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## **The Role of MNCs in China's Standardization**

Junjun Hou



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Junjun Hou

Junjun Hou is an associate professor with the School of Economy and Trade, Hunan University, China, and a specialist on the economics of standardization and international trade.

Dr. Hou wrote this paper as an East-West Center visiting scholar, as part of the research project on "The Relationship Between Standardization and International Trade." The paper has been presented at the Research Program seminar on economics, East-West Center, May 6, 2010, Honolulu, Hawai'i, USA, and the Sino-US Academic Forum on Economy of Big Country on July 17-18, 2010, Changsha, China.

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# The role of MNCs in China's standardization

Junjun Hou<sup>1</sup>

**Abstract:** MNCs affect China's standardization through participation in standard setting, education for standardization and other ways to seek commercial profits. MNCs' participation accelerates the speed and strengthens the transparency and internationality of China's standardization, however, it weakens the sovereignty of China's standardization and makes it harder to reach agreement in standardization. In order to achieve a win-win situation, this paper attempts to propose that Chinese stakeholders should keep a more open mind to MNCs, and MNCs should keep more patience to Chinese standardization, moreover there should be more communication and collaboration between Chinese stakeholders and MNCs.

**Key words:** MNCs; China's standardization; role

## 1. Introduction

There are two outcomes in standardization with China's increasing involvement in international economy and technology. One is that China has been a new player in international standardization arena<sup>2</sup>. China participates in more and more international standardization activities. China became one of six permanent members of ISO in 2008<sup>3</sup> and has taken part in 96% TC and SC activities of ISO and IEC. By the end of 2008, Chinese experts had held the post of 26 ISO secretariats(12 TCs and 14 SCs) and 5 IEC secretariats(4 TCs and 1 SC). In the end of 2008, 19 TC or SC chairmen (vice chairmen) of ISO and 3 TC or SC chairmen (vice chairmen) of IEC were Chinese. At the same time, China promotes national standards to international market. By the end of 2008, China had already submitted 164 international standard proposals to ISO and IEC, in which 64 had become international standards<sup>4</sup>. The number is very small but the speed of development is accelerating. Therefore, China's potential influence on international standardization as a new player has been discussed in lots of literature. It is commonly concerned that China's participation might impact the existing international standardization system to an unexpected degree.

Ignored intentionally or unintentionally, however, the other side of this story is that more and more international actors, especially Multinational Corporations (MNCs)<sup>5</sup>, play important roles in China's standardization. However, most of researches focus on the former and China's potential influence on international standardization as a new player. In fact, China's standardization is influenced deeply by international factors. It is a good example at governmental level that the national policy of patents and innovations in standards is delayed to publish time after time

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<sup>2</sup> A critical adjustment of Chinese standardization strategy is the shift from localization of international standards to internationalization of national standards according to the 11<sup>th</sup> Five-Year Plan (2006-2010) for Standardization Development, issued in 2006 by SAC.

<sup>3</sup> The other 5 permanent members of ISO are USA, Germany, Japan, England and France.

<sup>4</sup> Wang Ping, Wang Yiyi and John Hill(2010), Standardization Strategy of China—Achievements and Challenges, East-West Center Working Paper—Economics Series #107, January

<sup>5</sup> A multinational corporation (MNC) or transnational corporation (TNC), also called multinational enterprise (MNE) or international corporation, is a corporation or an enterprise that manages production or delivers services in more than one country. MNCs in China mean two types MNCs. One is the MNCs based on foreign countries and the other is based on China. We only talk about the former in this paper.

because of the different comments from international market. As for practical one, Siemens has formed alliance with Chinese mobile firm Datang in supporting the Chinese TD-SCDMA standard which is one of influential Chinese standards in international market. At the same time, we can see more and more faces from MNCs in Chinese standardization conferences and fora such as AVS, WAPI, IGRS, and etc.

Obviously, these are not short-term accidents. But why are MNCs interested in China's standardization so much? How do MNCs affect China's standardization? What effects will be to China? Many new challenges are emerging to Chinese national standard setting and governance. These challenges are prominent to not only China but also MNCs. To address these problematic issues, after the introduction in Part 1, this paper attempts to explain the reasons why MNCs take part in Chinese standardization positively in Part 2. In Part 3, ways to affect Chinese standardization are illuminated. Part 4 analyses the possible effects on Chinese standardization. Part 5 discusses the policy implication. Part 6 concludes.

## **2. Why are MNCs interested in China's standardization so much?**

Since 1980s, MNCs have been involved in Chinese market through international trade, foreign direct investment, outsourcing, and so forth. But it is from 2000 that MNCs began to be interested in Chinese standardization because TD-SCDMA was elected as one of three international 3G standards by ITU. Then the competition between WAPI and 802.11i caught great attention of MNCs and academic and policy researches. Maybe these are two special examples because they competed with other standards in international arena so that it would be sure MNCs have to be interested in it. In fact, Mattli and Buthe(2003) argued that MNCs attempt intensively to get involved in the process of international standardization to be able to shape the technical content of a given standard. Their data suggested that 74% US firms and 78% European firms identify involved early as important in determining success for the adoption of one's technical preference in international standardization<sup>6</sup>. However, how to explain we can meet some foreign faces when we discuss national standards such as IGRS and I Top Home, which didn't attend any international standardization competition, and national standardization and innovation policies? Why are MNCs interested in China's standardization so much?

### **2.1 Network externality**

Network externality is a crucial character of standard, which makