese political and economic reform, international domain name management organisations and

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<sup>627</sup> Interim Administrative Measures on Domain Name Registration was the first administrative regulation of the .cn ccTLD in China, it was released in 1997 by O-IWLG-SC.

<sup>628</sup> Administrative Measures on China's Domain Names was drafted on the basis of Interim Administrative Measures on Domain Name Registration and released by the Ministry of Information Industry in 2002.

<sup>629</sup> For more information about institutional change, please see section 3.3 of Chapter 3 in this dissertation.

international domain name administrative rules and regulations, and the domestic legal environment.

### 5.1.1 Political Environment

In 1997, the Report of the 15th National Congress of the CCP (15th Report) put forward that China should carry on political and economic reform, stressed that the future reform should be carried out under the framework of the rule of law, and reiterated that the CCP should always be the central leader governing and coordinating entirely that comprehensively guaranteed political and legal institutions.<sup>630</sup>

#### 5.1.1.1 Political System Reform

In 1997, the 15th Report pointed out the goals of political system reform were that it was propitious to enhance the vitality of the party and the state; to maintain and display the features and advantages of the socialist system; to safeguard national unity, ethnic unity and social stability; to develop adequately the enthusiasm of the people; and to promote the development of productiveness and social progress.<sup>631</sup> To implement these goals, the 15th Report set forth that, for promoting the reform of governmental agencies, governmental functions should be transformed according to the requirements of the socialist market economy and the principles of simplification, unification and efficiency, to set up a high-efficiency, coordinated operation, normative behaviour of the administrative management system which could improve the service quality; to reorganize the comprehensive economic departments into the macro-control departments; to adjust and reduce professional economic sectors; to

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<sup>630</sup> JIANG Zemin, *Gao Ju Deng Xiao Ping Li Lun Wei Da Qi Zhi, Ba Jian She She Hui Zhu Yi Shi Ye Tui Xiang Er Shi Yi Shi Ji*, Zhong Guo Gong Chan Dang Di Shi Wu Ci Quan Guo Dai Biao Da Hui Shang De Bao Gao, 12 September 1997. Rule of law is to provide justice and lives of quality and peace, and its desire for freedom and justice is a most powerful force in the lives of suffering people. Jimmy Carter, 'Rule of law' (1991) 5 (1) *Emory International Law Review* 1, 8. Rule by law 'refers to the characterization of the legal systems in Leninist states and authoritarian states, which include that of the CCP China, except during the lawless Cultural Revolution' and is usually used to describe the nature of the legal system and the central notion of the legal philosophy in China. See YE Zhusheng, above n505, 22-23.

<sup>631</sup> JIANG Zemin, *Ibid.*

strengthen law enforcement and regulatory authorities; to cultivate and develop social intermediary organisations<sup>632</sup>; and to deepen the reform of the administrative system for achieving statutory national organisations, functions, staffing, and working procedures.<sup>633</sup>

Therefore, XU Yaotong argued that the state should apply two steps to implement the reform. In the first step, under the premise of ensuring the absolute leadership of the central committee of the CCP, power was excessively concentrated in the past and should be delegated appropriately to lower levels of government (decentralization of power), because the relative separation of power had more vitality, efficiency, and innovation than the centralization of that power. This reform could enable governments to make decisions promptly and deal with daily administrative affairs quickly.<sup>634</sup> In the second step, the sectional functions of governmental agencies, along with the separation of the power from the first step, should be contracted to social intermediary organisations.<sup>635</sup> Under the planned economic system, the decision-making function and the executive function were both carried out by government.<sup>636</sup> But in the market economy system, governments needed to give up some control of micro-economic activities, and focus on decision-making and control of macro-economic activities. Only in this way, could government withdraw from the numerous and jumbled daily administrative affairs, and pay sufficient attention to economic macro-controls for promoting the rapid and healthy development of China's economy.<sup>637</sup> Social intermediary organisations could partly undertake the executive function of government because the flexibility and adaptability of these organisations

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<sup>632</sup> Social intermediary organisations in China refer to the organisations that are funded by governments or public finance and undertake certain government functions. For example, as a social intermediary organisation, China Law Society led by CCP and funded by Chinese governments organises academic researchers, lawyers, judges, procurators, and other legal workers to carry out legal research and to promote legal practice with the objective of developing the socialist country under the rule of law.

<sup>633</sup> Ibid.

<sup>634</sup> XU Yaotong, 'Kua Shi Ji Zheng Zhi Ti Zhi Yu Xing Zheng Ti Zhi Gai Ge De Wei Da Bu Shu' (1998) (1) *Zhong Guo Te Se She Hui Zhu Yi Yan Jiu* 28, 30.

<sup>635</sup> Ibid.

<sup>636</sup> SHEN Ronghua, 'Guan Yu Zhuan Bian Zheng Fu Zhi Neng De Ruo Gan Si Kao' (1999) (4) *Zheng Zhi Xue Yan Jiu* 54, 55.

<sup>637</sup> XU Yaotong, above n634, 29.

meant they could expand or contract according to the size of the workload. This administrative system, which is similar to western trends towards ‘more steering and less rowing’<sup>638</sup> could change the rigid operating mechanisms of past governments. Subsequently, when governments contracted out specific administrative affairs to market-oriented social intermediary organisations, they only needed to set targets and to supervise, which meant that the objectives of political reform proposed by the 15th Report could be reached.<sup>639</sup>

This political reform reflected the characteristics of the decentralized power of governmental agencies and marketization,<sup>640</sup> and transformed the omnipotent government to a service-oriented government.<sup>641</sup> The central government’s management functions, as much as possible, were delegated to the lower levels of government, which as far as possible contracted some specific economic management functions to social intermediary organisations.<sup>642</sup> As a result, the reform not only affected the transformation of the functions of Chinese domain name registries, but also promoted the emergence and development of domain name registrars as social intermediary organisations.

#### 5.1.1.2 Economic System Reform

The 15th Report stated that the objectives of market system reform were to adhere to and improve the basic economic system in which socialist public ownership was primary and the multiple ownership economy was auxiliary; and to uphold and improve the socialist market economic system in which the market played a basic role

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<sup>638</sup> For more information about ‘steering, not rowing’, see John Barlow and Manfred Röber, ‘Steering not Rowing: Co-ordination and Control in the Management of Public Services in Britain and Germany’ (1996) 5/6 (9) *International Journal of Public Sector Management* 73.

<sup>639</sup> XU Yaotong, above n634, 29-30.

<sup>640</sup> HE Ying, ‘Zhong Guo Zheng Fu Ji Gou Gai Ge 30 Nian Hui Gu Yu Fan Si’ (2008) 282 (12) *Zhong Guo Xing Zheng Guan Li* 21, 24.

<sup>641</sup> Ibid.

<sup>642</sup> See SHEN Ronghua, above n636, 57; HE Ying, above n640, 24.

in resource allocation under the state's macro regulation and control.<sup>643</sup> This meant that the CCP was no longer adhering to the pseudo proposition that the private ownership economy belonged only to capitalism, but saw the market economy as the balancing rights' economy.<sup>644</sup> While a multiple ownership economy was developed, the public ownership economy still maintained its dominant position. For ownership was the core of the production relationship and the basic element of the economic structure.<sup>645</sup> To maintain the dominant position of the state-owned economy, it was necessary to occupy a dominant position in important industries and key areas, and it was significant to have strong scientific and technological development capabilities and market competitiveness to guide the development of markets.<sup>646</sup> While maintaining the dominant position of the public ownership economy, a multiple ownership economy, including a private ownership economy, should also be developed vigorously. In the initial years of the reform and opening up, the non-public ownership economy only accounted for 1% of the ownership structure, and by 1997 it accounted for 24%.<sup>647</sup> Therefore, under the support of promoting non-public economic development as a political policy, including the domain name industry, the non-public ownership economy would be promoted and developed by governments and their agencies.

In addition, the 15th Report argued that in order to actualize the economic system reform, it was inevitable to reform the distribution system, improve market rules, strengthen market management, remove obstacles to the market, break regional blockades and monopoly sectors, and deeply play the basic role of the market in the allocation of resources to build a unified, open, competitive, and orderly market system as soon as possible.<sup>648</sup> The reform of the economic system should make full use of the market's and the social demands guiding and promoting functions to the

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<sup>643</sup> JIANG Zemin, above n630.

<sup>644</sup> HUANG Wenzhong, 'Dang De Shi Wu Da Gei Si Ying Jing Ji Dai Lai Le You Yi Ge Chun Tian' (1998) (4) *She Hui Ke Xue* 10, 11.

<sup>645</sup> GUI Shiyong, 'Dang Dai Zhong Guo De Jing Ji Ti Zhi Gai Ge Yu Jing Ji Fa Zhan – Xue Xi Dang De Shi Wu Da Bao Gao De Ji Dian Si Kao' (1998) (1) *Jiao Xue Yu Yan Jiu* 7, 11.

<sup>646</sup> Ibid, 12.

<sup>647</sup> Ibid, 9.

<sup>648</sup> JIANG Zemin, above n630.

progress of science and technology, and should support and encourage enterprises to engage in research, innovation, and technological transformation, which enabled enterprises to become the main bodies for scientific research and investment.<sup>649</sup> Simultaneously, China's economy should also actively participate in international economic cooperation and competition.<sup>650</sup> Subsequently, technological research and application of the Chinese domain name system was going to become the main theme of the development of the domain name system in China.<sup>651</sup>

Consequently, just as the New Institutional Economists argued, only the interest groups with sufficient bargaining power could change the formal rules and trigger significant changes in the formal institutional framework.<sup>652</sup> In order to achieve political or economic goals, organisations will gradually change the institutional framework.<sup>653</sup> In order to achieve the goals of political stability and rapid economic development, the CCP with the absolute monopoly of political power in China, proposed the objectives and tasks of the reform of the political system and the economic system in the 15th Report. Under this background, the administrative regulation of the .cn ccTLD was experiencing its first institutional change under the catalysis of this political and economic system reform driven by the 15th Report.

### 5.1.2 Legal Environment

The legal institutional environment constraining the administrative regulations of the .cn ccTLD was mainly the international and domestic legal environment. After introducing the international legal environment, this section will detail international organisations, including ICANN and its Governmental Advisory Committee (GAC), and

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<sup>649</sup> Ibid.

<sup>650</sup> Ibid.

<sup>651</sup> CNNIC, above n550; CNNIC, *2000 Nian – 2001 Nian Hu Lian Wang Da Shi Ji* (26 May 2009) CNNIC <[http://www.cnnic.cn/hlwfzyj/hlwdsj/201206/t20120612\\_27417.htm](http://www.cnnic.cn/hlwfzyj/hlwdsj/201206/t20120612_27417.htm)>. For more information about the development of the Chinese domain name system, please see section 5.5.1 'Chinese Domain Name Technology' in this chapter.

<sup>652</sup> Douglass C. North, above n262, 68.

<sup>653</sup> Ibid, 73.

international rules and regulations, including RFC 2240, RFC 2353, the Uniform Domain Name Dispute Resolution Policy (UDRP), and ccTLD Best Practices for the Prevention and Resolution of Property Disputes (ccTLD Best Practices). In outlining the domestic legal environment in China, the objectives of improving domestic laws and regulations proposed by the 15th Report will be introduced.

### 5.1.2.1 International Legal Environment

#### A. International Domain Name Organisations

##### (1) ICANN

From the advent of internet technologies until 1998, domain name management and IP address management operated cooperatively between the US military and the NSF. Foreign national governments were more and more restless under US unilateral control of domain names and IP addresses, which are the key parts of global communications architecture.<sup>654</sup> With the greater and greater importance of the role domain names played in internet operation, network society was experiencing increasing tension over domain name policy-making and control.<sup>655</sup> Because of increasing pressure from other countries, international and transnational organisations, and domestic organisations, the American government decided to privatize the domain name management system.

In July 1997, Department of Commerce (DoC) launched the official program for privatization of the DNS.<sup>656</sup> In January 1998, the DoC released 'A Proposal to Improve Technical Management of Internet Names and Addresses'<sup>657</sup> after the absorption of some comments from a request for comments on DNS administration issued by the DoC in 1997, namely the DNS Green Paper. This DNS Green Paper detailed domain

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<sup>654</sup> See A. Michael Froomkin, above n493, 62; Milton L. Mueller, above n3, 2.

<sup>655</sup> Ibid.

<sup>656</sup> Milton L. Mueller, above n3, 2.

<sup>657</sup> *A Proposal to Improve Technical Management of Internet Names and Addresses* on 30 January (30 January 1998) NTIA <<http://www.ntia.doc.gov/legacy/ntiahome/domainname/dnsdrft.htm>>.

name policy proposed by the Clinton Administration and explained the reasons why the DoC had the authority to regulate the DNS. Although the DNS Green Paper was just a consultation document, the many contradictions in it led to lots of questions.<sup>658</sup> Hence, the DoC abandoned the original plan. Instead, it drafted a non-binding policy document, namely 'Management of Internet Names and Addresses', commonly known as the DNS White Paper, in 1998. The DNS White Paper proposed four basic principles for the new DNS: stability, competitiveness, private coordination from the bottom to the top, and representation.<sup>659</sup>

The US government did not use the DNS White Paper to formulate rules for the resolution of power disputes, nor did it set up a special organisation to formulate relevant rules. Instead, the US government passed its responsibility for DNS administration to controversial parties (private sector stakeholders, albeit dominated by western interests), which meant that the network groups themselves determined to establish a new non-profit company to manage domain names and IP addresses.<sup>660</sup> This new private and non-profit company was ICANN. In November 1998, the DoC and ICANN reached an agreement that ICANN would absorb IANA's functions and begin to manage the DNS.<sup>661</sup> Mueller has argued that the primary goal of ICANN was not just to technically coordinate, nor to create technical standards. It was a global institutional agency that linked technological coordination and the related industry management,<sup>662</sup> and its main function was to coordinate and manage the DNS globally<sup>663</sup>. Its authority was mainly from the voluntary compliance of members to its rules.<sup>664</sup> However, legal

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<sup>658</sup> See Peter K. Yu, above n2, 395; Wolfgang Kleinwaechter, 'From Self-Governance to Public-Private Partnership: The Changing Role of Governments in the Management of the Internet's Core Resources' (2003) 36 (3) *Loyola of Los Angeles Law Review* 1103, 1111.

<sup>659</sup> See Peter K. Yu, above n2, 395; Milton L. Mueller, above n3, 2.

<sup>660</sup> Milton L. Mueller, above n3, 2-3.

<sup>661</sup> Peter K. Yu, above n2, 396-397.

<sup>662</sup> Milton L. Mueller, above n3, 218. On 1 October 2016, the contract between the ICANN and the NTIA to perform the IANA's functions had officially expired. For more information about the new transition proposal for IANA's function to ICANN, please see ICANN, *Stewardship of IANA Functions Transitions to Global Internet Community as Contract with U.S. Government Ends* (1 October 2016) ICANN <<https://www.icann.org/news/announcement-2016-10-01-en>>.

<sup>663</sup> ICANN, *Welcome to ICANN!* ICANN <<https://www.icann.org/resources/pages/welcome-2012-02-25-en>>.

<sup>664</sup> Marc Watkins, above n7, 150.

structure of ICANN as a private and non-profit corporation registered in California differed from that of other international organisations or governments which would be bound by international law norms and obligations. The consequences of its unique structure are discussed through its standing organisations and policies below.

After taking over some functions from IANA, ICANN began to focus one of its routine tasks on the management of ccTLDs. For a discussion of the effect of policy on the administration of DNS delegations, in 1999, ICANN released the Internet Domain Name System Structure and Delegation (ccTLD Administration and Delegation) (ICP-1),<sup>665</sup> which combined RFC 1591<sup>666</sup> and ccTLD News Memo #1.<sup>667</sup>

ICP-1 (1) strengthened national governments' control over the ccTLDs,<sup>668</sup> detailed the management rules for delegated domain names (including the sections of Delegation of a New Top Level Domain setting forth the completion of a number of procedures) and also specified that the IANA has the right to make partial delegations of a TLD when some circumstances are satisfied, TLD Manager Responsibility stating 'TLD managers are trustees for the delegated domain and have a duty to serve the community'; (2) Fair Treatment stipulating that although differential policies and procedures exist among different countries according to variations of local customs and cultural values, requests for domain names must be treated equally and no bias must be shown; (3) Operational Capability, listing the duties that a TLD manager has when operating the DNS service for a domain; (4) Transfers and Disputes over Delegations, suggesting the transfer is mutually agreed or the conflicting parties reach an agreement themselves;<sup>669</sup> (5) Revocation of TLD Delegation, pointing out that 'the

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<sup>665</sup> ICANN, *ICP-1: Internet Domain Name System Structure and Delegation (ccTLD Administration and Delegation)* (May 1999) <<https://www.icann.org/resources/pages/delegation-2012-02-25-en>>. Although some commentators refer to ICP-1 as the 'Internet Coordination Policy,' the document stands for 'ICANN Corporate Policy.' See ICANN, *Proposal to the U.S. Government to Perform the IANA Function* (Feb. 2, 2000) <<http://www.icann.org/general/iana-proposal-02feb0.htm>>.

<sup>666</sup> The main contents of RFC 1591 is introduced in the chapter of institutional formation in this dissertation.

<sup>667</sup> IANA, *CCTLD News Memo #1* (23 October 1997) IANA <<https://www.iana.org/reports/1997/cctld-news-oct1997.html>>. ICANN claimed that there was no change in this policy, but ICP-1 was given minor revisions actually. For more information, please see John Selby, above n137, 420-424.

<sup>668</sup> Peter K. Yu, above n2, 397-398.

<sup>669</sup> There is a formal process for delegating or redelegating a ccTLD, please see IANA, *Delegating or Redelegating*

IANA reserves the right to revoke and to re-delegate a Top Level Domain to another manager'; (6) Subdelegations of Top Level Domains, giving much discretion to the TLD manager on the management of subdomains of TLDs; (7) Rights to Domain Names, leaving a big space for TLD managers to formulate their own domain name dispute policies; (8) Uses of ISO 3166-1 Table explaining why ISO-3166 is chosen for the standard of a ccTLD; and (9) Maintenance Procedure for Root Zone File, explaining that the 'primary root zone file is currently located on the A root server'.<sup>670</sup>

These functions of ICANN directly constrained Chinese domain name registries since China registered its ccTLD in 1990 and indirectly influenced some aspects listed in the ICP-1 to the drafting of the administrative regulations of the .cn ccTLD.<sup>671</sup>

## (2) ICANN-GAC

The DNS White Paper noted that no matter the national government representing sovereign states or the international or transnational organisations representing states on behalf of governments, they could not all participate in the 'management of Internet names and addresses'. However, national governments could participate in the global management of domain names and IP addresses through the Governmental Advisory Committee (GAC) in a 'non-voting, advisory capacity'.<sup>672</sup> Under the framework of ICANN Bylaws 1.0, the GAC as an ICANN permanent department was constituted on 2 March 1999,<sup>673</sup> where members were constituted by national governments, multinational governmental organisations, and treaty organisations.<sup>674</sup>

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a Country-Code Top-Level Domain (ccTLD) IANA <<https://www.iana.org/help/cctld-delegation>>. In 2014, Framework of Interpretation Working Group (FOIWG) presented 'its recommendations on the topics of Consent, Significantly Interested Parties and Revocation (unconsented redelegation)' to 'provide IANA staff and the ICANN Board clear guidance in' clarifying 'existing policies and facilitating consistent and predictable application of these policies applicable to delegations and redelegations of ccTLDs'. See FOIWG, *Framework of Interpretation of Current Policies and Guidelines Pertaining to the Delegation and Redelegation of Country-Code Top Level Domain Names* (October 2014) ICANN <<https://ccnso.icann.org/workinggroups/foi-final-07oct14-en.pdf>>.

<sup>670</sup> ICANN, above n665 (a).

<sup>671</sup> For more information, please see sections 4.3 and 4.4 of Chapter 4 in this dissertation.

<sup>672</sup> Milton L. Mueller, above n3, 205-206.

<sup>673</sup> Milton L. Mueller, above n3, 206; *ICANN Bylaws 1998* Art. VII, § 3(a). See ICANN, *Bylaws* (21 November 1998) <<https://www.icann.org/resources/unthemed-pages/bylaws-1998-11-23-en>>.

<sup>674</sup> *ICANN Bylaws 1998* Art. VII, § 3(a). See ICANN, above n673 (b).

The GAC's main responsibility was to provide recommendations on the relationship between ICANN and national governments for ICANN, especially related to the ICANN policy, a variety of laws, and international agreements.<sup>675</sup> Although ICANN was a private company, national governments had played a more and more important role in it since its establishment. Being members and observers of the GAC, nearly 200 governments around the world could discuss the relevant domain name policies,<sup>676</sup> although only 17 of them with member status attended its first meeting in 1999.<sup>677</sup> China joined the GAC when it was founded and actively participated in the global governance of domain names<sup>678</sup> though China left GAC for quite a few years.<sup>679</sup>

After the release of the ICANN Bylaws 2.0<sup>680</sup>, the GAC could be involved in the bottom-up policy decision process in ICANN.<sup>681</sup> Although the initial purpose of the establishment of the GAC, as viewed by America, was to keep national governments out of the affairs of ICANN,<sup>682</sup> the goal of ICANN was to gain legitimacy via encouraging national governments to attend the GAC.<sup>683</sup> Ultimately, the GAC became a significant participant in the decision-making process of ICANN;<sup>684</sup> excluding encroaching on the electoral affairs of board members, its influence was felt throughout the ICANN.<sup>685</sup> In February 2000, the GAC submitted the Principles for Delegation and Administration of ccTLDs (GAC Principles) to ICANN.<sup>686</sup> The GAC Principles formulated a check and balance system in the management of ccTLDs

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<sup>675</sup> Ibid.

<sup>676</sup> Wolfgang Kleinwaechter, above n658, 1115.

<sup>677</sup> GAC, *Communiqué of the Governmental Advisory Committee* (2 March 1999) ICANN <<http://archive.icann.org/en/committees/gac/communique-02mar99.htm>>; See John Selby, above n137, 427.

<sup>678</sup> GAC, above n677.

<sup>679</sup> For more information, please see the next paragraph in this section.

<sup>680</sup> ICANN, *Bylaws for Internet Corporation for Assigned Names and Numbers* (2002) ICANN <<https://www.icann.org/resources/pages/governance/bylaws-en>>.

<sup>681</sup> Wolfgang Kleinwaechter, above n658, 1122.

<sup>682</sup> Milton L. Mueller, above n3, 206.

<sup>683</sup> John Selby, above n137, 420.

<sup>684</sup> Milton L. Mueller, above n3, 206.

<sup>685</sup> Ibid.

<sup>686</sup> GAC, above n130.

among ICANN members, assigned domain name registries and relevant national governments; that is, it provided a system model of the relationship among them.<sup>687</sup> However, none of these principles, RFC 1591, or ICP-1, were legally binding. Their authority came from ICANN, because ICANN technically was able to re-delegate a state's ccTLD to other institutions willing to be subject to these rules.<sup>688</sup>

Nevertheless, GAC faced an unavoidable diplomatic incident when it sought influence over ccTLDs.<sup>689</sup> Specifically, China's Ministry of Information Industry (MII) joined the GAC in March 1999,<sup>690</sup> and Taiwan's Directorate General of Telecommunications (DGT) joined the GAC in the name of a distinct economy (Taiwan) in July 1999.<sup>691</sup> Beijing had always pursued a 'one China' foreign policy, but Taiwan had not joined the GAC under the name of 'Chinese Taipei', which was preferred by China. Thus, Beijing negotiated with the GAC and the DGT regarding this naming issue. After negotiations failed to achieve a satisfactory result, the MII withdrew from the GAC in 2001.<sup>692</sup> The specific negotiating process was as follows<sup>693</sup>:

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<sup>687</sup> See Marc Watkins, above n7, 154; Peter K. Yu, above n2, 398.

<sup>688</sup> Marc Watkins, above n7, 154. For more information about the specific formulating process of the GAC principles, please see John Selby, above n137, 432-437.

<sup>689</sup> See John Selby, above n137, 429.

<sup>690</sup> GAC, above n677.

<sup>691</sup> Directorate General of Telecommunications, *ICANN GAC naming issue summary* (24 March 2005) <[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Freport.nat.gov.tw%2FReportFront%2Freport\\_download.jsp%3FsysId%3DC09501476%26fileNo%3D004&ei=G51tVf24EliOmwW8yoGoBA&usg=AFQjCNGQ2Wk6KWazNM29RmQTO-nUPC1z7Q&bvm=bv.94455598,bs.1,d.dGY](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Freport.nat.gov.tw%2FReportFront%2Freport_download.jsp%3FsysId%3DC09501476%26fileNo%3D004&ei=G51tVf24EliOmwW8yoGoBA&usg=AFQjCNGQ2Wk6KWazNM29RmQTO-nUPC1z7Q&bvm=bv.94455598,bs.1,d.dGY)>.

<sup>692</sup> For more details, please see *ibid*; Chen-Dong Tso, above n115, 136; Tristan Galloway and Baogang He, 'China and Technical Global Internet Governance: Beijing's Approach to Multi-Stakeholder Governance within ICANN, WSIS and the IGF' (2014) 12 (3) *China: An International Journal* 72, 80; Severine Arsene, *The Impact of China on Global Internet Governance in an Era of Privatized Control* (May 2012) slide 5 <[https://hal.inria.fr/file/index/docid/704196/filename/circ\\_14mai.pdf](https://hal.inria.fr/file/index/docid/704196/filename/circ_14mai.pdf)>; Rebecca MacKinnon, *China @ ICANN: Thoughts from Former CEO Paul Twomey* (03 July 2009) <<http://rconversation.blogs.com/rconversation/2009/07/china-icann-thoughts-from-former-ceo-paul-twomey.html>>; Chinese Domain Name Consortium, *The Proposal for Internationalizing ccTLD Names* (June 2005) <<https://www.icann.org/en/system/files/files/idn-tld-cdnc.pdf>>.

<sup>693</sup> As access to information is limited, this dissertation only can refer to some aspects of the facts. When more documents become publicly available in the future, scholars who are interested in this history are encouraged to explore it further.

- (1) On 26 July 2000, an official of ICANN privately informed the DGT that its name 'Taiwan' might be changed to 'Chinese Taipei' due to the objection from Beijing, but this proposal was rejected by Taiwan.
- (2) From 7 to 8 September 2001 in Montevideo, Uruguay, in GAC Meeting 10, Chair of ICANN-GAC, Dr Paul Twomey, privately proposed that Taiwan change its name from 'Taiwan' to 'Chinese Taipei', but this proposition was rejected by Taiwan.
- (3) From 11 to 12 November 2001 in Marina del Rey, USA, in GAC Meeting 11, China's representative, CHEN Ying, questioned that the DGT attended the meeting with the name of 'Taiwan'. After fruitless negotiations on the name issue with Taiwan DGT, China quit the GAC meeting at that time. During this meeting, the Chair of GAC said that Taiwan would not be forced to change its name, but he hoped that Taiwan could take the initiative to change its name to 'Chinese Taipei'.
- (4) From January to December 2002, after Beijing refused to attend GAC Meeting 11 in Marina del Rey, China was not represented at GAC meetings, including GAC Meeting 14, which was held in Shanghai, China on 27–29 October 2002.
- (5) From 23 to 25 March 2003 in Rio de Janeiro, Brazil, in GAC Meeting 16, Dr Twomey, president of the new ICANN GAC meetings (former Chair of the GAC), and Sharil Tarmizi, current Chair of the GAC, privately proposed the name membership issue again. They asked that, due to strong pressure from the European Union and mainland China, Taiwan change its name to 'Chinese Taipei'.
- (6) From 22 to 25 June 2003 in Montreal, Canada, in GAC Meeting 17, Sharil Tamizi, Chair of GAC, asked Taiwan to accept or to make concrete a feasible proposal to change its name within 30 days, otherwise the name of 'Taiwan' would be changed to 'Taiwan, Province of China' according to ISO-3166 rule.
- (7) On 3 July 2003, the GAC website changed the name of 'Taiwan' to the 'Distinct Economy of Taiwan' when publishing the list of GAC Meeting 16 attendees.
- (8) On 7 October 2003, the Chair of GAC said China did not accept the membership name of 'Distinct Economy of Taiwan'. He recommended Taiwan to rename its membership name of GAC under the APEC framework, and Taiwan said it would continue consultations on this issue with Beijing.

- (9) From 26 to 28 October 2003 in Carthage, Tunisia, in GAC Meeting 18, the conference organizer changed the nameplate of 'Taiwan' to 'Taiwan, Province of China'. But the DGT changed this name back to 'Taiwan' after its deputy director of the DGT, approached the secretarial staff group about the issue.
- (10) On 1 December 2003, during a visit to Taiwan, the president of ICANN, Paul Twomey, recommended resolution of the Taiwan name issue in GAC according to the mode of APEC members. So as to moderate pressure from China and other countries which proposed that ICANN should merge into the International Telecommunication Union (ITU), Twomey recommended that Taiwan accept 'Chinese Taipei' as its membership name in GAC, and noted that Beijing agreed to this name. Taiwan still did not agree to rename.
- (11) On 12 February 2004, before the GAC Meeting 19, Taiwan argued that if Taiwan changed its name to 'Chinese Taipei', GAC should ensure Taiwan had equal membership rights and would not propose the name issue again.
- (12) On 3 March 2004 in Rome, Italy, in GAC Meeting 19, the president of ICANN stated that mainland China had agreed to come back to GAC, but the prerequisite was that ICANN should sign a Memorandum of Understanding (MoU) with the Ministry of Information Industry of China (MII). Some provisions of the MoU were as follows: it should state the one-China policy; China was the GAC member country, including Hong Kong, Macao, and Chinese Taipei; without China's consent, the national anthem, flag, or nameplate should not be changed. However, Taiwan stated that it could not accept the way that ICANN privately contracted with Beijing to resolve the name issue of Taiwan.
- (13) From 29 November to 6 December 2004 in Cape Town, South Africa, in GAC Meeting 21, the CEO of ICANN notified Taiwan that because China was currently focused on the United Nations World Summit on the Information Society (WSIS) and the Working Group on Internet Governance (WGIG), the name issue of Taiwan would not be discussed during the current meeting and would be settled, depending on China's response, at a future date.<sup>694</sup>
- (14) In 2009, when Taiwan changed its name to 'Chinese Taipei', mainland China

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<sup>694</sup> There is a big gap between 2004 and 2009 due to the lack of relevant information and data, which could be filled in future by other academics when the relevant materials are released.

finally re-joined the GAC.<sup>695</sup>

According to Rebecca MacKinnon, Beijing re-joined the GAC for the following reasons: First, Beijing did not want the Chen Shui-bian government supporting the independence of Taiwan to have any legitimacy, and the latter did not have enough bargaining power against Beijing. In the end, Taiwan had to agree to the name of 'Chinese Taipei' as its member name in ICANN so as to end the dispute. During the Ma Ying-jeou government, Taiwan and Beijing both had a pragmatic attitude to dealing with the name issue in the real world and the online world. Second, in the short and medium term, China and ICANN both needed each other's support. For China, it had always supported the reform of internet governance in favour of a multi-lateral model and against the multi-stakeholder model. That was that the Internet should be governed by sovereign governments.<sup>696</sup> In the long term, the relationship between ICANN, a unique bottom-up multistakeholder model, and the US DoC faced challenges from China, Brazil, Iran, the EU, and other countries. These countries suggested that ICANN should be operated by multiple governments and that it should hand over its managing rights to the organisations of the United Nations, such as the International Telecommunication Union (ITU).<sup>697</sup> Therefore, for self-interest, ICANN and China both needed to end the confrontation and to begin to cooperate. Third, ICANN would implement two major policies in 2010, and to the way in which these were implemented would have a significant impact on Chinese interests. These two policies were: (1) ICANN would allow any player, such as religious organisations, political parties, companies, or individuals, to register new gTLDs. (2) ICANN would

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<sup>695</sup> See DGT, *ICANN GAC Hui Ji Ming Cheng Ji Yao* (24 March 2003) <[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Freport.nat.gov.tw%2FReportFront%2Freport\\_download.jsp%3FsysId%3DC09501476%26fileNo%3D004&ei=G51tVf24EliOmwW8yoGoBA&usg=AFQjCNGQ2Wk6KWazNM29RmQTO-nUPC1z7Q&bvm=bv.94455598,bs.1,d.dGY](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Freport.nat.gov.tw%2FReportFront%2Freport_download.jsp%3FsysId%3DC09501476%26fileNo%3D004&ei=G51tVf24EliOmwW8yoGoBA&usg=AFQjCNGQ2Wk6KWazNM29RmQTO-nUPC1z7Q&bvm=bv.94455598,bs.1,d.dGY)>; *GAC Meetings Archive* ICANN <<https://gacweb.icann.org/display/gacweb/GAC+Meetings+Archive>>; Chen-Dong Tso, above n115, 136; Tristan Galloway and Baogang He, above n692, 80; Severine Arsene, above n692, slide 5; John Selby, above n137, 429-430.

<sup>696</sup> Multistakeholder model is defined as two or more classes of actors, such as states, formal intergovernmental organisations, firms, and civil society actors, engaged in a common governance enterprise concerning issues they regard as public in nature, and characterized by polyarchic authority relations constituted by procedural rules. See Mark Raymond and Laura DeNardis, 'Multistakeholderism: Anatomy of an Inchoate Global Institution' (2015) 7 (3) *International Theory* 572, 573, 576.

<sup>697</sup> See Rebecca MacKinnon, above n692; Chinese Domain Name Consortium, above n692; Tristan Galloway and Baogang He, above n692, 80-91.

internationalize the top-level domain. That was, any character, no longer just the Roman/English alphabet, could be registered as a domain name. This meant that Chinese characters could now be registered as domain names. Although the Chinese government could control and manage the ‘中国’ as its administration on the .cn, the gTLDs were unlike ccTLDs. Any player in the world with sufficient resources could apply and operate the Chinese gTLDs. If someone registered the .falungong (a cult restricted by China), the .Falun Gong, or some similar name, ICANN's position was that they were not responsible for determining the content of a domain name, nor for evaluating its quality. Consequently, due to the above political and economic considerations, China had again become a GAC member in 2009.<sup>698</sup>

## B. International Domain Name Rules and Regulations

RFC 2240 (released in 1997) and RFC 2352 (released in 1998), Uniform Domain Resolution Policy (UDRP) (released in 1999), and WIPO ccTLD Best Practices (released in 2001) as international domain name rules and regulations, all exerted different influences on the regulation of the .cn ccTLD in China.

### (1) RFC 2240, 2352

RFC 2240, written by O. Vaughan, was released to resolve the problem of exhausted resources of ccTLDs and to deal with the situation that different organisations often competed for the same domain name. It argued that the method of creating more TLDs so different organisations could register the same domain name had three drawbacks: first, users would confuse the corresponding relationship between specific organisations and different TLDs; second, in order to avoid confusion, large companies would register the same domain name in all TLDs, which failed to solve the problem of domain name depletion, but also made the situation worse; third, trade mark holders or other legal name holders could still claim the new gTLD's ownership, which would lead to more disputes over domain names. So although the creation of a new gTLD method could not solve the existing contradictions, extending the structure of the second-level domain names under the existing ccTLDs could solve the above

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<sup>698</sup> Ibid.

problems.<sup>699</sup> In 1998, Vaughan published RFC 2352 (which abolished RFC 2240), specifically setting forth how to extend the structure of second-level domain names under current ccTLDs.<sup>700</sup> His suggestion in RFC 2240 that second-level domain names under a ccTLD could be created within that country was implemented by the IAMoDNR (1997).<sup>701</sup>

## (2) UDRP

The UDRP was one of the main policies used to resolve domain name cybersquatting disputes for ICANN, and also the first international Internet governance mechanism to regulate disputes on domain name ownership.<sup>702</sup> Since its release on 29 September 1999,<sup>703</sup> the UDRP has been considered a template for electronic commercial disputes.<sup>704</sup> The DoC praised the UDRP as an effective and inexpensive solution to disputes, and other government agencies also affirmed the significant role of the UDRP in resolving domain name disputes.<sup>705</sup> While critics have identified weaknesses in the UDRP process,<sup>706</sup> it was widely accepted as being a simple and economical process for

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<sup>699</sup> O. Vaughan, *RFC 2240: A Legal Basis for Domain Name Allocation* (November 1997) IETF <<https://tools.ietf.org/html/rfc2240>>.

<sup>700</sup> O. Vaughan, *RFC 2352: A Convention For Using Legal Names as Domain Names* (May 1998) IETF <<https://tools.ietf.org/html/rfc2352>>.

<sup>701</sup> Above n549, s 8. For more information, please see section 4.3 of Chapter 4 in this dissertation.

<sup>702</sup> Jay P. Kesan and Andres A. Gallo, 'Pondering the Politics of Private Procedures: The Case of ICANN' (2008) 4 (2) *A Journal of Law and Policy for the Information Society* 345, 356.

<sup>703</sup> *Uniform Domain Name Dispute Resolution Policy* (29 September 1999) ICANN <<https://archive.icann.org/en/udrp/udrp-policy-29sept99.htm>>.

<sup>704</sup> A. Michael Froomkin, 'ICANN's Uniform Dispute Resolution Policy – Causes and (Partial) Cures' (2002) 67 (3) *Brooklyn Law Review* 605, 608.

<sup>705</sup> *Ibid*, 609.

<sup>706</sup> John Selby, above n137, 377-378; John Selby, 'Provider Selection under the ICANN UDRP: An Analysis Whether ICANN's Original Goals are Being Achieved' (2003) (5) *Computer Law Review International* 133. A. Michael Froomkin thought the UDRP had defective performance in the following aspects: (1) equity issues; (2) proof and evidence; (3) schedule problems; (4) ensuring equal opportunities to file legal suits; (5) improvement of accountability and transparency of the process. See A. Michael Froomkin, above n704, 688. For other critics on the drawbacks of the UDRP, please see Luke Walker, 'ICANN's Uniform Domain Name Dispute Resolution Policy' (2000) 15 (1) *Berkeley Technology Law Journal* 289; John White, 'ICAN1Ws Uniform Domain Name Dispute Resolution Policy in Action' (2001) 16 (1) *Berkeley Technology Law Journal* 229; Robert Badgley, 'Improving ICANN in Ten Easy Steps: Ten Suggestions for ICANN to Improve its Anti-Cybersquatting Arbitration System' (2001) 2001 (1) *University of Illinois Journal of Law, Technology & Policy* 109; Richard E. Speidel, 'ICANN Domain Name Dispute Resolution, The Revised Uniform Arbitration Act, and the Limitations of Modern Arbitration Law' (2002) 6 (1) *Journal of Small and Emerging Business Law* 167; Elizabeth Thornburg, 'Fast, Cheap, and Out of Control: Lessons From the ICANN Dispute Resolution Process' (2002) 6 (1) *Journal of Small and Emerging Business Law* 191.

resolving some of the issues of trade mark and domain name disputes; and since 1999, the UDRP has efficiently and successfully solved thousands of disputes.<sup>707</sup> This process was used as a reference template for China to solve domain name disputes under the .cn ccTLD.<sup>708</sup>

### (3) WIPO ccTLD Best Practice

The release of the DNS White Paper gave the World Intellectual Property Organisation (WIPO) an opportunity to create its own domain name dispute resolution procedure.<sup>709</sup> In 1990, WIPO released the Final Report of the WIPO Internet Domain Name Process (Final Report), mainly driven by trade mark holders, which was an online dispute resolution process for resolving conflicts between the gTLD and intellectual property rights.<sup>710</sup> This process was committed to providing fast, efficient and low-cost international arbitration, but it was not welcomed by domain name holders because the Final Report was more likely to protect trade mark rights than legitimate domain name rights.<sup>711</sup> In June 2001, WIPO issued the ccTLD Best Practices for the Prevention and Resolution of Property Disputes (ccTLD Best Practices), which focused on resolving problems in the practice and procedure of domain name registration related to protection of intellectual property, including domain name registration agreements, the collection and the possibility of domain name registrants' contact information, and the Alternative Dispute Resolution (ADR) Mechanism for resolving domain name disputes.<sup>712</sup> Although domestic legal procedures varied widely between countries, the ccTLD Best Practices recommended that the establishment of ADR should at least meet the following conditions: (1) the ADR process should be mandatory; (2) judgments should be based on all the facts of a situation; (3) transfer of the domain

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<sup>707</sup> Peter K. Yu, above n2, 405.

<sup>708</sup> For more information about the 'make-or-buy' choice of domain name disputes resolution, please see sections of 5.3.1 and 5.3.2 in this chapter.

<sup>709</sup> A. Michael Froomkin, above n704, 624.

<sup>710</sup> WIPO, *The Management of Internet Names and Addresses Intellectual Property Issues: Final Report of the WIPO Internet Domain Name Process* (April 30, 1999) WIPO <<http://www.wipo.int/export/sites/www/amc/en/docs/report-final1.pdf>>.

<sup>711</sup> A. Michael Froomkin, above n704, 636.

<sup>712</sup> WIPO, *ccTLD Best Practices for the Prevention and Resolution of Intellectual Property Disputes* (20 June 2001) WIPO <<http://www.wipo.int/amc/en/domains/bestpractices/index.html>>.

name should be frozen before the dispute was settled; (4) direct enforcement; (5) fast closure; (6) moderate costs; (7) adjudication and management of disputes should both be independent from the national domain name registries; (8) ADR did not replace courts: the parties could file a suit with the court before, during or after the process of ADR; (9) clearly stipulating which kinds of conflicts the ADR would resolve.<sup>713</sup>

The ccTLD Best Practices encouraged national ccTLD registries to adjust and localize the UDRP model for establishing ADR mechanisms within their own jurisdictions.<sup>714</sup> Although it set up a number of guiding principles, ccTLD Best Practices gave away the power of drafting and releasing domain name policies or regulations to the ccTLD registries within their own jurisdictions. For instance, the ccTLD registries could determine whether the domain name registrants had to be residents in their own countries, whether to obey the UDRP dispute resolution mechanism, and whether to publish personal information in the WHOIS database, and so on.<sup>715</sup> Hence, if China wanted to establish its own ADR, it had guidelines and a template from the ccTLD Best Practices.<sup>716</sup>

Besides the influence of the international legal environment on the regulation of the .cn ccTLD in China, the Chinese domestic legal environment played a significant role in influencing development of the regulation of the .cn ccTLD.

### 5.1.2.2 Domestic Legal Environment

In 1997, the 15th Report explicitly proposed to strengthen legislative work, improve the quality of legislation, and to form the socialist legal system with Chinese

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<sup>713</sup> Ibid; A. Michael Froomkin, above n704, 613; Graeme B. Dinwoodie, above n133, 203-204.

<sup>714</sup> WIPO, above n712.

<sup>715</sup> Peter K. Yu, above n2, 404.

<sup>716</sup> For more information about the domain names disputes resolutions that China borrowed from WIPO ccTLD Best Practices, please see section of 5.3.1 in this chapter.

characteristics by the year 2010.<sup>717</sup> Since the Third Plenary Session of the Eleventh Central Committee of the CCP in 1999, aside from the Constitution of China (including amendments to the Constitution), the National People's Congress and its Standing Committee passed a total of 245 laws and 104 decisions on legal issues; the State Council passed more than 800 administrative regulations; local People's Congresses and their Standing Committees formulated more than 5500 local regulations (including regulations of the national autonomous local people's congresses); and ministries and local governments issued more than 22,000 governmental regulations.<sup>718</sup> Hence, Chinese governments had established rules for almost all industries. When every industry had its own laws and regulations, how to improve the quality of these laws and regulations and how to make them adapt to economic and social developments were urgent problems that needed to be solved by China and its governments over the next ten years. Simultaneously, the 15th Report also pointed out that China should implement a protection system for intellectual property rights.<sup>719</sup>

In order to join in the World Trade Organisation (WTO), China actively established a protection system for intellectual property rights and completed an integration with international economic rules.<sup>720</sup> However, although China's protection for intellectual property rights has already progressed a long way in the areas of legislation, judicature, and administrative management,<sup>721</sup> the intellectual property system transplanted from western developed countries was strongly rejected within Chinese national conditions, with the result that current Chinese intellectual property legislation is disconnected from judicial practice and theory is disconnected from practice, so intellectual property protection was less effective than it might be.<sup>722</sup> In conclusion, in this context, the proposition of implementing protection for intellectual property

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<sup>717</sup> JIANG Zemin, above n630.

<sup>718</sup> ZHANG Shixin, XU Jianghui, and ZHANG Bo, 'Shi Lun Xian Fa Xiu Zheng An De Shen Yuan Yi Yi' (1999) (3) *Mao Ze Dong Deng Xiao Ping Li Lun Yan Jiu* 14, 14.

<sup>719</sup> JIANG Zemin, above n630.

<sup>720</sup> See SHEN Muzhu, 'Lun TRIPS Xie Yi Yu Zhong Guo Zhi Shi Chan Quan Bao Hu' (2001) (3) *Jiang Hai Xue Kan* 56, 60; QIAO Sheng, 'Wo Guo Zhi Shi Chan Quan Bao Hu De Xian Zhuang Yu Si Kao' (2002) 89 (3) *Fa Shang Yan Jiu* 120.

<sup>721</sup> See ZHENG Chengsi, *Zhi Shi Chan Quan Wen Cong (San)* (Zhong Guo Zheng Fad A Xue Chu Ban She, 2000) 382.

<sup>722</sup> QU Sanqiang, 'Bei Dong Li Fa De Bai Nian Lun Hui – Tan Zhong Guo Zhi Shi Chan Quan Bao Hu De Fa Zhan Li Cheng' (1999) 62 (2) *Zhong Wai Fa Xue* 119.

rights by the CCP provided strategic guidance for governments and agencies to deal with the disputes between holders of domain names and trade marks.

In addition, Constitutional Amendment in 1999<sup>723</sup> formulated that ‘in the primary stage of socialism, China will adhere to a basic economic system in which public ownership is the main part and a multi ownership economy develops together, and stick to a distribution system in which the distribution method according to work is in dominant and a variety of modes of distribution methods coexist.’<sup>724</sup> ‘Non-public sectors of the economy, including individual, private economy and others, are also the important parts of the socialist market economy.’<sup>725</sup> ‘The state protects the legitimate rights and interests of the individual and private economy. The State shall guide, supervise, and manage the individual and private economy.’<sup>726</sup> Through clarifying the status and functions of the non-public economy in the socialist market economy, China guided governments at all levels to attach importance to and protect the legitimate rights and interests of the individual and private economy.<sup>727</sup> This provided a legal guarantee for the rapid development of the domain name industry constituted in the individual and private economy.

After an introduction and analysis of the political and legal environment in which the first institutional change of the IAMoDNR occurred, the following will specifically analyse the institutional change of the IAMoDNR trigger by politics, laws and regulations, economic factors, and technology.

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<sup>723</sup> *Constitutional Amendment of the People's Republic of China* (1999) passed at the Second Session of the Ninth National People's Congress, 15 March 1999.

<sup>724</sup> *Constitutional Amendment 1999* (China) s 14.

<sup>725</sup> *Ibid*, s 16.

<sup>726</sup> *Ibid*.

<sup>727</sup> SHI Kune, ‘Shi Lun Xian Fa Xiu Zheng An De Te Dian’ (1999) (2) *Zheng Fa Lun Cong* 12, 12.

## 5.2 Institutional Change Triggered by Politics

The reform of governmental agencies and Internet political security were the two key factors to trigger institutional change from the Interim Administrative Measures on Domain Name Registration (IAMoDNR) to the Administrative Measures on China's Domain Names (AMoCDN) in 2002. This section will detail these two factors and analyse the specific contents of institutional change caused by them.

### 5.2.1 The Reform of Governmental Agencies

In 1997, the 15th Report pointed out that in order to promote the reform of governmental agencies, governments should work in accordance with the requirements of the socialist market economy, transform government functions, and carry on the reform according to the principles of simplification, unification and efficiency; should set up a high-efficiency, coordinated operation, standard administrative act of the administrative system for improving service levels; and should reorganize the comprehensive economic departments into the macro-control departments, adjust and reduce professional economic sectors, strengthen law enforcement and regulatory authorities, and cultivate and develop social intermediary organisations.<sup>728</sup> According to the instructions of the 15th Report, the State Council proposed a reform plan for government agencies.

The State Council explained that due to the restriction of historical conditions and the macro environment, many problems that existed in government agencies were still not fundamentally solved after several reforms, which demonstrated that the contradiction between organisational structure and the development of a socialist market economy had become increasingly prominent. Specifically, first, the basic framework of the existing government agencies was gradually formed under the conditions of the implementation of the planned economic system. The main drawback of this was non-separation between governments and enterprises. Direct

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<sup>728</sup> JIANG Zemin, above n630.

government intervention in the production and operating activities of enterprises undermined the scientific decision-making process needed for an investment system, which mean that the path of responsibility was unclear and wrong decisions were made, and also it was afforded the fundamental role of the market in the allocation of resources. Second, the establishing principles of existing governmental agencies were set up under the condition that the socialist legal system was not perfect. Governments mainly relied on administrative means to govern economic and social affairs, when most of them should have been dealt with through legal methods or through social intermediary organisations instead of the method of setting up the administrative agencies in governments. This old method put too much social responsibility and business conflict on governments. Third, existing government agencies had serious problems with being too large, overlapping, and being overstaffed. This not only bred officialism, and bureaucracy and encouraged corruption and malpractice, but also placed a heavy burden on the state's finances. Central and local government finances had almost become into the 'eating-finance' (spending too much budget on entertainment)<sup>729</sup>, which greatly affected governments' ability to build socialism and maintain social public interests.<sup>730</sup> Therefore, a reform of government agencies was imminent. On the one hand, the socialist market economic system was gradually established; cooperation and exchange with international economy, technology, and culture continued to expand; and modernization ensued. On the other hand, a considerable number of state-owned enterprises were experiencing difficulties in production and management, the number of laid-off and unemployed workers increased, increasing social contradictions could not be ignored; agricultural infrastructure was still weak; there were huge differences between urban and rural areas, and between workers and peasants; blind investment and duplicated construction resulted in many bad loans which may trigger potential financial risks to some extent; and the impact of the Asian financial crisis was spread throughout the world, which was already challenging the development of China's economy.<sup>731</sup>

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<sup>729</sup> According to agent theory, a set of rules developed by rulers constrain the behavior of agents, but the interests of rulers will more or less lose to agents. Specifically in China, the interests of the CCP lost to Chinese authorities which utilized eating finance to consume luxuriously. See Douglass C. North, above n298, 253.

<sup>730</sup> LUO Gan, *Guan Yu Guo Wu Yuan Ji Gou Gai Ge Fang An De Shuo Ming (1998)* (6 May 1998) Zhong Guo Ren Da Wang <[http://www.npc.gov.cn/wxzl/gongbao/1998-03/06/content\\_1480093.htm](http://www.npc.gov.cn/wxzl/gongbao/1998-03/06/content_1480093.htm)>.

<sup>731</sup> Ibid.

In this context, the State Council proposed to reduce the existing ministries and commissions from 40 to 29, dismantled 15 ministries and commissions, but added four new ministries and commissions (National Defense Science and Technology Industry Committee, Ministry of Information Industry, Ministry of Labor and Social Security, Ministry of Land and Resources), changed three existing ministries' and commissions' names, and finally retained 22 ministries, commissions, and agencies.<sup>732</sup> These institutions were divided into the macro-control departments and the professional economic administrative departments with responsibility to formulate industry planning and policy, to conduct industry management, to guide the adjustment of the product structure in industry, and to maintain equal competition order for industry. Government departments, being separated from enterprises, effectively transformed their functions, and bureaucrats no longer directly managed enterprises.<sup>733</sup>

The Ministry of Information Industry (MII) belonged to the professional economic administrative department whose main duties were to revitalize the electronic information product manufacturing industry, communication industry, and software industry; to promote informatization in the national economy and social services; to formulate industry planning, policies, and regulations; to plan and manage the national communication backbone networks (including the local and long-distance telecommunication network package), radio and television networks (including wireless and wired television networks), and military departments' and other departments' special communication networks; to rationally allocate resources; to avoid duplicated construction; and to ensure information security.<sup>734</sup> The above reform program of the State Council was passed on the first meeting of the Ninth National People's Congress on 10 March 1998.<sup>735</sup> In the same year, O-IWLG-SC transferred its administrative functions to the MII,<sup>736</sup> which meant that the macro-

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<sup>732</sup> Ibid.

<sup>733</sup> Ibid.

<sup>734</sup> Ibid.

<sup>735</sup> *Di Jiu Jie Quan Guo Ren Min Dai Biao Da Hui Di Yi Ci Hui Yi Guan Yu Guo Wu Yuan Ji Gou Gai Ge Fang An De Jue Ding* (10 May 1998) Ren Min Wang <<http://cpc.people.com.cn/GB/64184/64186/66688/4494450.html>>.

<sup>736</sup> XUE Hong, above n121, 562.

control department had transformed its micro-control functions to a professional economic administrative department, according to the propositions of the 15th Report.

## **5.2.2 Institutional Change of the IAMoDNR Triggered by the Reform of Governmental Agencies**

The IAMoDNR regulated that the Leading Group for Information Technology Advancement under the State Council would administer China's Internet domain name system in 1997.<sup>737</sup> But the AMoCDN formulated that the Ministry of Information Industry was responsible for the administration of internet domain names in China.<sup>738</sup> Since then, the Chinese domain name registry was changed to the MII from the Leading Group for Information Technology Advancement under the State Council, which was in line with the State Council's proposal on the functional division of the macro-control departments and professional economic administrative departments.

The AMoCDN added clauses about the domain name registry in 2002. Specifically, domain name registry was responsible for:

- (1) Operating, maintaining and administering the corresponding top-level domain name servers and database and ensuring the secure and reliable operation of the domain name system.
- (2) Formulating the rules concerning domain name registration in accordance with the Regulations.
- (3) Selecting domain name registrars based on the principle of non-discrimination.
- (4) Supervising and administering the registration service provided by domain name registrars.<sup>739</sup>

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<sup>737</sup> Above n549, s 2.

<sup>738</sup> *Administrative Measures on China's Domain Names 2002* (China) s 5.

<sup>739</sup> *Ibid*, s 9.

From this time onwards, CNNIC no longer directly accepted registrants' applications to register domain names; this business was undertaken by domain name registrars that were privately owned. This change was in accordance with the guidance of the 15th Report that governmental agencies should delegate some functions to the social intermediary organisations. This new registration model for the domain name industry came from suggestions in RFC 920.<sup>740</sup> When Chinese key stakeholders faced the make-or-buy choice on this issue, they chose to buy, which meant authorities borrow all or most of their regulating design choices from other countries' or international organisations' similar regulations.<sup>741</sup>

### 5.2.3 Internet Political Security

The core of China's political security is the stability and effectiveness of the leading position of the CCP, which is mainly to adhere to the socialist system and to maintain the socialist ideology in the domestic scale, and to prevent hostile forces from dividing and westernizing China in the international sphere.<sup>742</sup> But the development of the Internet gradually weakened the mainstream ideology advocated by the CCP,<sup>743</sup> government control of the ideology gradually decreased, and the foundations restraining citizens' participation in politics began to shake.<sup>744</sup> Internet political security had affected the state's political security,<sup>745</sup> and it was also related to the security and unity of the whole of China<sup>746</sup>. Given China's historical experiences, it was feared that foreign political influences on China might result in unfair treaties and

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<sup>740</sup> J. Postel and J. Reynolds, above n5.

<sup>741</sup> For more information about the make-or-buy choice, please see section 3.2.1 of Chapter 3 in this dissertation.

<sup>742</sup> ZHOU Guoping, 'Wang Luo Fa Zhan Dui Wo Guo Zheng Zhi An Quan Ji Zhi De Chong Ji Ji Dui Ce' (2002) 142 (5) *Xue Xi Yu Tan Suo* 26, 26.

<sup>743</sup> LIU Wen, 'Wang Luo Hua Dui She Hui Zhu Yi Guo Jia Zheng Zhi An Quan De Tiao Zhan Ji Dui Ce' (2004) 154 (2) *She Hui Zhu Yi Yan Jiu* 100, 100.

<sup>744</sup> ZHOU Guoping, above n742, 27.

<sup>745</sup> HE Yueying, *Hu Lian Wang Gui Zhi Yan Jiu – Ji Yu Guo Jia Wang Luo Kong Jian An Quan Zhan Lue* (Bei Jing You Dian Da Xue Bo Shi Yan Jiu Sheng Xue Wei Lun Wen, 2012) 8.

<sup>746</sup> Ibid, 9.

cause a recession in the national economy, such as those that led to the first and the second Opium Wars.<sup>747</sup> For this reason, political security was and remains very significant to China and its governments.

The influencing factors for China's internet political security can be divided into two categories. One is the domestic political threat, such as that ethnic separatist forces use the internet to promote Taiwan, Tibet, and Xinjiang independence,<sup>748</sup> or that the general public question the administrative behaviour or public trust in governments through internet participation in politics; the other is the political threat from abroad, such as that the spread of democratic thought, liberalism, individualism, and human rights ideas derived from the United States and other western countries which could gradually influence and challenge the dominant position of socialist ideology in China.<sup>749</sup> Besides, the turbulent situation in Central Asia, the complex ethnic composition and religious beliefs in western China, and interlaced social structures and ethnic splitting forces and terrorist forces meant China faced an unprecedented battle to control information on the internet.<sup>750</sup> As a result, the security of information is related to the security and stability of the nation state in the information age.<sup>751</sup>

From Chinese governments' perspective and defending cyberspace sovereignty, the greatest threat from organisations to China's internet political security is from a new type of organisation particular to the internet age, namely Secret Internet Associations, which are initiated and organised secretly have the features of multiple political demands, secret development, changeable activity forms, and a complex member

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<sup>747</sup> LIU Lutian, *Zhong Guo Xian Dai Hua Zhong De Zheng Fu Yu Zheng Zhi Fa Zhan Yan Jiu* (Fu Dan Da Xue Bo Shi Yan Jiu Sheng Xue Wei Lun Wen, 2002) 13-14.

<sup>748</sup> Ibid, 30.

<sup>749</sup> LIU Wen, above n743, 101-102; CHEN Yinchang and ZHU Xinguang, 'Ling Jing Men Shi Jian Ji Qi Dui Wo Guo Zheng Zhi An Quan De Ying Xiang He Qi Shi' (2014) (3) *Yun Nan She Hui Ke Xue* 23, 26; LIU Wen, 'Lun Xin Xi Shi Dai De Wo Guo Zheng Zhi An Quan Zhan Lue' (2008) 7 (5) *Nan Yang Shi Fan Xue Yuan Xue Bao (She Hui Ke Xue Ban)* 1, 3; SONG Hailong, 'Lun Wang Luo Shi Dai De Zheng Zhi An Quan' (2014) 33 (4) *Luo Yang Shi Fan Xue Yuan Xue Bao* 29, 30.

<sup>750</sup> LIU Jianhua, 'Wang Luo Yu Qing Chuan Bo Dui Xi Bu Bian Jiang Min Zu Di Qu Zheng Zhi An Quan De Ying Xiang Yu Dui Ce' (2014) (8) *Zheng Zhi Yu She Hui* 8, 8.

<sup>751</sup> LIU Wen, above n749 (b), 4.

structure.<sup>752</sup> This kind of organisation can be divided into five types. The first type is political organisations constituted by persons actively participating in the civil democracy movement. Their main aims are to overthrow the leadership of the CCP and to subvert the socialist political system via making full use of the internet to produce and spread rumours, to recruit members, and to organize demonstrations.<sup>753</sup> The second one is political groups consisting of domestic residents who are dissatisfied with the status quo. Their criticism on the policies of the CCP or Chinese governments is different from mainstream views, and can lead to the decreasing credibility of the ruling party and governments.<sup>754</sup> The third one is illegal associations organized by ethnic separatists and religious extremists. Ethnic separatist forces in Xinjiang, Tibet, and Inner Mongolia, and some religious extremists, have formed political parties or set up organisations on the internet for recruiting members and disseminating an ethnic separatist ideology.<sup>755</sup> The fourth one is websites created by domestic human rights activists. They negotiate with administrative agencies or organize petitions on behalf of disadvantaged or vulnerable groups.<sup>756</sup> The fifth one is temporary internet groups discussing all kinds of topical social issues.<sup>757</sup> The formation and development of these organisations form a great challenge to China's internet political security and weaken the control of mainstream ideology by the CCP and Chinese governments on the internet. In order to deal with internet challenges to the socialist political system and socialist mainstream ideology, to weaken the influence of the Internet Groups Party Association on public opinion, and to control the development direction of public opinion,<sup>758</sup> MII modified the relevant provisions of the IAMoDNR.<sup>759</sup>

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<sup>752</sup> WANG Cunkui, 'Wang Luo Zu Dang Jie She Yu Guo Jia Zheng Zhi An Quan' (2008) 10 (1) *Jiang Nan She Hui Xue Yuan Xue Bao* 31, 31. Eric Talbot Jensen, above n7, 277-278.

<sup>753</sup> *Ibid.*, 31-32.

<sup>754</sup> *Ibid.*

<sup>755</sup> WANG Cunkui, above n752, 31-32.

<sup>756</sup> *Ibid.*

<sup>757</sup> *Ibid.*

<sup>758</sup> *Ibid.*, 31.

<sup>759</sup> For the specific changes to the provisions of the IAMoDNR, please see section 5.2.4 in this chapter.

## 5.2.4 Institutional Change of the IAMoDNR Triggered by Internet

### Political Security

For consideration of Chinese internet political security, MII made significant changes to naming principles and restrictions on domain names. In 1997, the IAMoDNR set out restrictions on domain names at and under the third level:

- (1) Without formal approval of the relevant state departments, 'CHINESE', 'CHINA', 'CN', 'NATIONAL' and other words shall not be used.
- (2) The names of other countries or regions, places, and international organisations which are known to the public shall not be used.
- (3) Without the approval of local governments, the full or abbreviated names of the administrative regions at or above the county level shall not be used.
- (4) Industry names or generic names of commodities shall not be used.
- (5) Enterprises' names or trade marks registered by others in China shall not be used.
- (6) Names harming the interests of the state, society, or the public shall not be used.<sup>760</sup>

In 2002, the AMoCDN elaborated on the naming principles of the IAMoDNR, stating that any of the following content:

- (1) those that are against the basic principles prescribed in the Constitution.
- (2) those jeopardizing national security, leaking state secrets, intending to overturn the government, or disrupting of state integrity
- (3) those harming national honour and national interests
- (4) those instigating hostility or discrimination between different nationalities, or

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<sup>760</sup> Above n549, s 11.

disrupting national solidarity

- (5) those violating state policies on religion or propagating cults and feudal superstitions
- (6) those spreading rumours, disturbing public order or disrupting social stability
- (7) those spreading pornography, obscenity, gambling, violence, homicide, terror, or instigating crimes
- (8) those insulting or libelling others and infringing other people's legal rights and interests
- (9) other contents prohibited in laws, rules and administrative regulations<sup>761</sup>

would not be included in any domain name registered and used by any organisation or individual. This is commonly known as the 'Nine Forbidden Principles' in China. It is not difficult to find that the IAMoDNR paid more attention to restrictions on national names, district names, organisational names, industry names, general names of commodities, and trade marks. But in 2002, the AMoCDN focused the restrictions on naming principles to tending to protect the state's solidarity and unity, to maintain social stability, and to safeguard the interests of the state and the public. Hence, considerations of internet political security caused the provisions of naming principles of China's domain names to undergo changes in 2002.

### 5.3 Institutional Change Triggered by Laws and Regulations

Under NIE theory, higher levels of laws and regulations constrain the formation and change of lower regulations. This section will introduce and analyse how the relevant laws and regulations relating to domain name dispute resolution have influenced institutional changes in the IAMoDNR.

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<sup>761</sup> Above n738, s 19.

### 5.3.1 Laws and Regulations Resolving Domain Name Disputes

From late 1996 to early 1997, serious cybersquatting by overseas agencies made it one of the hottest internet topics in China.<sup>762</sup> From then on, domain names were gradually given a lot more attention by firms, enterprises, and related scholars. The low cost of domain name registration, the highly efficient and fast application procedure, and the principle of 'first come, first served' meant that some individuals and groups registered a lot of trade mark names or firm names as domain names, which led to many disputes between domain name holders and trade mark rights holders.<sup>763</sup> Since the second half of 1998, Chinese courts have accepted cases involving internet disputes.<sup>764</sup> In August 1999, the court accepted and heard the first domain name dispute case involving unfair competition and trade mark infringement.<sup>765</sup> Since then, the competition for domain name ownership among domain name holders and other relevant rights holders has been settled by judicial proceedings.

Looking at the current situation of China's domain name dispute resolution, litigation is the main way .cn domain name disputes are resolved.<sup>766</sup> However, when the courts decided such cases, due to the fact that domestic laws or regulations did not have explicit provisions on how to resolve domain name disputes and also there was no legal precedent or experience that could be used for reference,<sup>767</sup> the courts could only take the trade mark Law, general principles of the Civil Law, or Anti Unfair Competition Law and other relevant provisions as the grounds for judgment, which resulted in inconsistent decisions about which law applied, so there was limited predictability for domain name disputes.<sup>768</sup> Further, resolving domain name disputes via litigation also had the following shortcomings: first, the jurisdiction of domain

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<sup>762</sup> ZHENG Chengsi, above n57, 8.

<sup>763</sup> WANG Fanwu and SHAO Mingyan, above n58, 33.

<sup>764</sup> Ibid.

<sup>765</sup> Ibid.

<sup>766</sup> GUO Dan and WANG Wei, 'Lun Wo Guo Yu Ming Bao Hu Fa Lv Ji Zhi De Wan Shan – Jian Ping Zhong Guo Hu Lian Wang Luo Xin Xi Zhong Xin Yu Ming Zheng Yi Jie Jue Ban Fa' (2007) 19 (12) *Jing Ji Yan Jiu Dao Kan* 113, 113.

<sup>767</sup> WANG Fanwu and SHAO Mingyan, above n58, 33.

<sup>768</sup> YIN Zhicheng, 'Shang Biao Fa Tiao Zheng Yu Ming Zheng Yi De Shi Zheng Fen Xi' (2005) 7 (6) *Xi Nan Zheng Fa Da Xue Xue Bao* 58, 63.

name dispute cases was difficult to clearly define; and second, lawsuit efficiency (the long time to achieve a result through filing lawsuits made that solution inefficient for domain name disputes) was low, but costs were high.<sup>769</sup> The high transaction costs, including litigation costs, made it difficult for domain name or trade mark owners, because most of these general defendants could not afford the burden of defence.<sup>770</sup> Many companies preferred simple, inexpensive, and more efficient ways to resolve domain name disputes.<sup>771</sup> Subsequently, the establishment of special domain name dispute resolution rules and procedures became a priority.<sup>772</sup>

To consolidate the application of laws in the Beijing courts for judging domain names disputes, the Beijing Municipal Higher People's Court issued Guidance on the trial of Civil Cases of Intellectual Property Arising from the Registration and Use of Domain Names on 15 August 2000, which specified how to apply laws from the aspects of case acceptance, jurisdiction, the cause of action, malicious registration of others' well-known trade marks, embezzlement of others' domain names, and legal responsibility. On 17 July 2001, the Supreme People's Court released the Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Civil Disputes Involving Computer Network Domain Names, which was used for guiding Chinese courts at all levels to hear the cases of domain name disputes. Finally, it led to more consistent decision making on domain name disputes across Chinese courts in provinces, municipalities, and autonomous regions in accordance with this interpretation.

Simultaneously, CNNIC was responsible for the specific work of the .cn domain names. So it released the Chinese Domain Name Dispute Resolution Policy (Trial Implementation) (CDNDRP) in November 2000. However, the CDNDRP (Trial

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<sup>769</sup> HU Tingsong, 'Yu Ming Zheng Yi Zai Xian Jie Jue Ji Zhi Tan Xi' (2007) 19 (3) *Chong Qing You Dian Da Xue Xue Bao* (She Hui Ke Xue Ban) 49, 50-51.

<sup>770</sup> Milton L. Mueller, above n3, 123; GUO Yujun and XIAO Fang, 'Wang Shang Zhong Cai De Xian Zhuang Yu Wei Lai' (2003) 118 (2) *Fa Xue Ping Lun* 30, 30; CNNIC, *Zhong Guo Yu Ming Chan Ye Bao Gao*, May 2009, 48.

<sup>771</sup> Jonathan Zittrain, 'ICANN: Between the Public and the Private Comments before Congress' (1999) 14 *Berkeley Technology Law Journal* 1071, 1079.

<sup>772</sup> HAO Yuqiang, above n83, 23.

Implementation) was only applicable to disputes between Chinese domain names and trade marks protected by Chinese laws,<sup>773</sup> and the decisions made by dispute resolution agencies could only relate to the changes of registration status of domain names, could not involve any other relief, and had to be unconditional obedience to judicial institutions with jurisdiction and arbitration with legal validity.<sup>774</sup> According to the delegation from CDNDRP (Trial Implementation), the China International Economic and Trade Arbitration Commission (CIETAC) published a Procedural Rules for Domain Name Dispute Resolution (Trial Implementation) in January 2001. In September 2002, CNNIC released the CNNIC Domain Name Dispute Resolution Policy and the CNNIC Procedure Rules for Domain Name Dispute Resolution to resolve domain name disputes. As the supporting institution for domain name dispute resolution mechanisms, the CIETAC-Domain Name Dispute Resolution Center authorized by CNNIC was established in December 2000. It was responsible for arbitrating domain name disputes related to .cn domain names and Chinese domain names.<sup>775</sup> Professor LI Xing has proposed that the reasons that CNNIC delegated the right of founding the Chinese domain name disputes resolution centre to CIETAC were: (1) CNNIC lacked sufficient relevant professional expertise; (2) it did not have enough authority in this field; (3) the arbitration for domain name disputes was a “hot potato” and a very troublesome thing at that time, so it better to transfer it to an authoritative organisation.<sup>776</sup> Practice has shown that the domain name dispute resolution mechanism not only reduces the litigation costs of the parties and the burden of the courts, but also is efficient and convenient.<sup>777</sup>

China’s domain name dispute resolution mechanism has the following traits:

- (1) Domain name registrants guarantee in the signed contract of domain name registration that when the registered domain name rights holders lodge a

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<sup>773</sup> *Chinese Domain Name Dispute Resolution (Trial) 2000* (China) s 2.

<sup>774</sup> *Ibid*, s 5.

<sup>775</sup> See CIETAC, *Zhong Guo Guo Ji Jing Ji Mao Yi Zhong Cai Wei Yuan Hui Yu Ming Zheng Yi Jie Jue Zhong Xin* <<http://dndrc.cietac.org/static/ctrintrc/frmainctrintrc.html>>.

<sup>776</sup> Interview with LI Xing dated 20 April 2016.

<sup>777</sup> CNNIC, *Zhong Guo Yu Ming Chan Ye Bao Gao* (May 2009) 49.

complaint to the domain name dispute resolution institution, the domain name registrants must accept the jurisdiction and participate in the domain name dispute resolution procedure.

- (2) The Domain Name Dispute Resolution Center only accepts domain name disputes which are caused by malicious registration, and domain name disputes that are caused by conflicts of rights are dismissed.
- (3) Decisions made by the Domain Name Dispute Resolution Center are limited to the changes of registration status of domain names, which do not involve economic compensation.
- (4) Disputed domain names cannot be transferred during the domain name resolution process.
- (5) Before, during, or after the domain name dispute procedure, parties may bring a lawsuit before the courts on the domain name dispute.<sup>778</sup>

### **5.3.2 Institutional Change of the IAMoDNR Triggered by the Domain Name Dispute Resolution Mechanism**

As domain name resolution rules and regulations were issued by the Supreme People's Court, CNNIC, and CIETAC respectively, and the CIETAC-Domain Name Dispute Resolution Center was established, the AMoCDN added a new chapter about Domain Name Disputes in 2002, compared to the IAMoDNR in 1997. This chapter specified that:

Article 26: The domain name registry may designate a neutral institution for resolving domain name disputes.

Article 27: If any person complains to the domain name dispute resolution institution concerning a registered domain name or a domain name in use, which conforms to the requirements specified in the domain name dispute resolution

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<sup>778</sup> Ibid, 48-49.

policy, the domain name holder shall participate in the proceedings for the resolution of the dispute on the domain name.

Article 28: The decisions of the domain name dispute resolution institution shall only determine whether to change the information of the holder of the domain name in dispute. If the decision of the domain name dispute resolution institution was in conflict with the legally effective judgment of the people's court or the arbitration organisation, the legally effective judgment of the people's court or the arbitration organisation prevails.

Article 29: If a domain name dispute is being processed by the people's court, the arbitration organisation or the domain name dispute resolution institution, the domain name holder shall not transfer the domain name in dispute, unless the transferee of the domain name agrees in writing to be subject to the judgment by the people's court, the arbitration institution or the domain name dispute resolution institution.<sup>779</sup>

These new articles provided a unified and guiding rule for all players and domain name dispute resolution institutions in China, which would contribute to reduce the volume of domain name disputes and transaction costs.

## 5.4 Institutional Change Triggered by Economic Factors

Institutional change is not only constrained by politics and laws, it is also affected by transaction costs.<sup>780</sup> This section will detail why and how transaction costs influenced institutional change and what contents of the IAMoDNR were changed.

### 5.4.1 Transaction Costs

Trade marks and service marks can represent the quality of goods or services. Trade

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<sup>779</sup> Above n738, s 26-29. The article 29 of AMoCDN is similar to the UDRP 8 (a). See above n621.

<sup>780</sup> See Claude Ménard and Mary M. Shirley (eds), above n136, 12-13, 15.

mark law aims to protect consumers from fraud, counterfeiting, and confusion, and it also aims to protect the goodwill enterprises have established. If someone pastes labels or uses similar trade marks to registered marks to advertise inferior goods, a loss is suffered by consumers and by the firms that own the registered trade marks.<sup>781</sup> Trade mark proprietors spend huge amounts of money to protect the rights related to domain names, but some individuals or groups who want to gain arbitrage profits from the difference between registration fees and market value of domain names have wilfully and maliciously registered well-known trade marks, or other trade marks as domain names, then sold these domain names to trade mark owners or improperly used the goodwill associated with a trade mark.<sup>782</sup> Regardless of whether court proceedings or specialized domain name dispute resolution mechanisms are used to resolve domain name disputes, it always costs the parties time, resources, and money. It is not only trade mark holders that wish domain name regulations could help avoid such cybersquatting disputes in advance; e-commerce enterprises, such as Amazon, that have already given a domain name brand value or have operated the domain name as a trade mark, do not want other registrants to register the same or similar domain names in the new gTLDs or ccTLDs.<sup>783</sup> Moreover, the uniqueness of domain names means creation and distribution cannot be implemented in a spontaneous and completely decentralized manner, so it is essential to coordinate domain name registration.<sup>784</sup> For example, aside from cybersquatting, how to coordinate disputes between competing rights holders having the same or similar names in their trade marks in different industries is very central to domain name registrants and also has a significant influence upon transaction costs.

In the process of law drafting and law enforcement, rules do not guarantee absolute fairness and neutrality. Rules always prefer some type of interest, and a variety of interest groups will constantly put pressure on these rules so that they can be developed in the direction favoured by these key stakeholders.<sup>785</sup> For example, in 2001,

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<sup>781</sup> A. Michael Froomkin, above n704, 613.

<sup>782</sup> WIPO, above n710.

<sup>783</sup> Milton L. Mueller, above n3, 115.

<sup>784</sup> Ibid, 15.

<sup>785</sup> Ibid, 11.

when Beijing Zhengpu Science and Technology Development Co. (Beijing Zhengpu), Ltd wanted to register the Chinese domain name ‘阿里巴巴’, it found CNNIC had reserved this name to Alibaba Network Technology Co., Ltd (Alibaba). So Beijing Zhengpu initiated a law suit in the Beijing First Intermediate People's Court, and the defendants were CNNIC and Alibaba. Beijing Zhengpu claimed to the court that the Chinese domain name ‘阿里巴巴’, reserved by CNNIC, should be registered by Beijing Zhengpu.<sup>786</sup> In December 2001, the court made a decision dismissing the plaintiff's claim because the name of the well-known website ‘阿里巴巴’, which already had commercial value should be protected, although the domain name reservation by CNNIC was inappropriate.<sup>787</sup> Beijing Zhengpu refused to accept the decision, and appealed to the higher court. In June 2002, the Beijing Higher People's court made a final adjudication which dismissed the appeal and upheld the initial decision.<sup>788</sup> The verdict of this case had aroused great controversy because the IAMoDNR formulated that domain name registration adopted the principle of first come, first served and domain name reservation was forbidden.<sup>789</sup> Ironically, the plaintiff's registration behaviour was malicious cybersquatting, in accordance with the principle of fairness and justice, so the defendant's domain name rights should be protected.<sup>790</sup> This was an early case in which the defendant incurred transaction costs in order to retain its domain name (which was also a trade mark) and prevent potential cybersquatters from appropriating it, which was also a typical case that reflected the tense relationship between domain name trade mark holders and registrants who had both the will and ability to incur transaction costs for valuable competing domain names. In the game among trade mark holders, domain name holders, and domain name registrars, Chinese authorities made policies that were more inclined to protect trade marks or domain name trade marks which already contained an economic value (i.e. were owned by large, established businesses) because, from the perspective of promoting domain name registration, reducing domain name disputes could not only save huge transaction costs for parties in litigation, but also could decrease the court's

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<sup>786</sup> ‘Yu Ming Yu Liu He Fa Ma? – Beijing Zheng Pu Ke Ji Fa Zhan You Xian Gong Si He CNNIC, A Li Ba Ba Gong Si De Zhong Wen Yu Ming Jiu Fen An’ (2002) (2) *Jing Ji Yu Kan* 45, 45.

<sup>787</sup> Ibid.

<sup>788</sup> LI Yanrong, ‘Yu Ming Yu Liu Bu He Fa, Zhi Ming Wang Zhan Shou Bao Hu’ (2003) (6) *Bei Jing Gong Shang* 36, 36.

<sup>789</sup> Above n549, s 20.

<sup>790</sup> Above n786, 45.

burden and improve the effective utilization rate of domain names.<sup>791</sup>

## 5.4.2 Institutional Change of the IAMoDNR Triggered by Transaction Costs

With the increasing number of domain name disputes, in 1999, RFC 2606 recommended a method for domain name reservation and released a list of a few TLDs and a few second level domain names for reservation in private testing so as to prevent confusion and conflicts with current and future domain names in the global DNS.<sup>792</sup> In order to reduce transaction costs, Chinese policy making stakeholders for China's domain names adopted (bought, in the 'make-or-buy' choice) the method of domain name reservation from RFC 2606. In 1997, the IAMoDNR set forth that pre-reservation of a domain name was not acceptable.<sup>793</sup> However, in 2002, the AMoCDN permitted conditional domain name reservation. The specific content was that:

When expanding the range of the domain name registration, the domain name registry may specify the duration of pre-registration, make necessary reservations for certain words and provide a corresponding search service on its website.

Except for the articles provided in preceding paragraphs, the domain name registry and registrars shall not reserve domain names or do so in disguised form. During the process of domain name registration, the registry and registrars shall not represent any actual or potential domain name holder.<sup>794</sup>

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<sup>791</sup> Conditional reservation of domain names, as a simple method to achieve the goal of reducing trade mark and domain name disputes, is not used exclusively by China. Domain name reservation is also favoured by ICANN. Before the new TLDs opened to the public, ICANN gave trade mark holders priority in registering domain names. This procedure was 'sunrise' or 'daybreak', namely domain name reservation. See Milton L. Mueller, above n3, 193.

<sup>792</sup> D. Eastlake and A. Panitz, *RFC 2606: Reserved Top Level DNS Names* (June 1999) IETF <<https://tools.ietf.org/html/rfc2606>>.

<sup>793</sup> Above n549, s 20.

<sup>794</sup> Above n738, s 17.

As the New Institutional Economists estimated that parties in dispute were not likely to win by their strength alone, they usually had to form a coalition and strove for the support from other interest groups.<sup>795</sup> Therefore, trade mark holders or domain name trade mark holders sought the support from domain name policy makers via the Expert Workshop for Domain Name Disputes held by CNNIC in March, 2001.<sup>796</sup> The MII knew well that economic performance could be promoted via institutional innovation to reduce transaction costs and the market could be expanded from protecting revenue obtained from transactions.<sup>797</sup> As one of the considerations for reducing the huge transaction costs from disputes between holders of trade marks and holders of domain names and protecting legal income, the AMoCDN adopted the domain name reservation policy in 2002.

## 5.5 Institutional Change Triggered by Technology

As the administrative regulation for domain names, there was no doubt that the IAMoDNR was affected by domain name technology. The following will detail how Chinese domain name technology and the security of the DNS influenced institutional change to the IAMoDNR.

### 5.5.1 Chinese Domain Name Technology

Before 2000, Chinese Internet users could only type domain names with English letters and Arabic numbers. Therefore, there was a complaint that Latin domain names were difficult to remember and easily misspelled. Additionally, Chinese companies also

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<sup>795</sup> Douglass C. North, above n262, 90.

<sup>796</sup> CNNIC, CNNIC *Zhao Kai Yu Ming Zheng Yi Zhuan Jia Yan Tao Hui* (4 April 2001) CNNIC <[http://www.cnnic.cn/gywm/xwzx/rdxw/2001nrd/201207/t20120710\\_31271.htm](http://www.cnnic.cn/gywm/xwzx/rdxw/2001nrd/201207/t20120710_31271.htm)>. In this dissertation, domain name trade mark is one type of trade marks. Trade mark holders refer to holders who have the traditional trade marks excluding domain names. That means, a trade mark holder might also be a domain name trade mark holder for one same name.

<sup>797</sup> Douglass C. North, above n262, 108.

hoped to register easily remembered Chinese domain names to help them develop their businesses.<sup>798</sup> Under the strong demands for Chinese domain names, Chinese technologists and related institutions led by governments began to develop Chinese language domain name technology.<sup>799</sup> Technologists not only needed to develop solutions to pure technological problems, but also had to consider what kinds of Chinese words could be registered as domain names and how to coordinate this in different areas. For the same domain names may have the same or different meanings in different countries, regions, cultures, or other contexts.<sup>800</sup> And not only are Chinese characters used in mainland China, they are also widely used in Hong Kong, Macao, and Taiwan. In addition, Chinese words have simplified and traditional types. A method for coordinating the registration of Chinese domain names in various regions and coordinating the use of simplified and traditional Chinese domain names was needed to coordinate and ensure cooperation within different countries and regions.<sup>801</sup>

Subsequently, the Chinese Domain Name Consortium (CDNC) – constituted by CNNIC, Taiwan Network Information Center (TWNIC), Hong Kong Network Information Center (HKNIC), and Macao Network Information Center (MONIC) – was founded in Beijing on 20 May 2000, with a main function to undertake civil coordination and standardization

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<sup>798</sup> XUE Hong, above n121, 563.

<sup>799</sup> Chinese domain name technology involved the internationalization of domain names. The first agreement about this was RFC-3490. This file defined the concept of internationalization of domain names and created the Internationalizing Domain Names in Applications (IDNA), including all the non-ASCII characters. However, IDNA only dealt with the issue that ASCII resolved domain names in different languages rather than settling the problem of free texts. For example, one domain name consisted of simplified and traditional Chinese words cannot be resolved into a standard domain name. See P. Faltstrom, P. Hoffman and A. Costello, *RFC 3490: Internationalizing Domain Names in Applications (IDNA)* (March 2003) IETF <<https://www.ietf.org/rfc/rfc3490.txt>>. The 'IDN standards' was collectively described in RFCs 3490, 3491, and 3492 in 2003. See ICANN, *Guidelines for the Implementation of Internationalized Domain Names / Version 1.0* (20 June 2003) ICANN <<https://www.icann.org/resources/pages/idn-guidelines-2003-06-20-en>>.

<sup>800</sup> K. Konishi, K. Huang, H. Qian, and Y. Ko, *RFC 3743: Joint Engineering Team (JET) Guidelines for Internationalized Domain Names (IDN) Registration and Administration for Chinese, Japanese, and Korean* (April 2004) IETF <<https://tools.ietf.org/html/rfc3743>>.

<sup>801</sup> LI Xing, one of the fathers of the Chinese internet, objected to the Chinese domain names. He said anyone worldwide would know the domain names under the .cn ccTLD were registered in China, but they did not necessarily know what the domain names registered under the '中国' ccTLD were. Furthermore, to whom the Chinese ccTLD of simplified '中国' and traditional '中國' should belong was also an issue involving a lot of disputes between mainland China and Taiwan. In fact, the best solution was to allow registrants to register Chinese domain names under the 'CN' ccTLD. This would not split the Internet, and could also meet the demand for Chinese domain names. Consequently, he objected to multilingual domain names which in fact resulted in the fragmentation of the internet. See Interview with LI Xing dated 20 April 2016.

of Chinese domain names.<sup>802</sup>

In the terms of a Chinese domain name registration service, CNNIC launched the Chinese domain name test system approved by MII on 18 January 2000.<sup>803</sup> However, on 22 August 2000, American Network Solutions Inc. Ltd (NSI) announced that they would also open a test platform for non-English domain name registration under '.com', '.net', and '.org' in the near future. This test platform initially provided a Japanese, Korean, and Chinese (simplified and traditional) domain name registration service, then it was to provide Spanish, Portuguese, and Arabic domain name registration. NSI planned to fully open the multi-language registration service in October.<sup>804</sup> China strongly protested NSI's provision of a Chinese domain name registration service.<sup>805</sup> To this issue, on 25 August 2000, ICANN issued a statement expressing that the internationalization of domain names (IDN) was conducive to internet development in non-English speaking countries, but the internationalization should be open, non-proprietary and fully compatible with the standard. ICANN strongly endorsed the principles of IDN proposed by IETF, specifically, the most basic requirement for IDN was not to disrupt the use and operation of the existing domain name system and any domain name system in the world could resolve any language of domain names. ICANN stated it would pay close attention to the Chinese domain name registration service launched by NSI in the United States.<sup>806</sup>

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<sup>802</sup> *Introduction to Chinese Domain Name Consortium* <<http://www.cdnc.org/english/introduction/index.html>>. In fact, after the internalization of domain names, not only were Chinese domain names needed to coordinate in the four regions of China, they were needed to coordinate in Japan and Korea as Japanese and Korean text also contains Chinese characters. Hence, China, Japan, and Korea together drafted an agreement, namely RFC 3743. For more details, please see K. Konishi, K. Huang, H. Qian and Y. Ko, above n800.

<sup>803</sup> CNNIC, above n651 (b).

<sup>804</sup> *Network Solutions Registry Opens Multilingual Domain Name Testbed to Registrars* (24 August 2000) The Free Library <<http://www.thefreelibrary.com/Network+Solutions+Registry+Opens+Multilingual+Domain+Name+Testbed+to...-a064817441>>.

<sup>805</sup> XUE Hong, above n121, 568.

<sup>806</sup> ICANN, *ICANN Comment on NSI Registry Multilingual Domain Name Testbed* (25 August 2000) ICANN <<https://www.icann.org/news/announcement-2000-08-25-en>>; Internationalized Domain Names (IDN) Committee, *Briefing Paper on Internet Keyword Issues* (15 February 2002) ICANN <<http://archive.icann.org/en/committees/idn/idn-keyword-paper.htm>>; Internationalized Domain Names (IDN) Committee, *Statement on Internet Keyword Issues* (15 February 2002) ICANN <<http://archive.icann.org/en/committees/idn/idn-keyword-statement.htm>>; Internationalized Domain Names (IDN) Committee, *Briefing Paper on IDN Permissible Code Point Problems* (27 February 2002) ICANN <<http://archive.icann.org/en/committees/idn/idn-codepoint-paper.htm>>; Internationalized Domain Names (IDN)

In the face of ICANN's vague statement, CDNC published the CDNC Statement on NSI's Service of Providing Chinese Domain Names on 22 October 2000. The statement argued that Chinese domain names were mainly to solve the problem of localization of internet applications; Chinese domain name registrants and users were mainly in China, so China's interests should be fully respected and powerfully protected during the process of Chinese domain name registration, management, and use. When registrars provided Chinese domain name registration services, including the NSI's test platform for the Chinese domain name registration service, they needed to explain the facts and concepts to internet users to prevent misunderstandings.<sup>807</sup> NSI launched its Chinese domain name system without soliciting advice from the Chinese government, nor did it coordinate with the Chinese authorities in charge of the internet in China, which led to the dissatisfaction of the Chinese government.<sup>808</sup> More sensitively, NSI did not need to comply with the Nine Forbidden Principles<sup>809</sup> when it offered its own Chinese domain name registration service. Confronting the challenge that foreign companies were providing Chinese domain name registration services, CNNIC officially began to provide a Chinese domain name registration service under the '中国', '公司', and '网络' on 7 November 2000.<sup>810</sup>

When the Chinese domain name registration system opened, Chinese registrars received about five hundred thousand applications in a few days within the territory

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Committee, *Input to the IETF on Permissible Code Point Problems* (27 February 2002) <<http://archive.icann.org/en/committees/idn/idn-codepoint-input.htm>>; Internationalized Domain Names (IDN) Committee, *Discussion Paper on Non-ASCII Top-Level Domain Policy Issues* (16 April 2002) ICANN <<http://archive.icann.org/en/committees/idn/non-ascii-tld-paper.htm>>; Internationalized Domain Names (IDN) Committee, *Discussion Paper on Non-ASCII Top-Level Domain Policy Issues (Revised Draft)* (13 June 2002) ICANN <<http://archive.icann.org/en/committees/idn/non-ascii-tld-paper-13jun02.htm>>; Internationalized Domain Names (IDN) Committee, *Discussion Paper on Registry Selection Considerations for non-ASCII Top-Level Domains* (13 June 2002) ICANN <<http://archive.icann.org/en/committees/idn/registry-selection-paper-13jun02.htm>>;

Internationalized Domain Names (IDN) Committee, *Final Report to the ICANN Board* (27 June 2002) ICANN <<http://archive.icann.org/en/committees/idn/final-report-27jun02.htm>>.

<sup>807</sup> CDNC, *CDNC Guan Yu NSI Ti Gong Zhong Wen Yu Ming Fu Wu De Gong Kai Sheng Ming* (22 October 2000) CDNC <<http://www.cdnc.org/gb/news/xw00102201.html>>.

<sup>808</sup> NSI, *CNNIC Jin Qiu Dou Fa Yu Ming Zhan Gu Yi He Er Ming?* (14 November 2000) <<http://www.people.com.cn/GB/channel5/745/20001114/312443.html>>.

<sup>809</sup> Above n738, s 19.

<sup>810</sup> CNNIC, above n651 (b).

of China.<sup>811</sup> When NSI officially opened its Chinese domain name registration service in November 2000, it received more than thirty thousand applications in one day.<sup>812</sup> However, the Chinese domain name database within the territory of China and the NSI database in the United States were different and not interconnected, which meant that Chinese domain names under the gTLDs and the ccTLDs registered in one database would not be resolved by the other.<sup>813</sup> XUE Hong argued that, except for the consideration of the compatibility of domain name technology and domain name databases, the Chinese government should take into account the issues of internet speech control and supervision, national security, economic development strategy and so forth.<sup>814</sup> Therefore, the MII released the Notice on the Management of Chinese Domain Names on the Internet on 9 November 2000 which specified that 'In the territory of the People's Republic of China, Chinese domain name registration services or registered registrar activities should be approved by the Ministry of Information Industry. Any organisation or individual shall not engage in the activities of Chinese domain name registration, management, and agency without approval.'<sup>815</sup> In November 2000, CNNIC released the Administrative Measures for the Registration of Chinese Domain Names (Trial Implementation) which standardized the registration and management of Chinese domain names<sup>816</sup> and the Chinese Domain Name Dispute Resolution Policy (Trial Implementation) which was to resolve disputes in the process of registration and use of Chinese domain names<sup>817</sup>.

However, NSI still operated its IDN services in the USA.<sup>818</sup> Although some technical

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<sup>811</sup> ZHONG Zengsheng, 'Qian Xi Zhong Wen Yu Ming' (2001) (3) *Chong Qing Shang Xue Yuan Xue Bao* 77, 77.

<sup>812</sup> NSI, above n808.

<sup>813</sup> See ZHONG Zengsheng, above n811, 77; XIAO Wanrong, 'Zhong Wen Yu Ming Xi Tong Yu Zhong Wen Wang Zhi Ji Shu Bian Xi' (2005) 21 (4) *Gan Su Ke Ji* 63, 63. This is a kind of split in the Root. That domain names in one database cannot be identified by others jeopardizes the IDN in the current domain name system. The solutions were recommended by experts worldwide in the process of operating testbeds. See ICANN, *Report of the Internationalized Domain Names Internal Working Group of the ICANN Board of Directors* (28 August 2001) ICANN <<https://archive.icann.org/en/committees/idn/final-report-28aug01.htm>>.

<sup>814</sup> XUE Hong, above n121, 575-581.

<sup>815</sup> MII, *Notice on the Management of Chinese Domain Names on the Internet*, article 3.

<sup>816</sup> *Administrative Measures for the Registration of Chinese Domain Names* (Trial Implementation) 2000 (China) s 1.

<sup>817</sup> *Chinese Domain Name Dispute Resolution Policy* (Trial Implementation) 2000 (China) s 1.

<sup>818</sup> See ICANN, *Report of the Internationalized Domain Names Working Group – Responses to Survey C* (28 August

problems and policy issues had already occurred in the process of IDN, ICANN's attitude was to find possible solutions to these rather than giving up the IDN<sup>819</sup> and it suggested that GAC Meeting 8 in Melbourne, Australia, on 9–10 March 2001 should consider the following three issues:

- (1) The prevention of cybersquatting and resolution of trade mark disputes in IDN environments.
- (2) The application of principles of competition, market access, consumer protection, and intellectual property protection.
- (3) Interoperability of the present and future internet, including the use of testbeds.<sup>820</sup>

Faced with this irreversible trend of IDN, the response of the AMoCDN is discussed in the following section.

### **5.5.2 Institutional Change of the IAMoDNR Triggered by Chinese Domain Name Technology**

In 1997, the IAMoDNR explained that the principal responsibilities for the domain name registry in China should be:

- (1) to make policies and measures on establishment, distribution and administration of China's internet domain names

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2001) ICANN <<http://archive.icann.org/en/committees/idn/final-idn-survey-c.htm>>.

<sup>819</sup> See ICANN, *ICANN Stockholm Meeting Topic: Status Report of the Internationalized Domain Names Internal Working Group of the ICANN Board of Directors* (1 June 2001) ICANN <<https://archive.icann.org/en/committees/idn/status-report-05jul01.htm>>; ICANN, above n813. For more information about IDN, please see the *IDN Announcements*, ICANN <<https://www.icann.org/resources/pages/announcements-2014-02-19-en>>.

<sup>820</sup> ICANN, above n813.

- (2) to select, authorize or cancel the management unit of the top-level domain and second-level domain
- (3) To supervise and inspect the domain name registration services at various levels.<sup>821</sup>

In 2002, the AMoCDN changed the responsibilities of the domain name registry to be:

- (1) formulating regulations and policies concerning administration of the internet domain names
- (2) establishing the system for Country (or Regional) Code Top Level Domain (ccTLD) under the .CN and Chinese domain names
- (3) administering the registry of the .CN ccTLD and the Chinese domain names
- (4) administering the operational institution of domain name root servers, which sets up and operates the domain names root servers within the territory of the People's Republic of China
- (5) supervising and administering the service of domain name registration
- (6) being in charge of the international coordination regarding domain names.<sup>822</sup>

Comparing the duties and responsibilities of the registry in two administrative regulations of the .cn ccTLD, it is not difficult to find that the AMoCDN added new contents of formulation, management and coordination for Chinese domain names. These new contents, triggered by the technology of Chinese domain names, were aiming for management of Chinese domain names in the domestic market and coordination of them in international markets, and were responding to the Administrative Measures for the Registration of Chinese Domain Names (Trial Implementation) and the Chinese Domain Name Dispute Resolution Policy (Trial Implementation). Therefore, the development and the use of Chinese domain name

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<sup>821</sup> Above n549, s 2.

<sup>822</sup> Above n738, s 5.

technology introduced in the above section promoted the institutional change of the IAMoDNR.

Domain name technology was not simply one technological factor in promoting institutional change in the IAMoDNR, DNS security was another paramount activator which will be discussed in the next section.

### 5.5.3 DNS Security

DNS security risks are mainly in terms of protocol design vulnerability (domain spoofing and network communication attack), implementation vulnerability (low level security codes and software security vulnerabilities led by non-comprehensive test procedures), and operational vulnerability (profiles attack, domain name registration attack, information leakage and other threats).<sup>823</sup> If a DNS server is successfully attacked, network users cannot normally look up websites (unless they know the web server's address).<sup>824</sup> Control of the domain name server will not only interfere with economic development, but also affect the formulation of politics, policies, and laws.<sup>825</sup>

On 1 April 2001, a collision between a Chinese and a United States aeroplane over the South China Sea resulted in a small-scale internet hacker war. From 4 April 2001, US hackers attacked at least 100 Chinese websites, and they mainly used scanning tools to find security vulnerabilities in the domain name system to attack the sites.<sup>826</sup> Chinese hackers also planned to launch attacks on US websites from 1 May to 7 May 2001.<sup>827</sup> On 28 April 2001, security experts from the Chinese Academy of Sciences said,

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<sup>823</sup> See WANG Yao, HU Mingzeng, LI Bin, and YAN Boru, above n35, 93-95; DAI Qinyun, YANG Haijun, LU Yu, and HE Liangbin, '5.19 Duan Wang Shi Jian Yuan Qi DNS Cui Ruo Yu Ming Xi Tong An Quan Ying Dui Neng Li Ji Dai Jia Qiang' (2009) (9) *Shi Jie Dian Xin* 39, 41.

<sup>824</sup> DAI Qinyun, YANG Haijun, LU Yu, and HE Liangbin, above n823, 41.

<sup>825</sup> Milton L. Mueller, above n3, 10.

<sup>826</sup> Michelle Delio, *Crackers Expand Private War* (18 April 2001) <<http://archive.wired.com/politics/law/news/2001/04/43134?currentPage=1>>.

<sup>827</sup> See *ibid*; CERT, *Mei Guo Hei Ke Gong Ji Shang Bai Zhong Guo Wang Zhan* (20 April 2001) <[http://www.cert.org.cn/publish/main/49/2012/20120330182930367788596/20120330182930367788596\\_.htm](http://www.cert.org.cn/publish/main/49/2012/20120330182930367788596/20120330182930367788596_.htm)>

according to their statistics, there were 40 to 50 attacks from hackers between China and the United States every day, but the figure was only one to two before the aeroplane collision.<sup>828</sup> Not only were Chinese civil websites attacked by American hackers, Chinese government websites were also attacked.<sup>829</sup> This Sino-US hacker war exposed the security risks in the DNS installed in the mainland of China, so the authorities were eager to resolve the internet information security issues.<sup>830</sup>

In order to cope with the problems of undeveloped network technology and the lack of awareness of internet security, the Information Work Leader Group of the State Council and the National Promotion Office of Electronic Information System urgently released the Announcement on the Selection of Trial Service Units for China's Computer Network Security on 26 April 2001. This announcement stated that according to the responsibilities of organizing the national computer network security system, coordinating industry computer network security, and organizing and coordinating the formulation of the computer network information security technology standards and the computer network safety grade standards, they had decided to build China's computer network security and emergency response system and planned to establish China's computer network security service industry standard. To actively and steadily push forward this work, they selected computer network security service pilot units from civil society.<sup>831</sup> In September 2002, National Computer Network Emergency Response Technical Team/Coordination Center of China (CERT) was founded. CERT is a non-government, non-profit network security technology centre and also a core coordination mechanism for the Chinese network security emergency response system. Its main responsibilities are, according to the principles

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<sup>828</sup> CERT, *Zhong Ke Yuan Zhuan Jia Ti Gong Guo Nei Wang Zhan Fang Fan Mei Guo Hei Ke* (28 April 2001) <[http://www.cert.org.cn/publish/main/49/2012/20120330182847222755705/20120330182847222755705\\_.htm](http://www.cert.org.cn/publish/main/49/2012/20120330182847222755705/20120330182847222755705_.htm)> l>.

<sup>829</sup> CERT, *Mei Guo Hei Ke Ba Mu Guang Miao Zhun Le Zhong Guo De Zheng Fu Wang Zhan* (29 April 2001) <[http://www.cert.org.cn/publish/main/49/2012/20120330182847363996605/20120330182847363996605\\_.htm](http://www.cert.org.cn/publish/main/49/2012/20120330182847363996605/20120330182847363996605_.htm)> l>.

<sup>830</sup> ZHOU Guoping, above n742, 28.

<sup>831</sup> Information Work Leader Group of the State Council and National Promotion Office of Electronic Information System, *Announcement on the Selection of Trial Service Units for China's Computer Network Security*, 26 April 2001.

of active prevention, timely detection, rapid response, and strenuous recovery, CERT carries out internet security prevention, discovery, early warning, and coordinated disposal to maintain national public network security and guarantee the safe operation of the fundamental information network and the important information system.<sup>832</sup>

The first organisation in the world to undertake the roles of a CERT was founded in 1988, and is now a division of the Software Engineering Institute (SEI), with the goal of 'studying and solving problems with widespread cyber security implications, researching security vulnerabilities in software products, contributing to long-term changes in networked systems, and developing cutting-edge information and training to help improve cyber security.'<sup>833</sup> When China faced the technological problems of DNS, Chinese technicians 'bought' the concept of CERT instead of making a new one.

As China was stepping up its network security system, on 11 September 2001, the terrorist attack occurred in the United States that completely changed the regulatory environment for DNS management. In order to deal with terrorism worldwide, the Bush Administration regarded internet supervision as one of its most important security strategies.<sup>834</sup> The stability and security of network facilities was considered a highly sensitive security problem.<sup>835</sup> The ICANN-GAC also recognized that the events of September 11 had affected vital international communication infrastructure and discussed these internet security matters at GAC Meeting 11 in Marina del Rey, USA on 11–12 November 2001.<sup>836</sup> The events of 11 September 2001 made the world aware that DNS security influenced the security of network communication

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<sup>832</sup> CERT, *Guo Jia Ji Suan Ji Wang Luo Ying Ji Ji Shu Chu Li Xie Tiao Zhong Xin* <<http://www.cert.org.cn/publish/main/34/index.html>>. The first American CERT was founded in 1988 by the ARPA and located at Carnegie Mellon University in response to the security risks and issues brought to the attention of the Internet community by the Internet worm. Katherine Fithen and Barbara Fraser, 'CERT Incident Response and the Internet' (1994) 37 (8) *Communications of the ACM* 108, 108.

<sup>833</sup> CERT, *About Us* <<http://cert.org/about/>>.

<sup>834</sup> Wolfgang Kleinwaechter, above n658, 1120.

<sup>835</sup> *Ibid.*

<sup>836</sup> ICANN, *GAC 11 Meeting* ICANN <<https://gacweb.icann.org/display/gacweb/GAC+11+Meeting+Marina+del+Rey%2C+USA+-+11-12+November+2001>>.

infrastructure, which constituted a part of national security.

Not only is the security of the DNS related to national security, it also affects economic development in a state or a region. In China, the internet was attacked repeatedly via the DNS and also via the web servers of registrants.<sup>837</sup> Among them, the domain name hijacking (or domain name deception) method was gradually being used more frequently by hackers, whose main goal was phishing, stealing information, or distributing malicious code. Hackers usually used DNS security vulnerabilities to intrude or to tamper with domain name records, or used a large number of botnets to pollute domain name servers, so that users were unaware to be led to the misleading websites. Attacking domain names can be flexible and hidden to implement activities such as a large-scale webpage Trojan, botnet control, or phishing.<sup>838</sup> These malicious activities have brought immeasurable economic losses to internet users and enterprises.

In response to serious security risks to the DNS at home and abroad, the Chinese government released the Administrative Measures on the Prevention and Control of Computer Viruses, which was to strengthen the prevention and management of computer viruses, and to protect the development and applications of computers<sup>839</sup>; the Administration of Interconnection between Public Telecommunication Networks, which was to safeguard national interests and the legitimate rights of telecommunications users;<sup>840</sup> and the Measures for Violations of Laws and Regulations in the Use of Computer Information Systems (Trial Implementation), which was to ensure the safety and healthy development of computer information systems, and to safeguard the reputation and the interests of the CCP, the state, and citizens as well as the Ministry of Personnel via specifying the use of computer information systems by

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<sup>837</sup> LIU Qing, 'Wo Guo Hu Lian Wang Yu Ming Xi Tong De An Quan Wen Ti' (2010) (4) *Xian Dai Dian Xin Ke Ji* 11, 11.

<sup>838</sup> Ibid.

<sup>839</sup> Administrative Measures on the Prevention and Control of Computer Viruses was passed by the Ministry of Public Security on 30 March 2000 and was released on 26 April 2000.

<sup>840</sup> Administration of Interconnection between Public Telecommunication Networks was passed by the MII on 29 April 2001, and was released on 10 May 2001.

staff in Ministry of Personnel agencies<sup>841</sup> in 2001, which also administered security activities relating to the internet in China. The release of these regulations was a kind of institutional change for internet governance.

#### **5.5.4 Institutional Change of the IAMoDNR Triggered by DNS**

##### **Security**

The IAMoDNR released in 1997 never mentioned DNS security, but the AMoCDN added a new clause that ‘any organisation or individual shall not take any action to hamper the normal operation of the Internet Domain Name System in China.’<sup>842</sup> This provision responded to the new situation in regard to DNS security issues.

### **5.6 Hypothesis Test**

#### **5.6.1 Hypothesis of New Institutional Economics**

Some New Institutional Economists have argued that change of relevant prices is the source of institutional change,<sup>843</sup> and technological innovation is also a factor in promoting institutional change.<sup>844</sup> From the perspective that citizens are considered as demanders and the government as a provider, institutional change is the result of interaction between demand and supply in society.<sup>845</sup> Interactions between institutions and organisations shape institutional change.<sup>846</sup> A series of changes in the legal system or norms lead to great changes in the lower-level institutional framework. Only interest groups with sufficient bargaining power can change formal rules, which

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<sup>841</sup> Measures for Violations of Laws and Regulations in the Use of Computer Information Systems (Trial Implementation) was released by the Ministry of Personnel on 19 November 2001.

<sup>842</sup> Above n738, s 4.

<sup>843</sup> Douglass C. North, above n262, 7.

<sup>844</sup> Milton L. Mueller, above n3, 255.

<sup>845</sup> Lee J. Alston, Thrainn Eggertsson, and Douglass C. North (eds), above n372, 26-27.

<sup>846</sup> Douglass C. North, above n313 (b), 361.

will lead to significant changes in the formal institutional framework.<sup>847</sup> If the institutional framework does not evolve or change, neither side of a transaction has the solution to a dispute and potential benefits obtained from the transaction cannot be confirmed, institutional entrepreneurs would want to form a coalition to break the deadlock through strikes, violence or other means.<sup>848</sup>

New Institutional Economics theorists have divided the concept of institutional change into an endogenous type and an exogenous type.<sup>849</sup> Endogenous institutional change refers to institutional change caused by the internal factors, such as changes to laws, regulations, or relevant prices; exogenous institutional change means institutional change caused by external factors, such as technological innovation or population growth. So, in 2002, did the institutional change of the IAMoDNR belong to endogenous institutional change or exogenous institutional change?

### 5.6.2 Analysis of Endogenous and Exogenous Institutional Change

By the above comparison of the changes from the IAMoDNR in 1997 to the AMoCDN in 2002, the institutional change was mainly caused by the reform of government agencies which transformed the micro-administrative function of regulating domain names from the Leading Group for Information Technology Advancement under the State Council to the MII,<sup>850</sup> internet political security causing significant changes to the naming principles of restrictions of domain names in the AMoCDN,<sup>851</sup> the domain

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<sup>847</sup> Douglass C. North, above n262 (c), 68.

<sup>848</sup> Ibid, 90.

<sup>849</sup> Some scholars have already researched the exogenous and endogenous effects of institutional change. See Menno Fenger, Martijn van der Steen, and Lieske van der Torre, 'The Responsiveness of Social Policies. Explaining Institutional Change in Three Policy Domains' (2014) 80 (3) *International Review of Administrative Sciences* 659, 660; Campbell JL, above n137; Colin Crouch and Henry Farrell, 'Breaking the Path of Institutional Development? Alternatives to the New Determinism' (2004) 16 (1) *Rationality and Society* 5; Johan P. Olsen, 'Change and Continuity: An Institutional Approach to Institutions of Democratic Government' (2009) 1 (1) *European Political Science Review* 3; Zeki Sarigil, 'Paths are What Actors Make of Them' (2009) 3 (1) *Critical Policy Studies* 121; S.F. Joireman, 'Property Rights and the Role of the State: Evidence from the Horn of Africa' (2001) 38 (1) *Journal of Development Studies* 1.

<sup>850</sup> For more details, see sections 5.2.1 'The Reform of Governmental Agencies' and 5.2.2 'Institutional Change of the IAMoDNR Triggered by the Reform of Governmental Agencies' in this dissertation.

<sup>851</sup> For more details, see sections 5.2.3 'Internet Political Security' and 5.2.4 'Institutional Change of the

name dispute resolution mechanism leading the AMoCDN to add a new chapter about Domain Name Disputes,<sup>852</sup> transaction costs causing the AMoCDN to permit conditional domain name reservation,<sup>853</sup> domain name technology making the AMoCDN change the responsibilities of the domain name registry,<sup>854</sup> and DNS security making the AMoCDN add a new clause about DNS security<sup>855</sup>.

Institutions are divided into a hierarchy of four levels by NIE: the first level of institutions is embeddedness, including norms, habits, morality, tradition, religion, etc;<sup>856</sup> the second level is institutional environment, such as the formal rules, regime, Constitution, laws, government agencies, etc;<sup>857</sup> the third level is the governance, including the implementation of laws, dispute resolution, market, business, etc;<sup>858</sup> and the fourth level is the resource allocation and employment, including the prices, quantities, incentive system and so on.<sup>859</sup>

According to the classification of institutions above, the reform of governmental agencies and internet political security belongs to the second level of institutions, the domain name dispute resolution mechanism is in the third level, transactions are in the fourth level, and domain name technology and DNS security are outside institutions. Therefore, the institutional change triggered by the first three factors is the endogenous type. That is, the reform of governmental agencies triggered the

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IAMoDNR Triggered by Internet Political Security' in this dissertation.

<sup>852</sup> For more details, see sections 5.3.1 'Laws and Regulations Resolving Domain Name Disputes' and 5.3.2 'Institutional Change of the IAMoDNR Triggered by Domain Name Dispute Resolution Mechanism' in this dissertation.

<sup>853</sup> For more details, see sections 5.4.1 'Transaction Costs' and 5.4.2 'Institutional Change of the IAMoDNR Triggered by Transaction Costs' in this dissertation.

<sup>854</sup> For more details, see sections 5.5.1 'Chinese Domain Name Technology' and 5.5.2 'Institutional Change of the IAMoDNR Triggered by Chinese Domain Name Technology' in this dissertation.

<sup>855</sup> For more details, see sections 5.5.3 'DNS Security' and 5.5.4 'Institutional Change of the IAMoDNR Triggered by DNS Security' in this dissertation.

<sup>856</sup> Oliver E. Williamson, above n139, 596.

<sup>857</sup> Ibid, 608.

<sup>858</sup> Oliver E. Williamson, above n247, 75; Oliver E. Williamson, above n139, 599.

<sup>859</sup> Oliver E. Williamson, above n139, 597, 600.

institutional change of s 9 of the AMoCDN; internet political security triggered the institutional change of s 19; the domain name dispute resolution mechanism triggered the institutional change of ss 26–29; and transaction costs triggered the institutional change of s 17. Institutional change triggered by the last factor is the exogenous type. That is, Chinese domain name technology triggered the institutional change of s 5 of the AMoCDN and DNS security triggered the institutional change of s 4. In conclusion, institutional change of the IAMoDNR in 2002 was both endogenous and exogenous institutional change.

## 5.7 Conclusion

This chapter introduced the institutional environment in which the first institutional change of the administrative regulation of the .cn ccTLD was situated, analysed the specific reasons and contents of institutional change of the IAMoDNR triggered by politics, laws and regulations, economic factors, and technology respectively. Then, using evidence derived from the above analysis, tested and verified a new hypothesis of NIE.

This chapter first introduced the political and legal institutional environment in which China's administrative regulations of the .cn ccTLD were situated, from domestic and international perspectives, from 1997 to 2002. In the political environment, the 15th Report proposed to carry out reform on the political and economic systems. Strengthening legal foundations, separating governments and enterprises, and condensing governmental agencies were the main tasks of the political system reform; transforming government functions, improving administrative efficiency, and decentralizing government functions were the main tasks of the governmental agencies reform. While maintaining the dominant position of the public ownership economy, developing a variety of ownership economy, including an individual and private economy, is the goal of market system reform. All this provided an appropriate political environment for the institutional change of the IAMoDNR.

In the legal environment, ICANN as an international domain name organisation was

founded under the background that national governments strongly questioned unilateral control of domain names and IP addresses by the United States. ICANN as a governance institution combines technology coordination and industry management, and one of its main functions is to coordinate and manage the global domain name system. The GAC is a permanent committee of ICANN, whose main responsibility is to provide recommendations on the relationship between ICANN and national governments, especially recommendations related to ICANN policy, various legal agreements and international protocols. China's MII joined the GAC in March 1999 and withdrew from it in 2001 because of the member name Taiwan used in the GAC.

In relation to international domain name rules and regulations constraining China's administrative regulations of the .cn ccTLD, RFCs 2240 and 2352 recommended the extension of second level domain names under the ccTLDs. The UDRP was a template for China to resolve .cn domain name disputes; the Final Report of the WIPO Internet Domain Name Process, released by WIPO, put forward an online ADR designed to resolve some of the disputes between gTLDs registrants and intellectual property rights. The ADR had become a model for China to build its own ADR.

In the domestic legal environment, the 15th Report clearly put forward plans to strengthen the legislative framework, to improve the quality of legislation, and to form a socialist legal system with Chinese characteristics by the year 2010, and to improve the protection of intellectual property rights, which provided policy guidance for relevant authorities to deal with disputes between owners of domain names and of trade mark rights.<sup>860</sup> In 1999, the Constitutional Amendment pointed out that the state should protect the legal rights and interests of individual and private sectors of economy,<sup>861</sup> which provided a legal guarantee for the healthy and rapid development of the domain name industry constituted by the individual and private economy.

The institutional change triggered by politics was caused by the reform of

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<sup>860</sup> JIANG Zemin, above n630.

<sup>861</sup> Above n724, s 16.

governmental agencies and internet political security. In relation to the reform of governmental agencies in 1997, the 15th Report advocated the transformation of government functions, condensing macro-control departments, developing social intermediary organisations to undertake some functions of the professional economic sectors, and separating governments and enterprises. In this context, the MII was established and began to take on administrative functions on domain names and the DNS from the Information Work Leader Group of the State Council, and registrars – being the social intermediary organisations – began to take over the domain name registration services from CNNIC. These two reforms were the reasons for the institutional change of the fifth and ninth clauses of the IAMoDNR in 2002.

In terms of internet political security, the development of the internet gradually weakened the mainstream ideology advocated by the CCP. Government control of ideology gradually decreased, and the control foundation for restraining citizens' participation in politics began to shake. It challenged the stability and effectiveness of the leadership of the CCP. In order to guarantee internet political security, the MII changed the focus of domain name registration principles from restraining the registration of the state name, district names, organisational names, industry names, general commodity names, and trade marks to the protection of the state's solidarity and unity, in order to maintain national stability, and to safeguard the state and public interests.

From the end of 1996 to early 1997, domain name disputes between domain name holders and trade mark holders in mainland China began to grow substantially. At that time, this kind of dispute could be resolved in the Chinese courts. However, China's existing laws and regulations did not have clear and specific provisions to deal with the disputes, which resulted in the courts applying different laws; verdicts also differed in similar cases, and the judgments of domain name dispute cases were not predictable.<sup>862</sup> To resolve these issues, the Supreme People's Court released the Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Civil Disputes Involving Computer Network Domain

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<sup>862</sup> HU Tingsong, above n769, 50-51.

Names on 17 July 2001, to guide all Chinese courts. In September 2002, CNNIC released the CNNIC Domain Name Dispute Resolution Policy and the CNNIC Procedure Rules for Domain Name Dispute Resolution to resolve all domain name disputes. But the court proceedings were time-consuming, laborious, and costly. The parties in dispute needed an efficient and convenient domain name dispute resolution mechanism to resolve disputes. Under this requirement, the CIETAC-Domain Name Dispute Resolution Center was established in December 2000, authorized by CNNIC, with responsibility to arbitrate the .cn and Chinese domain name disputes. Based on the above reasons, compared to the IAMoDNR in 1997, the AMoCDN added a new chapter to domain name dispute resolution in 2002.

The tensions between trade mark rights holders and domain name holders were long-lasting. No matter the court proceedings or the special domain name dispute resolution mechanism, all involved the parties in a lot of time, energy, money and other transaction costs to resolve domain name disputes. In the game among the players, China's domain name policy makers were more inclined to protect trade marks or domain name trade marks already having an economic value in China. Since reducing domain name disputes could reduce the huge transaction costs for players and courts, and also could promote the effective use of domain names and economic performance, in 2002 the AMoCDN adopted a domain name reservation policy to protect trade marks.

Institutional change triggered by domain name technology was specifically caused by Chinese domain name technology and DNS security. In relation to Chinese domain name technology, the strong demand for Chinese domain names promoted Chinese study and research of its technology. On 18 January 2000, CNNIC tested the Chinese domain name registration trial system and formally opened the system on 7 November 2000. However, the NSI also opened the Chinese domain name registration platform in the same period, which provoked strong dissatisfaction from Chinese officials. Simultaneously, ICANN issued a statement and pointed out that it would pay close attention to the various problems brought by the internationalization of domain names. After weighing the compatibility of domain name technology and databases, internet speech control, national security, and economic development strategies by

Chinese governments, MII and CNNIC released announcement and regulations on this issue.

In terms of DNS security, the South China Sea collision incident triggered a Sino-US cyber hacker war on 1 April 2001. US hackers used Chinese DNS vulnerabilities to attack Chinese civil and government websites. In order to cope with the problems of backward internet technology and the lack of awareness of internet security, CERT was established to respond to emerging internet security events. In 2002, Chinese governments released or revised the laws and regulations related to internet security. The AMoCDN also added a new provision<sup>863</sup> to confront the DNS security problem.

New Institutional Economics theory divides the institutional change into endogenous and exogenous institutional change. Whether the institutional change of the IAMoDNR belonged to exogenous or endogenous type was tested via evidence derived from the above analysis. Specifically, the institutional change triggered by the reform of the political system, domain name dispute resolution mechanism, and transaction cost belonged to endogenous institutional change. Institutional change caused by domain name technology was exogenous. Therefore, the institutional change of the IAMoDNR was a combination of endogenous and exogenous change.

In the next chapter, the second institutional change of the AMoCDN, which occurred in 2004, will be analysed in detail and the significant impact of this institutional change on the freedom of cyberspace speech in China will be specified. A hypothesis test about institutional arrangements will follow.

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<sup>863</sup> Above n738, s 4.

## 6 The Second Institutional Change in 2004 – Legal

### Characterisation

After experiencing its first institutional change in 2002, the new Administrative Measures on China's Domain Names<sup>864</sup> (AMoCDN) was released by the Ministry of Information Industry (MII) in 2004 and the 2002 version<sup>865</sup> was abolished simultaneously, which meant the administrative regulation of the .cn ccTLD had achieved its second institutional change.<sup>866</sup> After progressing through the stages of legal transplantation<sup>867</sup> and legal localization,<sup>868</sup> the administrative regulation of the .cn ccTLD was finally injected with regulatory provisions on internet speech with Chinese characteristics. Although the institutional change of TLDs usually involves the relevant interests of all stakeholders, including (1) internet technology groups; (2) domain name registries and registrars; (3) potential domain name registries and registrars; (4) holders of trade marks and intellectual property interests; (5) internet service providers and other firms related to telecommunications and electronic commerce; (6) stakeholders advocating freedom of speech and against the expansion of intellectual property rights; (7) international intergovernmental organisations seeking internet governance; (8) and some states' governmental agencies,<sup>869</sup> the biggest impact of the institutional change of the AMoCDN was on individuals and organisations advocating freedom of speech, because the new AMoCDN was designed to achieve the Chinese government's goal of regulating internet speech.

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<sup>864</sup> Administrative Measures on China's Domain Names was issued by the Ministry of Information Industry on 28 September 2004 and was implemented on 20 December 2004.

<sup>865</sup> Administrative Measures on China's Domain Names was issued by the Ministry of Information Industry on 14 March 2002 and was implemented on 30 September 2002.

<sup>866</sup> *Administrative Measures on China's Domain Names 2004* (China) s 45.

<sup>867</sup> For more details, please see Chapter 4 in this dissertation. Most of the provisions in the Interim Administrative Measures on Domain Name Registration released by the Office of Information Work Leader Group of the State Council were inherited from RFCs, which achieved the legal transplantation of the administrative regulation of the .cn ccTLD.

<sup>868</sup> For more information, please see Chapter 5 in this dissertation. The Administrative Measures on China's Domain Names, released in 2002, revised most of the provisions of the Interim Administrative Measures on Domain Name Registration, which achieved the first institutional change and legal localization.

<sup>869</sup> Milton L. Mueller, above n3, 69.

The relationship between domain names and internet speech and how the administrative regulation of the .cn ccTLD influenced the flow and dissemination of internet speech within China will be explored in this chapter.

## 6.1 The Relationship between Domain Names and Internet Speech

The identifying function and the index function of domain names<sup>870</sup> have now evolved into expressions relating to internet speech.<sup>871</sup> That is, domain names themselves are a kind of expression of internet speech, or domain names as titles refer to the expression of internet speech on the websites to which they are linked.<sup>872</sup> As the domain name system (DNS) has become a political technology, its distribution, storage, and retrieval functions for internet addresses are an important source of political power. Whoever has the power to control the centralized DNS or a TLD within it will have the power to determine what or who can exist in this system and what kinds of rights can be had in cyberspace.<sup>873</sup> Therefore, the administrative regulations of TLDs implemented by national governments have a profound influence on freedom of speech.<sup>874</sup> In many countries, governments control the behaviour of their citizens in relation to the right of freedom of speech on the internet, by controlling the use of domain names.<sup>875</sup>

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<sup>870</sup> Daniel T. Janis, 'Internet Domain Names and the Lanham Act: Broadening Trademark Definitions and Their Implications for Speech on the Web' (2001) 25 (1) *The Columbia Journal of Law & the Arts* 21, 23.

<sup>871</sup> Mimi Rajapakse, 'Domain Names As Protected Speech: A Reexamination of the Fourth Circuit's Decision in *People for the Ethical Treatment of Animals v. Doughney*' (2003) 31 (3) *AIPLA Quarterly Journal* 353, 363, 373.

<sup>872</sup> *Ibid*, 372.

<sup>873</sup> Monika Ermert and Christopher R. Hughes, 'What's in a Name? China and the Domain Name System' in Christopher R. Hughes and Gudrun Wacker (eds), *China and the Internet: Politics of the Digital Leap Forward* (RoutledgeCurzon, 2003) 127, 127.

<sup>874</sup> Sean P. Shecter, *Freedom of Speech in the Changing World of Internet Domain Name Registration and Dispute Resolution: How the Increasing Influence of National Governments in Domain Name Policy Threatens Free Speech on the Internet* (22 January 2007) slide 45 Bepress Legal Series <<http://law.bepress.com/expresso/eps/1954/>>.

<sup>875</sup> *Ibid*, slide 48. Outside China, Australia (amongst many other countries) also has a list of words which cannot be registered as domain names under the .au ccTLD, such as names that may pose a risk to the operational stability and utility of the .au domain. For more information about restricted words, letters, abbreviations, and

### 6.1.1 Domain Names as Internet Speech

According to Lawrence Lessig, internet speech can be divided into three categories: (1) the speech that everyone has the right to express, such as political speech about public affairs; (2) the speech that everyone has no right to express, such as speech about obscenities and child pornography; (3) the speech that some people have the right to express and some people have no right to express, such as indecent speech that adults have the right and children have no right to express.<sup>876</sup> This classification is based on the situation of internet speech in the United States, and cannot be fully applied in China, but it can be used as a reference for the classification of internet speech in China. According to legal provisions in China's Constitution, laws, and regulations:<sup>877</sup> (1) the speech that no-one has a right to express in cyberspace can be defined as Prohibited Internet Speech (PIS); (2) the speech that some people have the right but also some have no right to express can be defined as Limited Internet Speech (LIS), such as that government officials, judges, and prosecutors, having special identities, cannot freely express their opinion on public affairs; (3) the speech that anyone has the right to express is Free Internet Speech (FIS). Correspondingly, domain names themselves as a kind of expression of internet speech<sup>878</sup> can be classified analogously with the classifications of internet speech. Thus, domain names can consist of prohibited registered domain names that cannot be registered by any individual or organisation, limited registered domain names that can be registered by specific individuals or organisations, and freely registered domain names that can be registered by any subject complying with the principle of 'first come, first served'.

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acronyms , please see *Reserved List Policy 2018* (Australia).

<sup>876</sup> Lawrence Lessig and Paul Resnick, 'Zoning Speech on the Internet: A Legal and Technical Model' (1999) 98 (2) *Michigan Law Review* 395, 395.

<sup>877</sup> For more information, please see section 6.3.1.2 in this chapter of the dissertation.

<sup>878</sup> Mimi Rajapakse, above n871, 363, 373.

### 6.1.1.1 Prohibited Registered Domain Names

Prohibited registered domain names in the .cn ccTLD refer to internet speech that cannot be registered as a domain name. For example, the names of cult organisations, such as ‘法轮功’ (‘Falun Gong’), and other similar names, cannot be registered as a domain name under the .cn ccTLD. The AMoCDN (2004) explicitly lists several categories of speech that cannot be registered as a domain name. Article 27<sup>879</sup> sets forth:

- (1) Those that are against the basic principles prescribed in the Constitution;
- (2) Those jeopardizing national security, leaking state secrets, intending to overturn the government, or disrupting of state integrity;
- (3) Those harming national honour and national interests;
- (4) Those instigating hostility or discrimination between different nationalities, or disrupting national solidarity;
- (5) Those violating the state religion policies or propagating cult and feudal superstition;
- (6) Those spreading rumors, disturbing public order or disrupting social stability;
- (7) Those spreading pornography, obscenity, gambling, violence, homicide, terror, or instigating crimes;
- (8) Those insulting libel against others and infringing other people's legal rights and interests;
- (9) Other contents prohibited in laws, rules and administrative regulations.<sup>880</sup>

Therefore, any of the above contents will not be registered or used as a domain name by any organisation or individual. They all belong to the class of prohibited registered domain names which cannot be expressed as internet speech. For convenient

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<sup>879</sup> These limitations on domain name registration are different from the previous promulgation discussed in 4.3.3 Naming Principles of Domain Names of this dissertation.

<sup>880</sup> Above n866, s 27.

discourse, these nine categories set out in Article 27 of the AMoCDN (2004) are described as the ‘Nine Forbidden Principles’.

### 6.1.1.2 Limited Registered Domain Names

Limited registered domain names refer to internet speech that can be conditionally registered as a domain name. Article 25 of the AMoCDN (2004) stipulates that ‘In order to maintain the interests of the nation and civil society, domain name registries may take necessary measures to protect certain words, and put it on record to MII before implementation.’<sup>881</sup> These reserved domain names are mainly the trade marks protected by Chinese laws, and the names of states, state authorities, governments, government agencies, or public institutions. In order to balance disputes between holders of domain names and of trade marks, the AMoCDN (2002) created a domain name reservation system for the first time in 2002,<sup>882</sup> which was also maintained in the AMoCDN (2004). However, there are still conflicts between domain name proprietary rights and trade mark rights, and conflicts between trade mark rights and freedom of speech when domain names contain trade marks.<sup>883</sup>

The provisions of laws and regulations relating to trade marks which are easily registered according to China’s trade mark Law influence whose voice can be disseminated and what kind of transmission modality can be used on the internet.<sup>884</sup> In disputes of domain name proprietary rights, trade mark rights, and freedom of speech, China’s administrative regulations of the .cn ccTLD tend to protect trade mark rights. Only trade mark rights holders can apply to register the reserved names as domain names in the given time. In the protection for names of states, state authorities, governments, government agencies, or public institutions, despite the

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<sup>881</sup> Ibid, s 25.

<sup>882</sup> The 17th section of Administrative Measures on China’s Domain Names released in 2002 also formulated that ‘When expanding the range of the domain name registration, the domain name registry may specify the duration of pre-registration, make necessary reservations for certain words and provide a corresponding search service on its website.’

<sup>883</sup> Mimi Rajapakse, above n871, 361.

<sup>884</sup> Daniel T. Janis, above n870, 23, 25.

AMoCDN (2004) not retaining Article 11 of the IAMoDNR (1997),<sup>885</sup> the domain name reservation system means only these authorities themselves can register their names as domain names, others have no right to register them.

### 6.1.1.3 Freely Registered Domain Names

Freely registered domain names refer to internet speech that can be registered as a domain name unconditionally. All internet speech not falling into the categories of prohibited and limited registered domain names can be registered freely. For instance, Mr SHANG in Shi Jiazhuang city registered the ‘劝阿扁’ as a domain name, the meaning of which is to persuade separatist forces in Taiwan to surrender to mainland China. But some parody domain names take advantage of legal loopholes to bring trouble to other subjects of rights. The first type is the parody of trade marks; for example, someone registered ‘张裕’ as a domain name (this domain name refers to toilets, but the trade mark is a famous Chinese wine brand).<sup>886</sup> The second type is the parody of products, such as that someone registered ‘中央一套’ as a domain name (this domain name refers to condoms, but its name actually is CCTV-1).<sup>887</sup> The third type is the parody of celebrities. For example, someone registered ‘布什’ as a domain name (布什 is the Chinese name of Bush, but the domain name refers to diapers because the English pronunciation of Bush is said the same way as ‘never wet’ in Chinese).<sup>888</sup> Although these parody domain names may infringe the interests of trade mark rights and personal rights to some extent, the administrative regulations of the .cn ccTLD tend to protect this right of freedom of speech.<sup>889</sup>

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<sup>885</sup> The first paragraph of the 11th section in the Interim Administrative Measures on Domain Name Registration sets forth that ‘without formal approval of the relevant state departments, ‘CHINESE’, ‘CHINA’, ‘CN’, ‘NATIONAL’ and other wording shall not be used’. The third paragraph explains ‘without the approval of local governments at various levels, the full name or abbreviation of the administrative region name at or above the country level shall not be used.’

<sup>886</sup> *Zhong Wen Yu Ming Gua Qi Qiang Zhu Feng Zhi Ming Qi Ye Lv Bei E Gao* (19 January 2007) <<http://www.413show.com/info/611.html>>.

<sup>887</sup> *WANG Xiaoming, Ming Ren Bei Qiang Zhu Shang Biao Ye E Gao* (28 September 2006) *Fu Jian Zhi Chuang* <[http://www.66163.com/Fujian\\_w/news/fjgsb/299/1/2006927164559.htm](http://www.66163.com/Fujian_w/news/fjgsb/299/1/2006927164559.htm)>.

<sup>888</sup> *Ibid.*

<sup>889</sup> All decisions of domain name dispute cases made by the HKIAC and the CIETAC had been searched, but none of these parody cases were found. Probably these cases had never been brought to court either. In recent years in China, courts’ decisions have been released publicly only, so the earliest cases cannot be checked publicly.

### 6.1.2 Domain Names as the Gateway to Internet Speech

When one website tied a domain name and an IP address together, if the domain name was deleted or was forbidden to resolve, web users would not visit the website through the primary domain name. That is, web users cannot browse the information attached to the website by inputting a well-known and easily memorized domain name. Although internet users can continue to access the website through typing the IP address, very few people in real life will remember a complex and boring IP address. Although an IP address can be found via an internet search engine, web users have to remember the IP addresses of search engines first if the domain names of these search engines are also forbidden to resolve. Therefore, domain names are an important hub between users and websites as internet speech platforms, and domain names are portals to specific websites for users.<sup>890</sup> Deleting or prohibiting resolving a domain name can easily prevent general users from browsing contents published in websites, which is the most elegant and efficient way for a government to control internet speech.<sup>891</sup> Controlling the power of regulating the DNS also grants the power to control regulation on the contents of internet speech.<sup>892</sup>

For example, Tianya Community (domain name: www.tianya.cn; IP address: 124.225.65.154), registered with more than 100 million users, is a platform for exchanging original content<sup>893</sup> in China. It is also an open and inclusive website for the free dissemination of Chinese internet speech.<sup>894</sup> If its domain name is deleted or

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Generally, in terms of parody, judicial practice for “online” trade mark is consistent with that for “offline” trade marks.

<sup>890</sup> Michael V. LiRocchi et al., ‘Trademarks and Internet Domain Names in the Digital Millennium’ (2000) 4 (2) *UCLA Journal of International Law and Foreign Affairs* 377, 381; Daniel T. Janis, above n870, 23.

<sup>891</sup> Andrew D. Murray, ‘Regulation and Rights in Networked Space’ (2003) 30 (2) *Journal of Law and Society* 187, 201.

<sup>892</sup> A. Michael Froomkin, above n493, 21.

<sup>893</sup> The topics of contents are mainly about the people's livelihood, humanity, public sentiment, finance and economics, automobiles, fashion, emotion, entertainment, photographs, and investment.

<sup>894</sup> *Tian Ya Jian Jie* <<http://help.tianya.cn/about/history/2011/06/02/166666.shtml>>.

forbidden to resolve, users can only visit it via typing its IP address. This is not a fictitious hypothesis, because in China, most of the popular social networking sites, such as Facebook and Twitter,<sup>895</sup> are prohibited to resolve by Chinese governments, so users in mainland China are unable to log in and browse these sites.<sup>896</sup> The regulatory capacity on domain name registration and domain name maintenance can be translated into the ability to regulate websites, and then control internet speech through control of online access to the websites.<sup>897</sup> Thus, domain names are an important gateway for netizens to visit websites which are the platforms for publishing internet speech. Control of domain names means control of the publication and dissemination of internet speech, to a certain extent.

So as to understand how Chinese authorities govern internet speech by controlling domain names under the .cn ccTLD, it is a prerequisite to know how ICANN's domain name rules exercise influence on freedom of internet speech, and their effects on China. In the next section, the influence on internet speech of ICANN-UDRP panel decisions on disputes between trade marks and domain names will be introduced and analysed.

## 6.2 The Influence of ICANN-UDRP on Internet Speech

In the late 1990s and the early 2000s, when the United States Department of Commerce (DoC) transferred the management right of the global DNS to the Internet

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<sup>895</sup> Since 2009 it has been forbidden to visit Facebook and Twitter. See Cynthia Liu, 'Internet Censorship as a Trade Barrier: A Look at the WTO Consistency of the Great Firewall in the Wake of the China-Google Dispute' (2011) 42 (4) *Georgetown Journal of International Law* 1199, 1205-1206. Facebook CEO Mark Zuckerberg has made some attempts to re-enter the Chinese market recently, but Facebook would have to make compromises in censorship rules with the Chinese authorities, which would definitely damage its reputation. See Puneet Pal Singh, *Facebook: Can Mark Zuckerberg Crack the Chinese Market?* (17 May 2012) BBC <<http://www.bbc.com/news/business-18082900>>; Shannon Tiezzi, *Facebook's China Push* (11 December 2014) THE DIPLOMAT <<http://thediplomat.com/2014/12/facebooks-china-push/>>; Lian Shu Chuang Shi Ren Yu Quan Mian Jin Ru Zhong Guo Shi Chang, *Yi Dong Hu Lian Wang Ge Ju Huo Sheng Ju Bian* (26 October 2015) Yang Guang Wang <[http://china.cnr.cn/xwwgf/20151026/t20151026\\_520283006.shtml](http://china.cnr.cn/xwwgf/20151026/t20151026_520283006.shtml)>.

<sup>896</sup> The Chinese government also prohibits proxy servers installed in mainland of China to visit the IP addresses of Facebook and Twitter. So, internet users cannot visit these websites via typing IP addresses either.

<sup>897</sup> Dawn C. Nunziato, 'Freedom of Expression, Democratic Norms, and Internet Governance' (2003) 52 (1) *Emory Law Journal* 187, 201.

Corporation for Assigned Names and Numbers (ICANN),<sup>898</sup> it did not take into account the issue of freedom of speech, and also failed to foresee the possible role of ICANN policy in the regulation of internet speech.<sup>899</sup> At the same time, there were no international rules or organisations to directly regulate the free speech of domain names.<sup>900</sup> Up to that time, domain name policies released by ICANN still were not directly related to freedom of speech.<sup>901</sup> However, ICANN's ability to control the DNS and the root server can be transformed into an ability to control internet speech.<sup>902</sup> For example, its domain name registration policy restricted anonymous registration and its Uniform Domain Name Dispute Resolution Policy (UDRP)<sup>903</sup> restricted critical speech.<sup>904</sup> When ICANN realized the problem and wanted to solve it, it faced two difficulties: first, there was no policy that explained how ICANN protected personal speech related to domain names; second, national governments questioned the ruling legitimacy of ICANN (which is a private company) to govern freedom of speech related to domain names.<sup>905</sup> Although ICANN could use Article 19 of the Universal Declaration of Human Rights (UDHR)<sup>906</sup> and the second paragraph of Article 19 of the International Covenant on Civil and Political Rights (ICCPR)<sup>907</sup> as references to protect

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<sup>898</sup> ICANN is a non-profit organisation coordinating and managing the domain name system worldwide. See ICANN, above n663.

<sup>899</sup> Dawn C. Nunziato, above n897, 190, 192.

<sup>900</sup> Sean P. Shecter, above n874, slides 13-14.

<sup>901</sup> Dawn C. Nunziato, above n897, 187.

<sup>902</sup> Ibid, 196.

<sup>903</sup> For more information about the founding of UDRP, see A. Michael Froomkin, above n704.

<sup>904</sup> The domain name registration policy that prohibited anonymous operation of a website made it very difficult for a person to express anonymous speech, and the policy resolving domain name disputes in UDRP suppressed critical remarks. These seemingly insignificant policies had a huge leverage effect on internet freedom of speech. See Dawn C. Nunziato, above n897, 188, 189, 193.

<sup>905</sup> For not disturbing the existing protection system for human rights and freedom of speech, this kind of contents cannot be included in the domain name management system. See The United States Department of Commerce, *Management of Internet Names and Addresses* ICANN <<https://www.icann.org/resources/unthemed-pages/white-paper-2012-02-25-en>>; Sean P. Shecter, above n874, slides 28-30.

<sup>906</sup> The 19th article in the Universal Declaration of Human Rights sets forth that: 'Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.' See UN, *the Universal Declaration of Human Rights* <<http://www.un.org/en/universal-declaration-human-rights/index.html>>.

<sup>907</sup> 'Everyone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.' See *International Covenant on Civil and Political Rights 1966* (World) paragraph 2, Article 19.

freedom of speech, there still existed certain restrictions on freedom of speech due to the 'respect of the rights or reputations of others, or the protection of national security or of public order (*ordre public*), or of public health or morals' according to the third paragraph of Article 19 of the ICCPR.<sup>908</sup> Article 20 also formulated that 'any propaganda for war shall be prohibited by law. Any advocacy of national, racial or religious hatred that constitutes incitement to discrimination, hostility or violence shall be prohibited by law.'<sup>909</sup> However, each country or region has a different understanding of the above provisions, and the implementation of protections of freedom of speech was different too, and this had become a significant obstacle for ICANN to develop a unified domain policy to protect the right of freedom of speech. Furthermore, national governments had put pressure on ICANN through the Governmental Advisory Committee (GAC) and claimed that the ccTLD was part of the state's sovereignty, so ICANN should not interfere with internet speech that should be regulated by domestic laws through domain name policies.<sup>910</sup>

Although ICANN is a private organisation under US law and not a duty-bearers under international human rights law, Monika Zalnieriute and Thomas Schneider argued that business firms have a responsibility to respect human rights setting out in the UN Guiding Principles on Business and Human Rights regardless of their size, sector, location, ownership and structure, and suggested that<sup>911</sup>:

- (1) Include reference to human rights in ICANN's Bylaws
- (2) Define public interest objectives
- (3) Improve the human rights expertise and early engagement in the GAC

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<sup>908</sup> Ibid, paragraph 3, Article 19. A similar provision also exists in the Universal Declaration of Human Rights: Article 29 states: '(1) Everyone has duties to the community in which alone the free and full development of his personality is possible. (2) In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society. (3) These rights and freedoms may in no case be exercised contrary to the purposes and principles of the United Nations.' See UN, above n906.

<sup>909</sup> Above n907, Article 20.

<sup>910</sup> Sean P. Shecter, above n874, slides 15-16.

<sup>911</sup> Monika Zalnieriute and Thomas Schneider, 'ICANN's Procedures and Policies in the Light of Human Rights, Fundamental Freedoms and Democratic Values' (2014) 12 *Council of Europe* 1, 7-8.

- (4) Develop an early engagement mechanism for the safeguard of human rights
- (5) Review ICANN's legal basis and explore innovative solutions for developing an international or quasi-international status of ICANN.

Despite ICANN faced heavy pressure and obstruction from some national governments in the development of the ccTLD policies, its gTLD policy was successfully implemented. ICANN required all applicants for gTLDs to accept the UDRP to resolve cybersquatting domain name disputes via the domain name registration contract.<sup>912</sup> These domain name disputes could be divided into the following five types: (1) cybersquatting disputes between trade marks and domain names; (2) disputes between trade marks and freedom of speech; (3) disputes between trade mark owners; (4) disputes between names and domain names; (5) disputes among cultural domains or geographical domains.<sup>913</sup> Disputes between trade mark rights and freedom of speech has become the focus of attention of critics in recent years. As the original intention of the design of ICANN's UDRP was mainly to resolve the problems of domain name cybersquatting, other disputes related to domain names were left to national courts and to private negotiations between parties.<sup>914</sup> In practice, the UDRP indeed efficiently solved much of the cybersquatting problem.<sup>915</sup> The UDRP as a supranational policy and its supranational jurisdiction made it relatively quick and inexpensive to resolve simple cybersquatting domain name disputes, but its Panels' rulings on disputes between trade marks and freedom of speech were controversial.<sup>916</sup>

Some websites owners attempted to register domain names with appropriate words

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<sup>912</sup> Milton Mueller, *A New Profile of Domain Name Trademark Disputes under ICANN's UDRP* (24 June 2002) slide 1 The Center for Convergence and Emerging Network Technologies <<http://ccent.syr.edu/wp-content/uploads/2014/05/markle-report-final.pdf>>.

<sup>913</sup> Cultural domains refer to a name that has the cultural indicator, such as "Buddhism", a word the rights to which might be competed by Chinese and Indian applicants; geographical domains refer to a name that has the geographic indicator function, such as "Jerusalem" word. For example, Brazil/Peru and Jeff Bezos were competed for .Amazon, a geographical domain. Jacqueline Lipton and Mary Wong, 'Trademarks and Freedom of Expression in ICANN's New gTLD Process' (2012) 38 (1) *Monash University Law Review* 188, 190.

<sup>914</sup> Andrew D. Murray, above n891, 202; Dawn C. Nunziato, above n897, 204.

<sup>915</sup> Milton Mueller, above n912, slide III.

<sup>916</sup> Graeme B. Dinwoodie, above n133, 511.

and/or numbers related to the website contents so as to increase the amount of website traffic they received.<sup>917</sup> Subsequently, the low-cost availability of domain names as the gateway to internet speech and free access to websites by the public meant both trade mark holders and critics considered domain names to be valuable assets in cyberspace.<sup>918</sup> But there was a tension between trade marks and freedom of speech, because trade mark Law restricted others from freely using words that were also trade marks.<sup>919</sup> When adjudicating this kind of domain name dispute, the text interpretation for the UDRP provisions had become the main basis for the balance of trade mark rights and freedom of speech. In the application of these provisions (which had an original goal of limiting domain name cybersquatting), it was not surprising that the decisions were not consistent.<sup>920</sup>

After analyzing more than 6000 cases of domain name disputes adjudicated according to the UDRP from 1999 to 2002, Milton Mueller found that the vast majority of panels were committed to protect trade mark rights, with little consideration of the issue of freedom of speech in the use of domain names.<sup>921</sup> Some panels believed that the free speech right of registrants could not be extended to the use of domain names,<sup>922</sup> and some were habitually inclined to protect trade mark rights.<sup>923</sup> The investigation of the UDRP services by Andrew D. Murray in 2002 found that 57% of panellists for the UDRP

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<sup>917</sup> Daniel T. Janis, above n870, 35-36.

<sup>918</sup> Jude A. Thomas, 'Fifteen Years of Fame: The Declining Relevance of Domain Names in the Enduring Conflict Between Trademark and Free Speech Rights' (2011) 11 (1) *John Marshall Review of Intellectual Property Law* 1, 5, 13.

<sup>919</sup> Mark A. Lemley, 'The Modern Lanham Act and the Death of Common Sense' (1999) 108 (7) *Yale Law Journal* 1687, 1715; Daniel T. Janis, above n870, 25; David C. Najarian, 'Internet Domains and Trademark Claims: First Amendment Considerations' (2001) 41 (1) *IDEA: The Journal of Law and Technology* 127, 144-145.

<sup>920</sup> Jude A. Thomas, above n918, 6.

<sup>921</sup> Milton Mueller, above n912, slides 1, 23.

<sup>922</sup> Sean P. Shecter, above n874, slide 35.

<sup>923</sup> Andrew D. Murray, above n891, 210; Milton Mueller, above n912, slide 23. For example, *Quirk Nissan Inc. v. Michael J. Maccini* (2000) NAF FA0094959 (National Arbitration Forum); *The Regents of the University of New Mexico v. American Information Services* (2000) NAF FA0094306 (National Arbitration Forum); *Compagnie de Saint Gobain v. Com-Union Corp* (2000) WIPO D2000-0020 (WIPO Arbitration and Mediation Center); *CSA International (a.k.a. Canadian Standards Association) v. John O. Shannon and Care Tech Industries, Inc.* (2000) WIPO D2000-0071 (WIPO Arbitration and Mediation Center); *Dixons Group plc v. Mr. Abu Abdullaah* (2000) WIPO D2000-1406 (WIPO Arbitration and Mediation Center); *Compagnie Generale des Matieres Nucleaires v. Greenpeace International* (2001) WIPO D2001-0376 (WIPO Arbitration and Mediation Center).

provided by the World Intellectual Property Organisation (WIPO) and the National Arbitration Forum (NAF)<sup>924</sup> did not have arbitration experience. This might lead to a trend that in a complex case involving freedom of speech and trade mark rights, panels would effectively protect trade marks,<sup>925</sup> because the protection for well-known trade marks from malicious registration was the consensus reached by the WIPO member states.<sup>926</sup> They believed that if a website's purpose was to maliciously attack trade mark rights, the domain name used by this website was being maliciously used.<sup>927</sup> So, most of the WIPO panels deemed that domain name registrants could not use others' marks only for criticizing or commenting. When a domain name consisted of a trade mark and without other additional and different words distinguished from the trade mark, even if the website's content showed the purpose of the site was criticism or review of trade marks to trade mark holders, the freedom of speech contained in these criticisms was not enough to constitute fair use.<sup>928</sup> Some WIPO panels also asserted that even if trade marks were not registered, such as the names of celebrities, fair use could not be proposed to justify use of these domain names by anyone not authorised

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<sup>924</sup> Andrew D. Murray argued that although there were four institutions providing UDRP service globally, WIPO and NAF provided 93.66% of UDRP service, so these two institutions were the investigated sample for the research. See Andrew D. Murray, above n891, 212. In the process of ICANN-UDRP, World Intellectual Property Organization (WIPO) became the first arbitration institution for the domain name disputes on 29 November 1999; National Arbitration Forum (NAF) became the second one on 23 December 1999; Disputes.org/eResolution consortium (DeC which transferred its arbitration service to eResolution) was the third one on 1 January 2000; CPR Institute for Dispute Resolution (CPR) was the fourth one on 22 March 2000. See ICANN, *Timeline for the Formulation and Implementation of the Uniform Domain-Name Dispute-Resolution Policy* ICANN <<https://www.icann.org/resources/pages/schedule-2012-02-25-en>>. On 3 December 2001, the Asian Domain Name Dispute Resolution Centre (ADNDRC) became the arbitration institution for domain name disputes in Asia. See ICANN, *ICANN Announces New Dispute Resolution Provider in the Asia Pacific Region* (3 December 2001) ICANN <<https://www.icann.org/news/announcement-2001-12-03-en>>.

<sup>925</sup> Andrew D. Murray, above n891, 203-204; Dawn C. Nunziato, above n897, 206.

<sup>926</sup> Graeme B. Dinwoodie, above n133, 508.

<sup>927</sup> Sheldon Burshtein, 'Domain Names at the Intersection of Free Speech and Trade-Mark Law on the Internet' (2007) 56 *University of New Brunswick Law Journal* 47, 60. For example, *DFO, Inc. v. Christian Williams* (2000) WIPO D2000-0181 (WIPO Arbitration and Mediation Center).

<sup>928</sup> W. Scott Creasman, 'Free Speech and "Sucking" – When is the Use of a Trademark in a Domain Name Fair?' (2005) 95 (5) *Trademark Reporter* 1034, 1043. For example, *Skattedirektoratet v. Nag* (2000) WIPO D2000-1314 (WIPO Arbitration and Mediation Center); *Myer Stores Ltd. v. Singh* (2001) WIPO D2001-0763 (WIPO Arbitration and Mediation Center); *Gardere Wynne Sewell LLP v. DefaultData.com* (2001) WIPO D2001-1093 (WIPO Arbitration and Mediation Center); *Counsel of American Survey Research Organizations v. The Consumer Information Organization, LLC* (2002) WIPO D2002-0377 (WIPO Arbitration and Mediation Center); *Counsel of American Survey Research Organizations* (2002) WIPO D2002-0377 (WIPO Arbitration and Mediation Center); John Selby, above n137, 377-378, 382. In China, fair use is a widely recognized exception to trade mark infringement. *Trade Mark Law* 2013 (China) s59.

by the celebrity.<sup>929</sup>

Not all panels under the UDRP upheld the above comments. Some argued that if the website was mainly for the purpose of parody, criticism, or comments, and not for commercial purposes, the website's domain name constituted a reasonable use and should be protected for freedom of speech.<sup>930</sup> Some of the WIPO panels believed that even if the text contained in a domain name was not sufficient to distinguish it from trade marks or to disassociate itself from trade mark holders, as long as its website was for criticism or comments, the domain name registrant could still keep the right to use the domain name.<sup>931</sup> If a website used the trade mark to express positive views, and the website's domain name was not for sale or for the intention of profit, such as celebrity fan sites, the domain name could constitute fair use, not a violation of a trade mark.<sup>932</sup> For example, in the *Bridgestone v. Jack Myers* case, a WIPO panel advocated that freedom of speech belonged to legitimate non-commercial fair use according to the UDRP 4 (c) (III), and argued that freedom of speech should be one of the

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<sup>929</sup> W. Scott Creasman, above n928, 1044. For example, *Gilmour v. Cenicolla* (2000) WIPO D2000-1459 (WIPO Arbitration and Mediation Center).

<sup>930</sup> Sheldon Burshtein, above n927, 59, 60. For example, *Bridgestone Firestone, Inc., Bridgestone / Firestone Research, Inc., and Bridgestone Corporation v. Jack Myers* (2000) WIPO D2000-0190 (WIPO Arbitration and Mediation Center); *Estde Lauder Inc. v. estelauder.com, estelauder.net and Jeff Hanna* (2000) WIPO D2000-0869 (WIPO Arbitration and Mediation Center); *Bosley Medical Group and Bosley Medical Institute, Inc. v. Michael Kremer* (2001) WIPO D2000-1647 (WIPO Arbitration and Mediation Center); *Leonard Cheshire Found. v. Darke* (2001) WIPO D2001-0131 (WIPO Arbitration and Mediation Center); *Compusa Mgmt. Co. v. Customized Computer Training* (2000) NAF FA0006000095082 (National Arbitration Forum); *Robo Enters., Inc. v. Daringer* (2001) NAF FA0101000096375 (National Arbitration Forum); *Mayo Found. for Ed. and Research v. Briesse* (2001) NAF FA0102000096765 (National Arbitration Forum); *Bloomberg L.P. v. Secaucus Group* (2001) NAF FA0104000097077 (National Arbitration Forum); *Pensacola Christian College Inc. v. Gage* (2001) NAF FA0110000101314 (National Arbitration Forum); *Savin Corp. v. savinsucks.com* (2002) NAF FA0201000103982 (National Arbitration Forum); *The Am. Nat'l Red Cross v. Mafiabusters.com LLC* (2002) NAF FA0206000114589 (National Arbitration Forum); *Becker & Poliakoff, P.A. v. Isabell* (2000) eRes AF-0847 (eResolution); *Dorset Police v. Coulter* (2001) eRes AF-0942 (eResolution); *Carefree Toland Pools, Inc. v. Thomson* (2001) eRes AF-1012 (eResolution).

<sup>931</sup> W. Scott Creasman, above n928, 1046. For example, *Bridgestone Firestone, Inc. v. Myers* (2000) WIPO D2000-0190 (WIPO Arbitration and Mediation Center); *TMP Worldwide, Inc. v. Potter* (2000) WIPO D2000-0536 (WIPO Arbitration and Mediation Center); *McLane Co. v. Craig* (2000) WIPO D2000-1455 (WIPO Arbitration and Mediation Center).

<sup>932</sup> W. Scott Creasman, above n928, 1045; Milton Mueller, above n912, slide 24. For example, *Estate of Tupac v. Barranco* (2000) eRes AF-0348 (eResolution); *The Royal Bank of Scotland Group plc v. natwestfraud.com and Umang Malhotra* (2001) WIPO D2001-0212 (WIPO Arbitration and Mediation Center); *Estate of Gary Jennings and Joyce O. Servis v. Submarine and Joe Ross* (2001) WIPO D2001-1042 (WIPO Arbitration and Mediation Center); *Marty Stuart v. Marty Stuart Fan Page CIO Sherry Mattioli* (2003) NAF 192600 (National Arbitration Forum).

foundations of internet law.<sup>933</sup>

The above study showed that the UDRP posed a significant challenge to free speech on the internet.<sup>934</sup> Its non-commercial use and reasonable use of the defence clauses weakened the value of freedom of speech.<sup>935</sup> Although freedom of speech was a defence to reasonable use of domain names, different cultures and backgrounds meant people had different understandings on freedom of speech and there were different interpretations of the UDRP by different people, so UDRP panels did not have a uniform adjudicating standard.<sup>936</sup> As a result, domain name registrants and trade mark holders could not predict the results of domain name disputes and there was little guidance for future domain name registrants.<sup>937</sup>

Some scholars proposed that, since there was an unfair suppression of freedom of speech in UDRP cases, ICANN should take appropriate measures to ensure the right of freedom of speech.<sup>938</sup> Although ICANN could protect the legitimate interests of trade mark holders while trying to protect the public interest contained in the principle of freedom of speech,<sup>939</sup> without the confirmation and protection of national domestic laws, even if the UDRP panels confirmed the freedom of speech related to domain names, personal freedom of speech could not be guaranteed either.<sup>940</sup> Filing a UDRP complaint did not interfere with the parties' ability to initiate legal proceedings in domestic courts.<sup>941</sup> These complex domain name disputes related to freedom of speech were also resolved by national courts, and each state's comprehension of

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<sup>933</sup> *Bridgestone Firestone, Inc., Bridgestone/Firestone Research, Inc., and Bridgestone Corporation v. Jack Myers* (2000) WIPO D2000-0190 (WIPO Arbitration and Mediation Center).

<sup>934</sup> Milton Mueller, above n912, slide 27.

<sup>935</sup> A. Michael Froomkin, above n704, 663.

<sup>936</sup> Jude A. Thomas, above n918, 25.

<sup>937</sup> *Ibid*, 31.

<sup>938</sup> Andrew D. Murray, above n891, 211.

<sup>939</sup> Jacqueline Lipton and Mary Wong, above n913, 193.

<sup>940</sup> Sean P. Shecter, above n874, slides 50, 64.

<sup>941</sup> Graeme B. Dinwoodie, above n133, 512-513.

freedom of speech and their governance processes were different.<sup>942</sup> Moreover, international organisations, such as WIPO or ICANN, cannot interfere with the development of national administrative regulations of the ccTLDs, and were also unable to reach a unified standard for the protection of freedom of speech related to domain names.<sup>943</sup>

Sean Shecter has argued that governments should work together to develop a unified policy in ccTLDs for the protection of freedom of speech,<sup>944</sup> but different countries provide different protections of freedom of speech to different extents, and different regulation methods created obstacles to the formulation of a united international convention.<sup>945</sup> For example, the United States is committed to maximizing the protection of free speech, while some countries limit and review almost all forms of expression.<sup>946</sup> With a lack of mandatory constraints on global ccTLD policy on supervising and governing internet speech, Chinese governments formulated administrative regulations for the .cn ccTLD with Chinese characteristics, according to Chinese domestic conditions. Unlike the many instances discussed in Chapters 4 and 5 where China chose to ‘buy’ regulatory models for the internet, which had been developed by other countries, in relation to freedom of speech, China chose to ‘make’ its policies in relation to governance on internet speech when it faced the ‘make-or-buy’ choice.<sup>947</sup>

Legal, architectural, social, and marketing constraints on internet speech in China are detailed in the following section.

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<sup>942</sup> Ibid, 511.

<sup>943</sup> Sean P. Shecter, above n874, slides 50, 64.

<sup>944</sup> Ibid, slide 74.

<sup>945</sup> Kevin M. Rogers, ‘The Early Ground Offensives in Internet Governance’ (2007) 21 (1) *International Review of Law, Computers & Technology* 5, 10.

<sup>946</sup> Sean P. Shecter, above n874, slide 21.

<sup>947</sup> For more information, please see sections 6.4.2 and 6.4.3 in this chapter.

## 6.3 The Governance Mode on Internet Speech in China

When communication technology threatens state sovereignty, all governments think it necessary to govern the internet to ensure the security of sensitive data and to prevent internet crimes. Even the free and democratic countries, in the face of child pornography, racism, incitement to violence, right-wing extremism, hate speech and other issues, also think it essential to govern these kinds of speech.<sup>948</sup> It is not surprising that every country has released laws and regulations to regulate internet activities to some extent. However, on September 11 2001, the terrorist attacks on New York and Washington led the world to rethink the issue of how to balance ‘civil liberties and national security’.<sup>949</sup>

In China, which has experienced thousands of years of feudalism, freedom of speech promoted by internet technology has a certain amount of positive influence on citizens’ participation in the administration of state affairs, supervision of public power, and promotion of the democratization process.<sup>950</sup> However, freedom of speech on the internet also has negative effects, such as the threats of inflammatory remarks to public safety and national security, the ripple effects of false statements to the social order, the negative effects on adolescents of misleading information, and disclosure of information leading to infringements of personal privacy.<sup>951</sup> In addition, China has a long history of regulating civil speech, so the free market of ideas has never been rooted in China.<sup>952</sup> In this context, internet policies made by Chinese authorities, based on ideas inherited from the laws and regulations on traditional media, which are to prevent adverse information that may incite subversion or disturb the order of the

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<sup>948</sup> Gudrun Wacker, ‘The Internet and Censorship in China’ in Christopher R. Hughes and Gudrun Wacker (eds), *China and the Internet: Politics of the Digital Leap Forward* (RoutledgeCurzon, 2003) 58, 59.

<sup>949</sup> Ibid.

<sup>950</sup> ZHENG Yongxiao and TANG Qiao, ‘Wang Luo Bao Li Xuan Xiao Bei Hou De Zheng Zhi Yu Wen Hua – Jian Lun Jin Nian Lai Wang Luo Wen Hua De Jian Guan Yu Shu Dao’ (2009) 46 (6) *Xi Bei Shi Da Xue Bao (She Hui Ke Xue Ban)* 7, 7, 10; FANG Ming, ‘Lun Wang Luo Yan Lun Zi You De Fa Lv Gui Ze’ (2009) 172 (12) *Shan Dong She Hui Ke Xue* 60, 61; YU Chongsheng and SHU Gang, ‘She Hui Zhuan Xing Qi Wang Luo Yu Qing Zhi Li Chuang Xin – Ji Yu Zheng Zhi An Quan De Shi Jiao’ (2012) 113 (5) *Xing Zheng Lun Tan* 1, 4.

<sup>951</sup> YANG Xingyue, ‘Lun Wang Luo Kong Jian De Yan Lun Zi You’ (2004) 18 (2) *Ji Lin Sheng Jing Ji Guan Li Gan Bu Xue Yuan Xue Bao* 45, 46.

<sup>952</sup> Keith Werhan, *Freedom of Speech: A Reference Guide to the United States Constitution* (Praeger, 2004) 35.

socialist society from being published and disseminated on the internet.<sup>953</sup>

Industry self-regulation led by governments, industry self-regulation under the guidance of governments, and industry self-regulation led by industry itself are currently the three basic modes of supervision of internet speech worldwide.<sup>954</sup> China applies the government-dominant model; that is, Chinese governments strengthen the supervision of internet speech through legislative, administrative, technical and other means to safeguard national security, guarantee the ruling position of the CCP, maintain social stability, and lead mainstream values.<sup>955</sup> Relating to the regulation of internet speech, Lawrence Lessig proposed that the four constraints of law, architecture, social norms, and the market could bind individual behaviour.<sup>956</sup> Simultaneously, these four constraints interacted with each other and formed a kind of mixed social control force acting on individuals.<sup>957</sup> Although the four constraints have different intensities, different ways of regulating, and different effects upon individuals, changing any one of these constraints would cause changes in the other constraints, thereby affecting the synthesis of constraints on individual behaviour.<sup>958</sup> In the next three sections, there is a detailed analysis of legal and architectural constraints and an introduction to other constraints by Chinese authorities on internet speech.

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<sup>953</sup> Shaojung Sharon Wang and Junhao Hong, 'Discourse Behind the Forbidden Realm: Internet Surveillance and its Implications on China's Blogosphere' (2010) 27 (1) *Telematics and Informatics* 67, 73.

<sup>954</sup> LUO Chuxiang, 'Wang Luo Kong Jian De Biao Da Zi You Ji Qi Xian Zhi – Jian Lun Zheng Fu Dui Hu Lian Wang Nei Rong De Guan Li' (2012) 174 (4) *Fa Xue Ping Lun* 15, 20.

<sup>955</sup> Ibid.

<sup>956</sup> Lawrence Lessig, above n138 (a), 662-663.

<sup>957</sup> Ibid, 663; Robert C. Ellickson, *Order without Law: How Neighbors Settle Disputes* (Harvard University Press, 1991)131-132.

<sup>958</sup> Lawrence Lessig, above n138 (a), 664.

## 6.3.1 Legal Regulation

### 6.3.1.1 The Legal Regulation System

In 1997, the Central Committee of the CPC stated that the Information Office of the State Council was the central administrative institution for news propaganda. In April 2000, the Information Office of the State Council set up an Internet News Administrative Bureau specializing in the management of the dissemination of internet news. Subsequently, all provinces, autonomous regions, and municipalities set up Internet News Administration organisations under their respective information offices. Since then, the internet news administrative system had basically formed from top to bottom in China.<sup>959</sup> In addition to the Information Office of the State Council, the Publicity Department of the CPC Central Committee, the Ministry of Information Industry, the State Press and Publication Administration, the Ministry of Culture, the Ministry of Education, the Ministry of Public Security, and the State Secrecy Bureau are also responsible for censoring and supervising internet speech.<sup>960</sup> Although the multi-regulatory sectors model<sup>961</sup> could impose a full range of regulation on internet speech from company registration, business license issuance, data retention requirements, content filtering and other aspects,<sup>962</sup> the provisions and regulations of the various departments were too general and vague, and the judgment standard was completely controlled by governments.<sup>963</sup> Moreover, the extent of governance of internet speech depended entirely on the attitudes and tolerance of the CCP to particular internet topics.<sup>964</sup> For example, authorities had a low tolerance to sensitive political issues, but had a high tolerance to general comments on social life or other remarks not involving

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<sup>959</sup> CHEN Yuan, QIU Junping, ZOU Jing, and NI Chaoqun, 'Dui Wo Guo Wang Luo She Qu1 Xin Xi Chuan Bo Guan Li Fa Gui De Si Kao' (2008) 153 (5) *Shan Dong She Hui Ke Xue* 32, 35.

<sup>960</sup> Ibid, 34.

<sup>961</sup> Ibid.

<sup>962</sup> Shaojung Sharon Wang and Junhao Hong, above n953, 73.

<sup>963</sup> CHEN Taosheng, 'Wang Luo Huan Jing Zhong De Yan Lun Zi You Ji Qi Gui Zhi' (2006) 24 (1) *Gui Zhou Da Xue Xue Bao (She Hui Ke Xue Ban)* 49, 52.

<sup>964</sup> CHEN Hongmei, *Wang Luo Chuan Bo Yu Gong Zhong Biao Da – Wang Shang Gong Zhong Biao Da De Xian Zhuang Yu Ying Xiang Yan Jiu* (Fu Dan Da Xue Bo Shi Xue Wei Lun Wen, 2005) 98.

anti-party, anti-society, or other extreme views.<sup>965</sup> Therefore, internet service providers had to coordinate users' interests with national requirements, but also had to try to figure out the fuzzy words of the legal provisions and the inconsistency of law enforcement in various departments and regions, and had to judge the attitudes of administrative authorities and the bottom line of tolerance of the CCP, which resulted in the lack of a unified standard of filtering internet speech between different filtering institutions.<sup>966</sup>

In order to prevent extreme separatists and foreign hostile forces using the internet to spread inflammatory remarks and to undermine and split China, Chinese authorities have increased the governing and monitoring of internet speech. For safeguarding national security and ensuring national ideological security,<sup>967</sup> governments have taken various measures to monitor and control internet speech.<sup>968</sup> For instance, on 20 January 1998, LIN Hai, a technologist in an enterprise, was sentenced to two years in prison for the crime of incitement to subvert the state, because he sent the American online *Democracy Journal* to Chinese users via emails. This was the first criminal case involving internet speech in China.<sup>969</sup> From then on, China began a new journey to make use of legal rules and regulations to govern internet speech. Overall, the laws and regulations regulating internet speech in China have the following characteristics: first, the state gradually strengthened supervision on internet speech; second, multiple regulatory departments were created, but they lacked a clear division of responsibility among the various departments;<sup>970</sup> third, in relation to legislation, the laws and regulations governing traditional media were directly transplanted or extended to the laws and regulations governing internet speech; fourth, the legal effects of specific laws and regulations restricting internet speech were minimal; fifth, legal provisions and words in laws and regulations governing internet speech were

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<sup>965</sup> Ibid; Gudrun Wacker, above n948, 70.

<sup>966</sup> Gudrun Wacker, above n948, 69.

<sup>967</sup> YU Chongsheng and SHU Gang, above n950, 4.

<sup>968</sup> Dawn C. Nunziato, above n897, 193.

<sup>969</sup> Human Rights Watch, *Computer Industry Must Speak out on Chinese Internet Case* (20 January 1999) Human Rights Watch <<https://www.hrw.org/news/1999/01/20/computer-industry-must-speak-out-chinese-internet-case>>; Andrew L. Shapiro, 'The Internet' (1999) 115 *Foreign Policy* 14, 15.

<sup>970</sup> CHEN Yuan, QIU Junping, ZOU Jing, and NI Chaoqun, above n959, 34.

unclear and there was no unified filtering standard for internet speech.<sup>971</sup>

The legal regulation system provides a framework for Chinese authorities to govern internet speech. The specific provisions in Chinese laws and regulations that place powerful constraints on dissemination of internet speech in China will be introduced in the next section.

### 6.3.1.2 Relevant Legal Provisions of Chinese Laws and Regulations

#### Governing Internet Speech

China's Constitution<sup>972</sup> is the supreme law to protect and restrain freedom of speech. Its Article 35 sets forth that 'the citizens of the People's Republic of China have freedom of speech, publication, assembly, association, and demonstration.'<sup>973</sup> Internet speech also belongs to a kind of citizen's speech, which therefore should be protected by the Constitution. When exercising the right of freedom of speech, 'citizens shall not harm the legitimate rights and interests of the state, the society, and the collective and other citizens.'<sup>974</sup> Thus, Chinese citizens' freedom of speech is a conditional right.<sup>975</sup> Besides the Constitution, various laws and regulations have similar clauses which all relate to Article 27 of the AMoCDN.<sup>976</sup> Article 6 of the Administrative Regulation on the Management of Electronic Publications, which was published in 1998,<sup>977</sup> stated that electronic publications should not:

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<sup>971</sup> CHEN Jianyun, 'Wo Guo Wang Luo Xin Xi Chuan Bo Li Fa Kao Cha' (2005) (4) *Dang Dai Chuan Bo* 50, 52.

<sup>972</sup> The Constitution of the People's Republic of China passed at the Fifth National People's Congress on 4 December 1982 has four Constitutional Amendments. The first Constitutional Amendment was passed at the Seventh National People's Congress on 12 April 1998, the second one was passed at the Eighth National People's Congress on 29 May 1993, the third one was passed at the Ninth National People's Congress on 15 March 1999, and the fourth one was passed at the Tenth National People's Congress on 14 March 2004.

<sup>973</sup> Above n434, s 35.

<sup>974</sup> Ibid, s 51.

<sup>975</sup> For more information on features, functions, restrictions, and responsibilities of freedom of internet speech, see DING Chunyan, 'Xian Dai Tong Xun Gong Ju Xia De Gong Min Yan Lun Zi You' in XIE Jinjie (ed), *Zhong Shan Da Xue Fa Lv Ping Lun* (Guangxi Normal University Press, 2014) 73.

<sup>976</sup> For specific details about Article 27 of the AMoCDN, please see section 6.1.1.1 in this chapter.

<sup>977</sup> The Administrative Regulation on the Management of Electronic Publications was issued by Administration of

- (1) oppose the basic principles of the Constitution;
- (2) harm the unification, sovereignty, and territorial integrity of the state;
- (3) endanger the security, honour, and interests of the state;
- (4) incite ethnic divisions, infringe the customs and habits of ethnic minorities, and undermine the unity of the nation;
- (5) reveal state secrets;
- (6) propagate obscenity or superstition, render violence, or harm social morality and national excellent cultural tradition;
- (7) insult or slander others;
- (8) contain other contents prohibited by laws and regulations.<sup>978</sup>

In 2000, Article 15 of the Administrative Measures on the Internet Information Services<sup>979</sup> also formulated that internet information service providers should not produce, copy, publish, or spread information belonging to the Nine Forbidden Principles.<sup>980</sup> Article 13 of the Interim Administrative Regulation on Publishing News of Internet Websites<sup>981</sup> proposed in 2000 that websites should not publish news relating to the Nine Forbidden Principles.<sup>982</sup> Article 9 of the Administrative Regulation on Internet Bulletin Board System<sup>983</sup> prohibited anyone from publishing contents belonging to the Nine Forbidden Principles on Bulletin Board System (BBS),<sup>984</sup> and its

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Press and Publication on 30 December 1997 was implemented on 1 January 1998.

<sup>978</sup> *Administrative Regulation on the Management of Electronic Publications 1998* (China) s 6.

<sup>979</sup> *Administrative Measures on the Internet Information Services* was passed by the State Council on 20 September 2000 and was implemented on 25 September 2000.

<sup>980</sup> *Administrative Measures on the Internet Information Services 2000* (China) s 15.

<sup>981</sup> *Interim Administrative Regulation on Publishing News of Internet Websites* was issued by the Information Office of the State Council and Ministry of Information Industry and was released on 6 November 2000.

<sup>982</sup> *Interim Administrative Regulation on Publishing News of Internet Websites 2000* (China) s 13.

<sup>983</sup> *Administrative Regulation on Internet Bulletin Board System* was passed by Ministry of Information Industry on 8 October 2000 and was implemented on 6 November 2000.

<sup>984</sup> *Administrative Regulation on Internet Bulletin Board System 2000* (China) s 9.

Article 13 also ordered BBS providers to immediately delete the information, keep relevant records, and report to relevant authorities if they found any information belonging to the Nine Forbidden Principles on the BBS.<sup>985</sup> Its Article 14 put forward that BBS providers should record the contents, news time, IP address, and domain names appearing on BBS for 60 days, and backup records should be provided when authorities requested to inspect them.<sup>986</sup> Article 15 commanded that internet access service providers should record internet users' access time, user accounts, IP address or domain names, and dial-up telephone numbers for 60 days.<sup>987</sup> These provisions provided the legal guarantee for state agencies to trace the identity of those publishing anything on the internet.

In 2001, the Administrative Regulation on Publication<sup>988</sup> proposed that no publication should contain material belonging to the Nine Forbidden Principles, and also should not harm social morality or national excellent cultural traditions (this clause and the Nine Forbidden Principles together are called the Ten Forbidden Principles) because the authority wanted to reduce the number of vulgar publications.<sup>989</sup> In 2002, the Interim Administrative Regulation on Internet Publication<sup>990</sup> stated that internet publications should not contain Ten Forbidden Principles contents.<sup>991</sup> In 2003, the Interim Administrative Regulation on Internet Culture<sup>992</sup> pointed out that internet cultural institutions should not provide cultural products containing the Ten Forbidden Principles.<sup>993</sup> In addition to a variety of regulations, the Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on the Specific Application of

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<sup>985</sup> Ibid, s 13.

<sup>986</sup> Ibid, s 14.

<sup>987</sup> Ibid, s 15.

<sup>988</sup> *Administrative Regulation on Publication* was passed by the State Council on 12 December 2001 and was implemented on 1 February 2002.

<sup>989</sup> *Administrative Regulation on Publication 2001* (China) s 26.

<sup>990</sup> *Interim Administrative Regulation on Internet Publication* was issued by the Administration of Press and Publication on 24 December 2001 and by Ministry of Information Industry on 27 June 2002, was released on 27 June 2002, and was implemented on 1 August 2002.

<sup>991</sup> *Interim Administrative Regulation on Internet Publication 2002* (China) s 17.

<sup>992</sup> *Interim Administrative Regulation on Internet Culture* was passed by the Ministry of Culture on 4 March 2003 and was implemented on 1 July 2003.

<sup>993</sup> *Interim Administrative Regulation on Internet Culture 2003* (China) s 17.

Laws about Producing, Reproducing, Publishing, Selling, and Spreading Pornographic Electronic Information in Criminal Cases through the Use of the Internet, Mobile Communication Terminal, and Voice Platform<sup>994</sup> provided specific guidance on hearing these kinds of cases.<sup>995</sup>

In summary, Chinese governments sustainably and strictly controlled sensitive information via the chains of publishing, broadcasting, telecommunications, and internet industries.<sup>996</sup> Those regulations that are applied systematically in practice have a profound impact on China's administrative regulation of the .cn ccTLD, which is detailed in the following section.

### 6.3.2 Architectural Regulation

Controls on internet speech can be effectively implemented through the control of the physical layer, logical layer, application layer, and/or content layer of the internet.<sup>997</sup> The lowest layer is the physical layer; that is, the physical devices connected to the network. Network connection can be controlled through the deployment and control of network infrastructure.<sup>998</sup> The second layer is the logical layer, namely TCP/IP and other network communication protocols. At present, Chinese governments have not been directly involved in the control of the logical layer.<sup>999</sup> The third layer is the

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<sup>994</sup> Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on the Specific Application of Laws about Producing, Reproducing, Publishing, Selling, and Spreading Pornographic Electronic Information in Criminal Cases through the Use of the Internet, Mobile Communication Terminal, and Voice Platform was passed by the Supreme People's Court on 1 September 2004 and by the Supreme People's Procuratorate on 2 September 2004, and was implemented on 6 September 2004.

<sup>995</sup> After 2004, the Administrative Regulation on Internet News Information Services was released in 2005, the Information Network Transmission Right Protection Ordinance was released in 2006, the Interpretation of Several Issues Concerning the Application of Laws in Criminal Cases Involving the Internet was released in 2013 and other laws, regulations, and judicial interpretations also made provisions on governing internet speech. As the research scope of this dissertation is from 1990 to 2004, laws and regulations released after 2004 will not be detailed.

<sup>996</sup> Ian Weber, 'Communicating Styles: Balancing Specificity and Diffuseness in Developing China's Internet Regulations' (2002) 23 (3) *Journal of Intercultural Studies* 307, 311-312.

<sup>997</sup> Kevin Werbach, above n4, 59-65; Philip J. Weiser, above n4, 3.

<sup>998</sup> Philip J. Weiser, above n997, 3.

<sup>999</sup> *Ibid*, 4.

application layer; that is, all kinds of network application systems or software, including combined applications of software and hardware.<sup>1000</sup> The fourth layer is the content layer.<sup>1001</sup> In this dissertation, the physical layer of the network infrastructure is defined as the hard architecture regulating internet speech; the code in the logical layer, application layer, and content layer is defined as the soft architecture regulating internet speech. Some types of architecture will make internet speech more easily governed, and some types of architecture will make it more difficult to regulate. Therefore, the choice of different architecture is to choose different ways of regulation.<sup>1002</sup>

According to the Lessig's interpretation of the New Chicago School theory (another name was Pathetic Dot theory which is not widely used anymore), behavior is regulated by four types of constraints - laws, markets, norms, and architecture - which operate together and constitute a bundle of forces that guide an individual to behave or act in a given way. Specifically, architecture regulates the behavior more directly.<sup>1003</sup> How architecture influences the regulatory activity is detailed in the following.

### 6.3.2.1 The Regulation of Hard Architecture

If architectures are effectively controlled, then the limited regulatory power of governments can be extended to a very strong regulatory power through these

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<sup>1000</sup> Ibid.

<sup>1001</sup> Ibid, 5.

<sup>1002</sup> Lawrence Lessig, 'What Things Regulate Speech: CDA 2.0 vs. Filtering' (1998) 38 (4) *Jurimetrics* 629, 637.

<sup>1003</sup> In 1999, Lessig proposed that each of four specific constraints (market, law, norms, and architecture) influenced a part of cyberspace independently and simultaneously. Thus, the dot in the middle as "pathetic" or accepting of regulation from the four forces without question. This was known as the Pathetic Dot Model. After that, Lessig abandoned the "pathetic" point as he argued that the "dot" also had a reverse influence to the four constraints rather than a thorough passivity, this updated theory was the New Chicago School. In this dissertation, the New Chicago School approach was applied. See Lawrence Lessig, *Code: And Other Laws Of Cyberspace* (Basic Books, 1999) 87; Lawrence Lessig, *Code: And Other Laws Of Cyberspace Version 2.0* (Basic Books, 2006) 270-273; Lawrence Lessig (a), above n138, 663-664. In 1999,

architectures.<sup>1004</sup> Thus, governments can strengthen control on internet speech through control of telecommunication infrastructure.<sup>1005</sup> Specifically, in 1996, Article 6 of the Interim Administrative Regulation on International Networking of Computer Information Networks<sup>1006</sup> stated that if a computer information network wanted to connect directly to the international network, it must use the international access channel provided by the national public telecommunications network of the Ministry of Posts and Telecommunications. No institution or individual may establish or use other channels for international networking.<sup>1007</sup> This rule ensures that the Chinese government can effectively control the spread of information between international and domestic sources. Further, by December 2004, the nine companies that provided network infrastructure were state held companies.<sup>1008</sup> Therefore, via directly controlling the network infrastructure, Chinese governments can indirectly control the spread of internet speech between domestic and international networks.

### 6.3.2.2 The Regulation of Soft Architecture

The code embedded in software and hardware is the soft architecture regulating network space.<sup>1009</sup> These changing codes are the rules of cyberspace.<sup>1010</sup> Either considering the code as the law<sup>1011</sup> or the code is the law<sup>1012</sup>, programmers who was responsible to write code can be controlled by others consciously or subconsciously

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<sup>1004</sup> Lawrence Lessig (b), above n1003, 282.

<sup>1005</sup> Joel R Reidenberg, 'Governing Networks and Rule-making in Cyberspace' (1996) 45 (3) *Emory Law Journal* 911, 912.

<sup>1006</sup> The Interim Administrative Regulation on International Networking of Computer Information Networks was passed by the State Council on 23 January 1996 and was released on 1 February 1996.

<sup>1007</sup> *Interim Administrative Regulation on International Networking of Computer Information Networks 1996* (China) s 6.

<sup>1008</sup> Eric Harwit and Duncan Clark, 'Shaping the Internet in China: Evolution of Political Control over Network Infrastructure' (2001) 41 (3) *Asian Survey* 377, 386; CNNIC, *Zhong Guo Hu Lian Wang Luo Zhuang Kuang Tong Ji Bao Gao* <<http://www.cnnic.cn/hlwfyj/hlwzbg/200906/P020120709345359935070.pdf>>.

<sup>1009</sup> Lawrence Lessig (b), above n1003, 121.

<sup>1010</sup> *Ibid*, 79.

<sup>1011</sup> Andrew L. Shapiro, 'Disappearance of Cyberspace and the Rise of Code' (1998) 8 (3) *Seton Hall Constitutional Law Journal* 703, 718.

<sup>1012</sup> Lawrence Lessig (b), above n1003, 5.

which determines that the code can be regulated.<sup>1013</sup> Code is a very effective method of regulation,<sup>1014</sup> a small adjustment to the software code can achieve a huge invasion of regulation.<sup>1015</sup> Code can design the internet into a cyberspace that cannot be regulated by governments, and can also design it into a cyberspace that can be fully controlled. Governments can take measures to change the design of the internet, and then affect its regulation.<sup>1016</sup>

There are eight main methods of using code to block or filter internet speech: filtering TCP/IP source, filtering the contents of TCP/IP, tampering with DNS, filtering HTTP proxy servers, mixed filtering TCP/IP and HTTP proxy servers, refusing to resolve, cancelling the domain name, and shutting down the server.<sup>1017</sup> Commercial companies targeted on the technical requirements of monitoring internet speech from governments had actively developed appropriate technologies<sup>1018</sup> to help governments to censor and filter internet speech.<sup>1019</sup> For example, under the 'Golden Shield' project, the Great Firewall of China is a system that can automatically intercept and filter information or websites harming the CCP;<sup>1020</sup> and the 'Location Program' can

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<sup>1013</sup> Ibid, 149.

<sup>1014</sup> Lawrence Lessig, 'The Zones of Cyberspace' (1996) 48 (5) *Stanford Law Review* 1403, 1408.

<sup>1015</sup> Jonathan Zittrain, 'A History of Online Gatekeeping' (2006) 19 (2) *Harvard Journal of Law & Technology* 253, 298.

<sup>1016</sup> Lawrence Lessig, 'The Law of the Horse: What Cyberlaw Might Teach' (1999) 113 (2) *Harvard Law Review* 501, 514.

<sup>1017</sup> Steven J. Murdoch and Ross Anderson, 'Tools and Technology of Internet Filtering' in Ronald Deibert et al. (eds), *Access Denied: The Practice and Policy of Global Internet Filtering* (MIT Press, 2008) 57, 59-65.

<sup>1018</sup> Gudrun Wacker, above n948, 61.

<sup>1019</sup> For more information on the study of global internet speech censorship and Chinese internet censorship, see Richard Clayton, Steven J. Murdoch, and Robert N. M. Watson, 'Ignoring the Great Firewall of China' in George Danezis and Philippe Golle (eds), *Privacy Enhancing Technologies* (Springer, 2006) 20; Jedidiah R. Crandall et al., 'Concept Doppler: A Weather Tracker for Internet Censorship' (29 November 2007) The 14th ACM Conference on Computer and Communications Security; Ronald Deibert et al. (eds), *Access Denied: The Practice and Policy of Global Internet Filtering* (MIT Press, 2008); Guobin Yang, *The Power of the Internet In China: Citizen Activism Online* (Columbia University Press, 2011); Eli Pariser, *The Filter Bubble: What the Internet is Hiding from You* (Penguin Press, 2011); Xueyang Xu, Z. Morley Mao, and J. Alex Halderman, 'Internet Censorship in China: Where Does the Filtering Occur?' (2011) in *Proceedings of the 12th Passive and Active Measurement Conference* 133; Evgeny Morozov, *The Net Delusion: The Dark Side of Internet Freedom* (PublicAffairs, 2012); Rebecca MacKinnon, *Consent of the Networked: The World-Wide Struggle for Internet Freedom* (Basic Books, 2012); King Gary, Jennifer Pan, and Margaret E. Roberts, 'How Censorship in China Allows Government Criticism But Silences Collective Expression' (2013) 107 (2) *American Political Science Review* 326; Joss Wright, 'Regional Variation in Chinese Internet Filtering' (2014) 17 (1) *Information, Communication & Society* 121.

<sup>1020</sup> Cynthia Liu, 'Internet Censorship as a Trade Barrier: A Look at the WTO Consistency of the Great Firewall in

locate users' IP addresses.<sup>1021</sup> In 1996, the World Wide Web Construction Project launched by the Chinese government allowed the police to track all online activities of end users within China's national firewall, including surfing, chatting, downloading, sending and receiving messages and so on.<sup>1022</sup>

Some Chinese internet users have used Google and other search engines to visit prohibited websites created by the Falun Gong, the Tibetan independence movement and so forth. In September 2002, the Chinese government began to prohibit users in mainland China from accessing the search engines Google and AltaVista. The websites of the New York Times, the Washington Post, the British Broadcasting Corporation and other western websites have also been banned. Speaking about this, Chinese Foreign Ministry spokesman, KONG Quan, said at a press conference that the Chinese government did not allow internet speech that harmed national security and social order to disseminate freely in Chinese territory.<sup>1023</sup>

Although China imposes strict censorship on internet speech<sup>1024</sup> and all state-owned or private network service providers are directly or indirectly controlled by MII,<sup>1025</sup> the regulation of the internet is not watertight. Many internet users use proxy servers and other means to cross the government's blockade and restrictions to access banned websites. Chinese governments are also using a variety of resources and technologies to guard against this vulnerability and prevent such access, such as closing proxy servers or distributing false IP addresses to lure users to connect to the National

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the Wake of the China-Google Dispute' (2011) 42 (4) *Georgetown Journal of International Law* 1199, 1207; Jack Linchuan Qiu, 'Virtual Censorship in China: Keeping the Gate between the Cyberspaces' (1999) (4) *International Journal of Communications Law and Policy* 1, 13.

<sup>1021</sup> Gudrun Wacker, above n948, 59.

<sup>1022</sup> For example, in December 1996, Sun Microsystems company received a \$150 million contract to help the Chinese government build the backbone network of China's World Wide Web Project; in January 1997, the Bay company successfully bid for a contract, worth several million dollars, to build the infrastructure of China's World Wide Web Project. See Jack Linchuan Qiu, above n1020, 13.

<sup>1023</sup> Peter S. Goodman and Mike Musgrove, 'China Blocks Web Search Engines' (12 September 2002) *Washington Post* <<http://www.washingtonpost.com/archive/business/2002/09/12/china-blocks-web-search-engines/5ec4d5a1-dedc-41fd-8f65-0dc6ccfecc53/>>.

<sup>1024</sup> Xueyang Xu, Z. Morley Mao, and J. Alex Halderman, above n1019, 141.

<sup>1025</sup> Eric Harwit and Duncan Clark, above n1008, 389.

Security Bureau's website.<sup>1026</sup> Therefore, 'in Cyberlaw 2.0, the borderless internet becomes a bordered one, the border laws become borderless, the regulation of code becomes the regulated code.'<sup>1027</sup>

### 6.3.3 Other Regulation

Since the founding of the PRC in 1949, its governments have monopolized the creation right of almost all the traditional media.<sup>1028</sup> This has meant that the traditional media has become an official mouthpiece.<sup>1029</sup> Similarly, in the information age, besides the governance method via laws and regulations, Chinese governments supported the development of the official media to influence the developing direction of internet speech.<sup>1030</sup> This expansion of administrative power was able to control internet discussion to a great extent.<sup>1031</sup> But the long-term dependence on the central government's policies and the administrative orders of all levels of governments to govern internet speech has enabled some government departments and officials to encroach on freedom of expression, which has weakened government credibility.<sup>1032</sup> In order to address this situation, an 'Online Government Project' started in 1999 aimed to promote the establishment of websites by ministries, administrative agencies, and local governments. These websites would provide more information and data to the public to enhance the transparency and accountability of executive authorities and to deter corruption and fraud.<sup>1033</sup> On 10 June 2004, to encourage the Chinese public to report illegal information and to safeguard the public interest, the website of the

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<sup>1026</sup> Gudrun Wacker, above n948, 71.

<sup>1027</sup> Michael A. Geist, 'Cyberlaw 2.0' (2003) 44 (2) *Boston College Law Review* 323, 332.

<sup>1028</sup> XIAO Rong, 'Wang Luo Yan Lun Zai Gong Min Ji Ben Quan Li Ping Heng Shi Xian Zhong De Di Wei' (2012) (5) *Fa Xue* 75, 79.

<sup>1029</sup> *Ibid*, 80.

<sup>1030</sup> To support the development of the official news media, such as *People Daily* and *Xinhua Daily*, the State Council granted \$121 million US dollars to promote and increase the competitiveness of mainstream media in the network market. See Gudrun Wacker, above n948, 63.

<sup>1031</sup> CHEN Taosheng, above n963, 51-52.

<sup>1032</sup> LIN Ling, 'Lun Yi Fa Yin Dao Wang Luo Yu Lun – Jian Lun Wang Luo Yan Lun Zi You Bao Hu' (2012) (2) *Xue Hai* 169, 174.

<sup>1033</sup> Gudrun Wacker, above n948, 58.

Illegal and Unhealthy Information Reporting Center ([www.12377.cn](http://www.12377.cn)) was opened. This marked a substantial step to strengthen self-regulation and public supervision in the internet industry in China.<sup>1034</sup> In the same year, Self-Regulatory Norms of Prohibiting Websites to Disseminate Obscene, Pornographic and Other Unhealthy Information was released and implemented.<sup>1035</sup> Thus, the regulation method of orderly management, self-censorship and self-discipline norms on internet speech has been gradually formed.<sup>1036</sup>

In conclusion, Lessig argued that each regulating method on internet speech had costs<sup>1037</sup> and regulators needed to balance costs (such as money, human resources, governmental credibility, civil rights, etc.) and benefits (such as stability, unity, solidarity, growth of economy, etc.), and to consider what was the most effective way to achieve the desired objective.<sup>1038</sup> Although the regulation of laws and architecture on internet speech is strong and effective in China, the regulation of morals and the market is relatively weak; only the combination of these four constraints can achieve the best governance effects.<sup>1039</sup>

The next section sets out the background of the second institutional change and the specific regulations on internet speech via the governance of domain names.

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<sup>1034</sup> CNNIC, *2004 Nian Zhong Guo Hu Lian Wang Fa Zhan Da Shi Ji* (26 May 2009) CNNIC <[http://www.cnnic.cn/hlwfyj/hlwdsj/201206/t20120612\\_27419.htm](http://www.cnnic.cn/hlwfyj/hlwdsj/201206/t20120612_27419.htm)>.

<sup>1035</sup> The Self-Regulatory Norms of Prohibiting Websites to Disseminate Obscene, Pornographic and Other Unhealthy Information was published by the China Internet Association on 10 June 2004.

<sup>1036</sup> Gudrun Wacker, above n948, 68.

<sup>1037</sup> Lessig listed some aspects of costs and benefits of different regulatory methods via the examples of smoking, seat belts, discrimination against the disabled, and drugs. See Lawrence Lessig, above n138 (a), 667-670.

<sup>1038</sup> Lawrence Lessig, above n138 (a), 668.

<sup>1039</sup> YANG Fuzhong, 'Wang Luo Yan Lun Zi You De Gui Zhi Fang Fa Yu Bao Hu Cheng Du – Yi Gong Wu Ren Yuan Mingy U Quan Bao Hu Wei Shi Jiao De Kao Cha' (2012) 205 (2) *Shou Du Shi Fan Da Xue Xue Bao (She Hui Ke Xue Ban)* 51, 53-54

## 6.4 The Regulation of the AMoCDN on Internet Speech

As analysed above, domain names have a tense relationship with internet speech, which is strictly monitored and supervised by Chinese governments. The following will describe how such a strict control is reflected in the AMoCDN and the comments on it.

### 6.4.1 The Background of the Institutional Change of the AMoCDN

The Report of the 16th National Congress of the CCP (16th Report) pointed out that stability was the prerequisite for reform and development; China must maintain a long-term harmonious social environment and adhere to the principle of overriding stability. Thus, besides strengthening the moral ideological influence of the Chinese socialism ideal, all committees and government departments of the CCP also should properly use economic, administrative, and legal means to severely crack down on various criminal activities in accordance with the rule of law, prevent and punish cult crimes, be alert to the penetration of hostile domestic and international forces, subversion and separatist activities, adhere to the one China principle, and maintain the stability and unity of China.<sup>1040</sup> One of the typical cases is that, although the chief leaders of the Falun Gong cult live in the United States, their heretical ideas and demagogic speech published by foreign websites had spread to Chinese citizens<sup>1041</sup> and tried to disrupt social order and public security.<sup>1042</sup> On New Year's Eve of 2000, cult leader LI Hongzhi used the heresy 'rising to heaven' to enchant Falun Gong practitioners' self-immolation in Tiananmen Square.<sup>1043</sup> This incident was opposed by most of the citizens of China and pushed Chinese citizens to agree with the official

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<sup>1040</sup> JIANG Zemin, *Quan Mian Jian She Xiao Kang She Hui, Kai Chuang Zhong Guo Te Se She Hui Zhu Yi Shi Ye Xin Ju Mian*, Zhong Guo Gong Chan Dang Di Shi Liu Ci Quan Guo Ren Min Dai Biao Da Hui De Bao Gao, 8 November 2002.

<sup>1041</sup> Gudrun Wacker, above n948, 65-66; the development of Falun Gong Cult in China experienced two stages. The first stage was from 1979 to 1992, Falun Gong Cult was bred and spread; the second stage was from 1992 to 2003, Falun Gong Cult expanded and became the main malignant tumour endangering social stability. See Xie Jiao Baidu Baike  
<<http://baike.baidu.com/link?url=ZW30TvRuPbWZ7v70ddgbKMYykgwq6hnteLEwfZqdkf8JfwfBcl0FQHROWHv74kedy1RS-SuLZUbloJTXPEwFFq>>.

<sup>1042</sup> YANG Xingyue, above n951, 46.

<sup>1043</sup> LIU Gang and LIU Hongxuan, 'Lun Wang Shang Yan Lun Zi You' (2002) (1) *Hu Bei She Hui Ke Xue* 55, 56.

attitude that the Falun Gong was a cult. Thereafter, the internet became the electronic battlefield between the Falun Gong and Chinese governments. However, since the websites spreading the thoughts of the Falun Gong were registered in the United States, Canada, Britain and other western countries, China could only stop proxy servers installed in mainland China from resolving these domain names and stop IP addresses allocated in mainland China from accessing them. They could not completely ban or delete these websites.<sup>1044</sup> Subsequently, it was not surprising that Chinese governments reinforced their control on internet speech.

Further, other national governments and ICANN had different understandings on the extent to which the DNS should support the specific forms of internet speech to be disseminated.<sup>1045</sup> This disagreement enhanced the government's control over the freedom of speech under the state's ccTLD system,<sup>1046</sup> and the implementation of strict control on domain names is a very effective way to control behaviour in cyberspace.<sup>1047</sup> Specifically, national administrative regulations of ccTLDs can not only directly regulate domain name registration, but also can indirectly govern internet speech through network intermediaries,<sup>1048</sup> which will experience big changes when political policies on internet speech change.

## 6.4.2 The Regulation on Domain Names as Internet Speech

Domain names as internet speech cannot be registered freely under the .cn ccTLD. Article 25 of the AMoCDN (2004) explicitly stated that domain name registries could

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<sup>1044</sup> Gudrun Wacker, above n948, 65-66.

<sup>1045</sup> For example, the discussion on the .XXX of the ccTLD: see A. Michael Froomkin, above n493; Robert D Richards and Clay Calvert, 'Adult Websites and the Top-Level Domain Debate: ICANN's Adoption of .XXX Draws Adult-Industry Ire' (2011) 29 (3) *Cardozo Arts & Entertainment Law Journal* 527; Paul J. Cambria, Jr., 'ICANN, the .XXX Debate, and Antitrust: The Adult Internet Industry's Next Challenge' (2012) 23 (1) *Stanford Law & Policy Review* 101; Sean P. Shecter, above n874, slide 11.

<sup>1046</sup> Sean P. Shecter, above n874, slides 13-14.

<sup>1047</sup> Jack Goldsmith and Tim Wu, *Who Controls the Internet?: Illusions of a Borderless World* (Oxford University Press, 2006) 79.

<sup>1048</sup> Lawrence Lessig, above n138 (a), 671.

prevent some words from being registered;<sup>1049</sup> its Article 27 also listed the contents belonging to the Nine Forbidden Principles that could not be registered as domain names.<sup>1050</sup> LI Xing, one of the fathers of China's internet, also believed that domain name reservation was a clever method. Once sensitive or offensive words were reserved by CNNIC, they could not be registered.<sup>1051</sup> This direct regulation over domain names to control internet speech is simple, but very effective. Domain names such as '法轮功.cn', 'falungong.cn', or other similar names and variations definitely would not be able to be registered as domain names under the .cn ccTLD.

### 6.4.3 The Regulation on Domain Names as the Gateway to Internet Speech

To explore the essence of network regulation, it is essential to study how governments indirectly control the internet through directly controlling internet intermediaries.<sup>1052</sup> In mainland China, the systematic supervision and monitoring of internet speech by MII cannot be separated from the regulation of domain name registries and registrars.<sup>1053</sup> In addition to Articles 11–15 of the AMoCDN (2004) specifying the application conditions and requirements of domain name registries and registrars, Article 21 also stipulates that, for safeguarding national security and dealing with emergencies, domain name registries and registrars should submit to the command and coordination of MII, by complying with and implementing the administrative requirements set in force by MII.<sup>1054</sup> Under this rule, domain name registries and registrars have to obey the lead of MII and its orders because of its legitimacy and political power. Simultaneously, Article 35 stated that domain name registries and domain name registrars had the obligation to conduct website inspections to coordinate the national governing departments, and could request the suspension of

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<sup>1049</sup> Above n866, s 25.

<sup>1050</sup> Ibid, s 27.

<sup>1051</sup> Interview with LI Xing dated 20 April 2016.

<sup>1052</sup> Gudrun Wacker, above n948, 60.

<sup>1053</sup> Rebecca Mackinnon, 'China's "Networked Authoritarianism"' (2011) 22 (2) *Journal of Democracy* 32, 35-37.

<sup>1054</sup> Above n866, s 21.

or cease the resolution service of a domain name.<sup>1055</sup> This Article revealed two pieces of information: first, multi-administrative departments mode; that is, government departments, as long they possess the right to regulate speech, have the right to command domain name registries and registrars; second, domain name registries and registrars have a permanent obligation to intercept or temporarily ban users from accessing websites on which relevant authorities have ordered a ban. LI Xing argued that Chinese political ideology relating to the media was control and surveillance, so it was logical and consistent that Chinese authorities fundamentally controlled all websites via regulation on domain names.<sup>1056</sup>

Chinese governments have intercepted Chinese citizens' access to many foreign websites containing dissident political views by regulation on domain name registries and registrars,<sup>1057</sup> but the amount of intercepting and the filtering standard are not static, they change along with changes to the social environment.<sup>1058</sup> Furthermore, the central government has a unified filtering policy and a renewable list, and various local governments have emphasized filtering contents and renewable lists; companies responsible for the implementation of the filtering policies also have different filtering targets and processes, so each province has different degrees of control on the freedom of speech and every individual company's control on the freedom of speech is also different.<sup>1059</sup> For instance, the freedom of speech in Xinjiang and Tibet is relatively low, while the freedom of speech in the coastal areas, such as Guangdong province, is relatively high (see Figure 6-1). Internet users can access certain offshore sites through the southern area providers' services, but are unable to access these sites through the northern service providers.<sup>1060</sup>

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<sup>1055</sup> Ibid, s 35.

<sup>1056</sup> Interview with LI Xing dated 20 April 2016.

<sup>1057</sup> Andrew L. Shapiro, above n969, 18.

<sup>1058</sup> Jonathan Zittrain and Benjamin Edelman, *Internet Filtering in China* (March/April 2003) slides 6-7 Social Science Research Network <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=399920](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=399920)>.

<sup>1059</sup> Joss Wright, above n1019, 122.

<sup>1060</sup> Ibid, 137.



Figure 6-1 The Degree of Control on Internet Speech in Mainland China

The red area on the map of China has the strongest control over internet speech, the yellow area has intermediate level control, the blue area has low control, and the green area has the lowest control level.

In addition, the degree of control on internet speech in mainland China varies over different months, mainly depending on whether important conferences are held or significant festivals are celebrated. For example, the tightest control on internet speech is in March and November, when the Chinese People's Political Consultative Conference, the National People's Congress of China, and the National Congress of the Communist Party of China are held, all of which are significant conferences. During festivals, such as New Year's Day on 1 January, the Chinese New Year in February, the Dragon Boat Festival, the Mid-Autumn Festival, and other important days, the degree of control will be higher than on other days. Therefore, the standards and measures on internet speech implemented by Chinese governments are not uniform,<sup>1061</sup> apart from some specific domain names that are intercepted by all Chinese intermediaries. Other domain names may be forbidden to resolve depending on the loose or tight implementation of directives of the Central Committee of the CCP.<sup>1062</sup> When a domain

<sup>1061</sup> Ibid.

<sup>1062</sup> Joss Wright, above n1019, 128.

name is deliberately prevented from resolving by domain name registries or registrars, the visited website or web page will display the following error types: invalid server, timeout, or domain name does not exist. When the resolving result of the domain name is deliberately manipulated by domain name registries or registrars, the visited website will be replaced by another website.<sup>1063</sup> Through the analysis of the remote query function of 187 domain name resolution servers retrieved from the APNIC WHOIS database in total of 278 sets in China, Joss Wright found that most of the blocked domain names were replaced by other websites rather than access being forbidden to them.<sup>1064</sup>

So as to ensure that they have the capability to supervise and intercept controversial or harmful content, Chinese governments require all network companies operating within mainland China to be responsible for all content published in their search engines, micro-blogs, social networking and so on. Through the methods of withdrawing business licenses, suspending businesses for rectification, and other methods, governments delegate the task of monitoring and supervising internet information and speech to private network companies which will use their own filtering technology, content classification technology, and content labelling technology and other methods and standards to review and intercept inappropriate websites.<sup>1065</sup> To what extent internet intermediaries should be liable for their users' actions is an ongoing debate worldwide,<sup>1066</sup> but the Chinese authorities 'made' the strict liability rules rather than 'buying' them from other countries so as to satisfy the requirements of political policies.<sup>1067</sup>

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<sup>1063</sup> Ibid, 126-127.

<sup>1064</sup> Ibid, 126, 138.

<sup>1065</sup> Rebecca Mackinnon, above n1053, 38; James X. Dempsey and Daniel J. Weitzner, *Protecting the Human Right to Freedom of Expression on the Global Internet*, Global Internet Liberty Campaign <<http://www.gilc.org/speech/report>>.

<sup>1066</sup> Maurice Schellekens, 'Liability of Internet Intermediaries: A Slippery Slope?' (2011) 8 (2) *SCRIPTed* 154, 155; Jennifer Agate, 'Liability of Internet Intermediaries – UK Update' (2012) 16 (3) *Journal of Internet Law* 27; Rebecca Ong, 'The Writing Is on the Forum: Liability of Internet Intermediaries in Hong Kong' (2014) 22 (1) *Asia Pacific Law Review* 119. In Chinese judicial practice, intermediaries take strict liability only for content which violates the 9/10 Forbidden Principles.

<sup>1067</sup> For more information about Chinese political policies, please the section of 6.3.1.1 in this chapter.

## 6.4.4 Suggestions for the Regulation of the AMoCDN on Internet

### Speech

Most provisions of laws and regulations relating to internet speech in China are formulated from the perspective of facilitating supervision, and most of the rules place stringent obligations on internet intermediaries and disseminators of internet speech. The key purpose of those rules is to prevent the freedom of speech from being unconditionally exercised, so as to maintain the stability of one China and to safeguard the position of the ruling party of the CCP.<sup>1068</sup> Although empowerment should be accompanied by the right of relief, laws and regulations regulating internet speech all stress responsibilities that network operators and users have when they violate the relevant provisions but state nothing about the relief methods on the infringement of citizens' freedom of speech.<sup>1069</sup> What is more, Chinese governments can order domain name registries and registrars to suspend or stop resolving harmful websites, but they do not publicly announce the unified interception standard. Consequently, there is no unified and open standard among various government departments in charge of internet speech.<sup>1070</sup>

The degree of government regulation on internet speech boils down to the following three factors: first, to what degree the government allows foreign cultural influences on the state's culture and civilians; second, how local governments protect their citizens from foreign heterogeneous culture; third, what ability its citizens have to practice foreign culture in its territory.<sup>1071</sup> Therefore, regulation by different government administrations and different local governments changes with changes to the social environment. The most important and the biggest difference between people is their values. People with different values have different views on what is harmful information and to what degree it is harmful.<sup>1072</sup> Thus, even if all domain name

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<sup>1068</sup> CHEN Taosheng, above n963, 51.

<sup>1069</sup> Ibid, 52.

<sup>1070</sup> Jonathan Zittrain and Benjamin Edelman, above n1058, slide 2.

<sup>1071</sup> Lawrence Lessig (b), above n1003, 300.

<sup>1072</sup> Jack Goldsmith and Tim Wu, above n1047, 150.

registries and registrars were to implement a unified blocking policy, there would still exist different criteria for judgment and different implementations of intercepting measures for domain names on the ground. Consequently, Chinese governments might consider publishing an application process for scientific and academic researchers to access the blocking standards for domain names, and blocking lists, so that the different degrees of law enforcement can be supervised and these differences can be reduced.

These laws and regulations that Chinese governments have implemented on internet speech, especially the articles set forth in the AMoCDN are evidence that could be applied to test a hypothesis about institutional arrangements introduced in the following section.

## 6.5 Hypothesis Test

### 6.5.1 Hypothesis from New Institutional Economics Theory

New Institutional Economics theorists have proposed that institutions which produce social benefits might not emerge, but institutions with low efficiency might emerge and survive.<sup>1073</sup> As institutions were not necessary or even usually did not need social efficiency, the existence of formal institutions was at least to meet the interests of the groups with negotiating power.<sup>1074</sup> Government is an important factor that affects all institutional arrangements of a society. To understand the motives of a government in formulating or revising an institution, it is necessary to understand the issues of transaction costs, ideology, and the interests of different groups during the supply of an institution. The constraints of these factors has sometimes led the state to not provide the most efficient institutional arrangements.<sup>1075</sup> The following will test whether the AMoCDN (2004) provided a low efficiency regulation from the

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<sup>1073</sup> Malcolm Rutherford, above n230 (a), 188.

<sup>1074</sup> Douglass C. North, above n244, 5.

<sup>1075</sup> Justin Yifu Lin, 'An Economic Theory of Institutional Change: Induced and Imposed Change' (1989) 9 (1) *Cato Journal* 1, 4.

perspective of promoting freedom of speech, which is one aspect of social benefits.

## 6.5.2 Analysis of Institutional Arrangement

Although the internet crosses national boundaries, it cannot be denied that a national government's mandatory power is attached with a huge regulatory power over the internet in that country. In different geographical locations, people's ideology and preferences are not the same, and the methods of law enforcement and use of coercive force by states or national governments in their territories are sometimes poles apart.<sup>1076</sup> Therefore, evaluation of the efficiency of an institutional arrangement cannot be made without considering the social environment in which other relevant institutional arrangements are situated.<sup>1077</sup>

In a socialist country such as China, the ruling party's policy is the wind vane for all kinds of institutional arrangements. It directly or indirectly affects the institutional choices made by governments.<sup>1078</sup> In 2002, the 16th Report pointed out that China must maintain a long-term stable and harmonious social environment and adhere to the principle of overriding stability. All committees of the CCP and governments should properly use economic, administrative, and legal means to maintain China's stability and unity.<sup>1079</sup> Hence, a crucial battle in the field of the internet was to intercept all internet speech that was detrimental to China's unity and stability. The second institutional change of the AMoCDN commendably carried out this policy of the CCP. Through the regulations on the establishment and operation of domain name registries and registrars, the AMoCDN made them unconditionally conform to the orders of various government departments that required interception and filtering of internet speech. Domain name registries and registrars suspended or stopped resolving domain names in government lists and also stopped linking to some IP addresses responding to foreign websites which are considered to be unfavourable to

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<sup>1076</sup> Jack Goldsmith and Tim Wu, above n1047, 183.

<sup>1077</sup> Justin Yifu Lin, above n1075, 3.

<sup>1078</sup> *Ibid*, 15.

<sup>1079</sup> JIANG Zemin, above n1040.

the CCP and China, thus they farthest cut off the access to the relevant websites in the mainland China. Thus, the freedom of internet speech is constrained to some extent. In conclusion, changes in the CCP's policies have influenced the choice of administrative regulations of the .cn ccTLD made by policy makers. When the new political goal of maintaining the overarching stability of China was put forward, the less efficient institutional arrangement from the perspective of promoting the freedom of speech became the best choice for institutional makers.<sup>1080</sup> That is, the MII has provided low efficiency institutional arrangements from the perspective of promoting the freedom of speech.<sup>1081</sup>

## 6.6 Conclusion

In 2004, the AMoCDN went through its second institutional change, which was marked by tight governance on internet speech and has had a considerable impact on freedom of speech in mainland China.

In terms of the relationship between domain names and internet speech; first, domain names themselves are a kind of internet speech; second, domain names as the gateway direct to internet speech which published in the bounding websites. When domain names act as internet speech, they can be divided into three categories. They are the prohibited registered domain names, limited registered domain names, and freely registered domain names. The AMoCDN controls and restricts this kind of speech via regulations on the domain name registration process. When domain names act as the gateway to internet speech, deleting or forbidding the resolution of a domain name can easily prevent the ordinary users from browsing the contents in websites bound with a domain name, which is the most elegant and most efficient way to control internet speech.<sup>1082</sup> As a result, controlling the regulation of the domain

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<sup>1080</sup> Justin Yifu Lin, above n1075, 15.

<sup>1081</sup> Institutional efficiency is only refers to the freedom of speech in this Chapter. Due to the lack of quantitative data and qualitative analysis by others, there is less possibility for researcher to conduct an overall evaluation on the institutional efficiency comprehensively.

<sup>1082</sup> Andrew D. Murray, above n891, 201.

name system will control the power of regulating internet speech.<sup>1083</sup>

Although the policies promulgated by ICANN, which is a non-profit organisation coordinating and managing the global DNS, are not directly related to the problem of freedom of speech, ICANN's ability to control the root server and DNS can be transformed into the ability to control internet speech.<sup>1084</sup> While the UDRP issued by ICANN is a fast and low-cost solution to resolve simple domain name disputes, decisions made by its panels over trade mark and freedom of speech disputes are controversial.<sup>1085</sup> Text interpretation of the provisions of the UDRP have become the basis for the balance of trade mark rights and freedom of speech. While the original intention of this policy was to restrict domain name cybersquatting, its application can impinge on freedom of speech. When these two rights conflict, UDRP decisions are not consistent and are unable to guide institutional arrangements for domain name dispute resolution within a state or territory.<sup>1086</sup> Moreover, states cannot achieve a unified standard to protect the freedom of speech related to domain names in the process of formulating international policies on the ccTLDs.<sup>1087</sup> This allowed Chinese governments the opportunity to formulate and develop administrative regulations of the .cn ccTLD with Chinese characteristics according to national conditions, and to regulate internet speech in mainland China.

In China, the governance mode on internet speech is government-dominant; that is, all government departments strengthen supervising and monitoring of internet speech through legislative, administrative, technical and other means in order to safeguard national security, guarantee the ruling position of the CCP, maintain social stability, and lead mainstream values.<sup>1088</sup> In the legal regulations, through a multi-sector administration model, governments control company registration, business

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<sup>1083</sup> A. Michael Froomkin, above n493, 21.

<sup>1084</sup> Dawn C. Nunziato, above n897, 190, 196.

<sup>1085</sup> Graeme B. Dinwoodie, above n133, 511.

<sup>1086</sup> Jude A. Thomas, above n918, 6.

<sup>1087</sup> Sean P. Shecter, above n874, slides 50, 64.

<sup>1088</sup> LUO Chuxiang, 'Wang Luo Kong Jian De Biao Da Ji Qi Xian Zhi – Jian Lun Zheng Fu Dui Hu Lian Wang Nei Rong De Guan Li' (2012) 174 (4) *Fa Xue Ping Lun* 15, 20.

licensing, data retention requirements, content filtering and other provisions to govern internet speech comprehensively; in the architectural regulations, governments control the free dissemination of both domestic and international internet speech by regulating physical devices connected to the world internet and controlling the software code; in other regulations, governments lead the direction of internet speech by official media and gather up online complaints by creating government online reporting platforms.

In order to implement the policy that national stability is of overriding importance, proposed by the 16th Report, the MII prohibited words or figures containing the Nine Forbidden Principles to be registered as domain names under the .cn ccTLD through the domain name registration procedures, and intercepted websites publishing inappropriate internet speech by limiting domain name resolution services. However, Chinese governments did not publicly announce a unified intercepting standard on domain names and there was no such standard among the domain name registries and registrars which were responsible for the implementation.<sup>1089</sup> This made control over internet speech within Chinese territory quite chaotic. Thus, it is recommended that the Chinese governments might consider publishing an application process for scientific and academic researchers to gain access to the blocking standards for domain names and the blocking lists, so that the different degrees of law enforcement could be supervised and these differences could be reduced.

New Institutional Economics asserts that national governments might in some circumstances support inefficient institutions. In addition to considering the issue of transaction costs, governments also balance the ideology and interests of different groups in the institutional supply. If such considerations outweigh the goal of institutional efficiency, those states sometimes do not provide the most efficient institutional arrangement. The different arrangements of the administrative regulations of the ccTLDs may not only promote freedom of speech, but may also inhibit this right. In China, the provisions of administrative regulations of the .cn ccTLD were to suppress or control the freedom of speech exercised within the internet.

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<sup>1089</sup> Jonathan Zittrain and Benjamin Edelman, above n1058, slide 2.

Therefore, from the perspective of promoting freedom of speech, Chinese governments provided a low efficiency institution when formulating the AMoCDN. This analysis is consistent with NIE theorists' predictions.

In the next, final, chapter, an overview of this thesis will be provided, key findings drawn from the research will be set out, and suggestions for future research will be given.

## 7 Conclusion

This chapter will summarise the previous analysis in this dissertation, set out key findings drawn from this research, and provide suggestions for future research.

### 7.1 Summary of This Thesis

Governments can have significant influence over cyberspace communication in their countries through controlling the DNS, and countries can claim cyberspace sovereignty via the administration of ccTLDs.<sup>1090</sup> Unlike the traditional sovereignty, although cyber-sovereignty cannot be holistically and thoroughly protected, a sovereign state often makes great endeavours to govern and protect it. So as to understand how China governs the internet and its cyberspace, it is necessary to explore how Chinese governments regulate China's DNS. Using the theoretical framework of NIE theory and the Legal Transplants theory, combining qualitative analysis, historical research, case studies, and triangulation research, this dissertation deeply analyzed the institutional formation and institutional change processes of the administrative regulations of the .cn ccTLD so as to explore how the constraints of politics, laws, economy and technology influenced the institutional formation of the IAMoDNR and institutional change of the AMoCDN through the stages of institutional transplantation,<sup>1091</sup> institutional localization,<sup>1092</sup> and institutional characterization.<sup>1093</sup>

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<sup>1090</sup> Marc Watkins, above n7, 147.

<sup>1091</sup> For more information, see 4.4.2 Analysis of Domain Name Institutional Path Dependency in this dissertation.

<sup>1092</sup> For more information, see 5.2 Institutional Change Triggered by Politics, 5.3 Institutional Change Triggered by Laws and Regulations, 5.4 Institutional Change Triggered by Economic Factors, and 5.5 Institutional Change Triggered by Technology in this dissertation.

<sup>1093</sup> For more information, see 6.4 The Regulation of the AMoCDN on Internet Speech in this dissertation.

### **7.1.1 To What Extent did the Political, Legal, and Technological Environment Affect the Development of the First Administrative Regulation of the .cn ccTLD in China in 1997?**

Chapter 4 analysed how the contemporaneous political, legal, and technological environment played influence to the .cn ccTLD registration and the enactment of the first domain name administrative regulation in China from 1990 to 1997. At the political level, the main foreign policy of the United States after the Cold War contributed to the successful registration of the .cn ccTLD from NIC in 1990; the foreign policy of Germany promoted computer technology cooperation, including domain name technology between China and Germany; and the foreign policy of China encouraged the technological coordination between China and Germany as well as drove Chinese computer scientists to take necessary steps to apply for delegation of the .cn ccTLD from NIC. China's domestic policy provided guidelines and funding to Chinese scientists to learn advanced technologies, especially information technology, from other countries.

At the legal level, firstly, IANA whose functions were originally performed by USC-ISI via Jon Postel had a formal written contract with the DARPA and its every request influencing root zone or registration data in the IANA must be explicitly approved by the NTIA of the US DoC, therefore, DARPA had an invisible influence on the IANA and the DoC had an administrative effect on the delegation of ccTLDs. If China wanted to apply for its ccTLD, which would affect the root zone of the domain name database, the processing progress and result of the application were significantly dominated by NTIA of the US DoC. Secondly, IETF provided high quality relevant technology and engineering documents, such as RFCs which regulated the enactment and enforcement of domain name regulations and policies in a formal or informal way. RFCs and ISO-3166 were the two major international rules to constrain the application

and registration of ccTLDs and to bind the enactment of ccTLD regulations upon all countries (including China) and strongly influenced the formation of domain name administrative regulation in China. Thirdly, the objective of actively improving the socialist legal system of China was propitious in urging and accelerating the enactment of the first domain name administrative regulation of the .cn ccTLD.

At the technological level, under the program of the Chinese University Development Project II, China and Germany built a cooperative relationship in the areas of information communication and computer technology. With the help of the University of Karlsruhe and the research group led by Professor Werner Zorn, China finally connected with the German network and successfully registered the .cn ccTLD. Certainly, the policy support and funding aid from Chinese governments were also the significant factors for connecting the Sino-German network and the strong backup for registering the .cn ccTLD. Although the non-global internet connection between China and the United States resulted in the .cn master root server being installed in Germany for four years, the Chinese researcher group overcame various obstacles and finally installed it in the Institute for Computer Application in Beijing in 1994.

After a comparative analysis between the IAMoDNR released by the O-IWLG-SC in 1997 and RFCs in terms of domain name administrative institution, structural system, naming principle, registration, and the role that domain name administrative institutions played in domain name disputes, the conclusion was that most of the articles in the IAMoDNR (1997) (except those with respect to China-specific politics and sensitive issues) were inherited from RFCs, although there were some more specific clauses than RFCs. That was, when the O-IWLG-SC faced the choice of 'make or buy', it 'bought' most of clauses of the IAMoDNR from the RFCs rather than making its own version of administrative regulation.

### **7.1.2 How did Politics, Laws, Economics, and Technology Influence the Changes Made to the Administration of the .cn ccTLD in 2002?**

Chapter 5 analysed the specific reasons and contents of institutional change of the IAMoDNR triggered by politics, laws and regulations, economic factors, and technology respectively.

The institutional change triggered by politics was caused by the reform of governmental agencies and internet political security. In relation to the reform of governmental agencies in 1997, the 15th Report advocated the transformation of government functions, condensing macro-control departments, developing social intermediary organisations to undertake some functions of the professional economic sectors, and separating governments and enterprises. In this context, the MII was established and began to take on administrative functions on domain names and the DNS from the Information Work Leader Group of the State Council, and registrars – being the social intermediary organisations – began to take over the domain name registration services from CNNIC. These two reforms were the reasons for the institutional change of the fifth and ninth clauses of the IAMoDNR in 2002. In terms of internet political security, the development of the internet gradually weakened the mainstream ideology advocated by the CCP. Government control of ideology gradually decreased, and the control foundation for restraining citizens' participation in politics began to weaken. It challenged the stability and effectiveness of the leadership of the CCP. In order to guarantee internet political security, the MII changed the focus of domain name registration principles from restraining the registration of the state name, district names, organisational names, industry names, general commodity names, and trade marks to the protection of the state's solidarity and unity, in order to maintain national stability, and to safeguard the state and public interests.

From the end of 1996 to early 1997, domain name disputes between domain name holders and trade mark holders in mainland China began to grow substantially. At that time, this kind of disputes could be resolved in the Chinese courts. However, China's existing laws and regulations did not have clear and specific provisions to deal with the

disputes, which resulted in the courts applying different laws; verdicts also differed in similar cases, and the judgments of domain name dispute cases were not predictable. To resolve these issues, the Supreme People's Court released the Interpretation of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Civil Disputes Involving Computer Network Domain Names on 17 July 2001, to guide all Chinese courts. In September 2002, CNNIC released the CNNIC Domain Name Dispute Resolution Policy and the CNNIC Procedure Rules for Domain Name Dispute Resolution to resolve all domain name disputes. But the court proceedings were time-consuming, laborious, and costly. The parties in dispute needed an efficient and convenient domain name dispute resolution mechanism to resolve disputes. Under this requirement, the CIETAC-Domain Name Dispute Resolution Center was established in December 2000, authorized by CNNIC, with responsibility to arbitrate the .cn and Chinese domain name disputes. Based on the above reasons, compared to the IAMoDNR in 1997, the AMoCDN added (literally) a new chapter to domain name dispute resolution in 2002.

The tensions between trade mark rights holders and domain name holders were long-lasting. No matter the court proceedings or the special domain name dispute resolution mechanism, all involved the parties in a lot of time, energy, money and other transaction costs to resolve domain name disputes. In the game among the players, China's domain name policy makers were more inclined to protect trade marks or domain name trade marks already having an economic value in China. Since reducing domain name disputes could reduce the huge transaction costs for players and courts, and also could promote the effective use of domain names and economic performance, in 2002 the AMoCDN adopted a domain name reservation policy to protect trade marks.

Institutional change triggered by domain name technology was specifically caused by Chinese domain name technology and DNS security. In relation to Chinese domain name technology, the strong demand for Chinese domain names promoted Chinese study and research of its technology. On 18 January 2000, CNNIC tested the Chinese domain name registration trial system and formally opened the system on 7 November 2000. However, the NSI also opened the Chinese-language domain name registration

platform in the same period, which provoked strong dissatisfaction from Chinese officials as NSI could not be controlled by Chinese governments and would not wholly implement Chinese domain name policies. Simultaneously, ICANN issued a statement and pointed out that it would pay close attention to the various problems brought by the internationalization of domain names. After weighing the compatibility of domain name technology and databases, internet speech control, national security, and economic development strategies by Chinese governments, MII and CNNIC released announcement and regulations on this issue. In terms of DNS security, the South China Sea collision incident triggered a Sino-US cyber hacker war on 1 April 2001. US hackers used Chinese DNS vulnerabilities to attack Chinese civil and government websites. In order to cope with the problems of backward internet technology and the lack of awareness of internet security, CERT was established to respond to emerging internet security events. In 2002, Chinese governments released or revised the laws and regulations related to internet security. The AMoCDN also added a new provision to confront the DNS security problem.

### **7.1.3 To What Extent did ICANN's Uniform Domain Name Dispute Resolution Policy and China's New Administrative Measures on China's Domain Name Influence China's Internet Governance over Chinese Internet Speech in 2004?**

The second institutional change of the AMoCDN released in 2004 was strongly characterized by the Chinese governance model on internet speech and had a great impact on the freedom of internet speech in mainland China. The power to control the DNS contributed to the power to dominate the governance of internet speech. First, domain names themselves are a kind of internet speech; second, domain names are a gateway to websites containing the relevant speech.

Although the policies promulgated by ICANN, which was a private and non-profit organisation coordinating and managing the global DNS, were not directly related to the problem of freedom of speech, ICANN's ability to control the root server and DNS

could be transformed into the ability to control internet speech. Although the UDRP issued by ICANN was a fast and low-cost solution to resolve simple domain name disputes, decisions made by its panels over trade mark and freedom of speech disputes were controversial. Text interpretation of the provisions of the UDRP had become the basis for the balance of trade mark rights and freedom of speech. While the original intention of this policy was to restrict domain name cybersquatting, its application could impinge on freedom of speech. When those two rights conflicted, UDRP decisions were not consistent and were unable to guide institutional arrangements for domain name dispute resolution within a state or territory due to its legal status. Moreover, states could not achieve a unified standard to protect the freedom of speech related to domain names in the process of formulating international policies on the ccTLDs. This allowed Chinese governments to have an opportunity to formulate and develop administrative regulations of the .cn ccTLD with Chinese characteristics according to national conditions, and to regulate internet speech in mainland China with its own way and method.

In China, the governance mode on internet speech was government-dominant, that was, all governmental departments strengthened supervising and monitoring of internet speech through legislative, administrative, technical and other means in order to safeguard national security, to guarantee the ruling position of the CCP, to maintain social stability, and to lead mainstream values. In the legal regulations, through a multi-sector administration model, governments controlled company registration, business licensing, data retention requirements, content filtering and other provisions to govern internet speech comprehensively; in the architectural regulations, governments controlled the free dissemination of both domestic and international internet speech by regulating physical devices connected to the world internet and controlling the software code; in other regulations, governments led the direction of internet speech by official media and gathered up online complaints by creating government online reporting platforms.

## 7.2 Key Findings Drawn from this Research

Based on the study of the process of institutional formation and change of China's administrative regulations of the .cn ccTLD that occurred from 1990 to 2004, this dissertation proposes four key findings, relating to institutional path dependency, institutional type, institutional efficiency, and Chinese governments' attitude towards institutional change.

Chapter 4 demonstrated that China's domain name technology was inherited from international domain name technology. Even though it was adapted and improved in China, the main developing path of China's domain name technology followed the developing path of international domain name technology. The administrative regulation of the .cn ccTLD was also inherited from international rules. It is worth considering whether there is any connection between China's domain name institutional path dependency (IPD) and technological path dependency (TPD). Generally speaking, China's domain name TPD does not inevitably lead to the associated IPD.

However, the relationship between domain name administrative regulations designed by technologists is a hierarchical administrative mode just like the hierarchic structure of the DNS. The international domain name administrative rules situated in the top-level position constrained all the lower levels of domain name administrative regulations. Consequently, all lower levels of domain name registries and registrants had to comply with the various compulsory international rules or regulations made by top-level regulators. Hence, the development of the DNS as a whole inevitably has impacts on the development of domain name administrative regulations as a whole and vice versa. It is accepted that the development of technologies precedes the development of laws or regulations. So, the developing path of the DNS as a whole has inevitably led the developing path of domain name administrative regulations as a

whole to some extent, when some conditions are satisfied. Taking the institutional formation of China's AMoCDN as the case, under the context of the DNS characterized by connectivity and hierarchy, and domain name administrative regulations featured with a hierarchical administrative mode, domain name technological path dependency led to China's domain name administrative regulation's path dependency.<sup>1094</sup> This hints that the influence of domain name technology on associated national administrative regulations is borderless to a certain extent. This influence is invisible and semi-mandatory. Whoever leads the developing path of domain name technology will have an option as to whether to lead associated national regulations.

Chapter 5 demonstrated that there existed a synthesis of endogenous and exogenous institutional change types. In the first institutional change in 2002, the change was mainly caused by the reform of government agencies transforming the micro-administrative function of regulating domain names from the Leading Group for Information Technology Advancement under the State Council to the Ministry of Information Industry (MII), by internet political security causing significant changes to the naming principles of restriction of domain names in the AMoCDN, by the domain name dispute resolution mechanism making the AMoCDN add a new chapter about domain name disputes, transaction costs leading the AMoCDN to permit conditional domain name reservation, by domain name technology making the AMoCDN change the responsibilities of the domain name registry, and by DNS security concerns making the AMoCDN add a new clause about DNS security. According to the NIE definition about institutions, embeddedness, institutional environment, governance, resource allocation and employment are endogenous. Other factors, such as technology, are exogenous. Therefore, the institutional change in the AMoCDN induced by the reform of political institutions, internet political security, domain name dispute resolution mechanisms, and transaction costs was endogenous; but the institutional change induced by domain name technology was exogenous. It could be concluded that the institutional change of the AMoCDN resulted from the synthesis of endogenous and

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<sup>1094</sup> For more details, see the section of 4.4 in this dissertation.

exogenous institutional change.<sup>1095</sup> This provides a case for NIE theorists to study institutional change and gave an example of synthesis institutional type.

Chapter 6 demonstrated that Chinese governments sometimes supply or tolerate inefficient institutional arrangements so as to achieve other higher goals. In a socialist country such as China, which has suffered civil wars and invasions by foreign countries, and cherishes its stability and unity, the ruling party's policy is the wind vane for all kinds of institutional arrangements. It directly or indirectly affects the choice of institutions that governments make. In 2002, the 16th Report pointed out that China must maintain a long-term stable and harmonious social environment and adhere to the principle of overriding stability. All governments and committees of the CCP are required to use all available economic, administrative, and legal means to maintain the stability and unity of China. Hence, a crucial battle in the field of the internet is to intercept all internet speech that is detrimental to China's unity and stability. The second institutional change of the AMoCDN comprehensively carried out this policy of the CCP. Through the regulations on the establishment and operation of domain name registries and registrars, the AMoCDN makes them unconditionally conform to the orders of various government departments that require intercepting and filtering of internet speech. Domain name registries and registrars can pause or stop resolving domain names listed in government lists and can also stop linking to some IP addresses responding to prominent foreign websites which are considered to be unfavourable to the CCP and China, thus cutting off of access to the relevant websites in mainland China.

In conclusion, the changes of the CCP's policies have influenced the choice of administrative regulations of the .cn ccTLD made by the policy makers. When the new political goal of maintaining the overarching stability of China was put forward, the less efficient institutional arrangement from the perspective of promoting the freedom of speech became the better choice for institutional designers. That is, the MII has provided a low efficiency of institutional arrangement from the perspective of

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<sup>1095</sup> For more details, see section of 5.6 in this dissertation.

promoting freedom of speech.<sup>1096</sup>

Finally, the whole process of institutional formation and change of the regulation of the .cn ccTLD discussed in this dissertation has demonstrated that Chinese governments have tolerated or even encouraged technological development and improvement, but had serious and strict policies to control potential political and legal risks when governing the internet in mainland China. Overall, Chinese governments tolerate, develop, and promote anything which might increase the quality of life of citizens and which might develop the domestic economy, but constrain, supervise, and forbid everything which may have a chance to damage China's stability and unity. For NIE theorists, institutional formation and change of the regulation of the .cn ccTLD are an interesting series of cases which are a contradictory synthesis of Chinese authorities' different attitudes toward technology and are also a good way to understand China's governance of the Internet.

### 7.3 Suggestions for Future Research

This dissertation could not provide in-depth research on some specific issues due to the limitations of the data available, the theoretical approach and the methodologies used, and also could not explore complex details of some sensitive problems involving Chinese politics due to security considerations of the researcher and the research scope. It conducted a detailed analysis of the process of institutional formation and change of China's administrative regulations of the .cn ccTLD from 1990 to 2004 under the theoretical framework of NIE, which expanded the research into China's Domain Name Dispute Resolution Policy, Procedure Rules of Domain Name Dispute Resolution, Implementing Rules for Domain Name Registration, Procedure Rules of CIETAC Domain Name Disputes Resolution, and judicial interpretations related to domain names in China. It may be possible for future researchers to conduct more detailed research on these features. In addition, when more information about the administrative regulations of the .cn ccTLD is disclosed by authorities, more in-depth research can be

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<sup>1096</sup> For more details, see section of 6.5 in this dissertation.

done, building upon the findings of this dissertation.

After this dissertation was drafted, the new administrative regulation of the .cn ccTLD, Administrative Measures on Internet Domain Names, was released by Ministry of Industry and Information Technology (MIIT) on 1 September 2017 and was implemented on 1 November 2017. At the same time, the AMoCDN (2004) was abolished. MIIT set out five main changes in this new regulation: (1) to clarify responsibilities between the MIIT and the provincial communication administrations; (2) to promote the domain name service licensing system; (3) to standardize domain name registration service activities; (4) to improve information registration of domain names and the protection of personal information; (5) to strengthen the process and post-event supervision.<sup>1097</sup> More analysis is beyond scope of this dissertation and is left to future research.

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<sup>1097</sup> MIIT, *Hu Lian Wang Yu Ming Guan Li Ban Fa Jie Du* (1 September 2017) MIIT  
<<http://www.miit.gov.cn/newweb/n1146295/n1652858/n1653018/c5778697/content.html>>.

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### **D. Legislation**

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## **E. *Treaties***

*The International Covenant on Civil and Political Rights 1966* (World)

*The Universal Declaration of Human Rights 1948* (World)

## **F. *Other***

Discussions with Professor LI Xing in Tsinghua University (China)

## **Ethical and Scientific Approval**

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**MACQUARIE**  
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SYDNEY • AUSTRALIA

2 March 2016

Dr John Selby  
Department of Accounting and Corporate Governance  
Faculty of Business and Economics  
Macquarie University  
NSW 2109

Dear Dr Selby

**Reference No:** 5201500902

**Title:** *A New Institutional Economics Analysis of the History of the Regulation of the .CN (China) Country-Code Top-Level Domain from 1990 to 2004*

Thank you for submitting the above application for ethical and scientific review. Your application was considered by the Macquarie University Human Research Ethics Committee (HREC (Human Sciences & Humanities)) at its meeting on 27 November 2015 and the Executive meetings held on 15 December 2015 and 24 February 2016.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted at:

- Macquarie University

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated May 2015) (the *National Statement*).

This letter constitutes ethical and scientific approval only.

**Standard Conditions of Approval:**

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website:

<http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>

2. This approval is valid for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval for this protocol.

3. All adverse events, including events which might affect the continued ethical and scientific acceptability of the project, must be reported to the HREC within 72 hours.

4. Proposed changes to the protocol must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Should you have any queries regarding your project, please contact the Ethics Secretariat on 9850 4194 or by email [ethics.secretariat@mq.edu.au](mailto:ethics.secretariat@mq.edu.au)

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics)

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely



**Dr Karolyn White**

Director, Research Ethics & Integrity,  
Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.

**Details of this approval are as follows:**

**Approval Date:** 24 February 2016

The following documentation has been reviewed and approved by the HREC (Human Sciences & Humanities):

Documents reviewed	Version no.	Date
Macquarie University Ethics Application Form		Received 6/11/2015
Response from Dr Selby addressing the issues raised by the HREC & Executive		Received 1/12/2015, 11/2/2016 & 24/2/2016
Appendix B: Research to be undertaken outside Australia		6/11/2015
Appendix D: Privacy and Access to Personal Information		6/11/2015
Participant Information and Consent Form (English & Chinese)		11/2/2016
Potential Participants' Information and Questions		6/11/2015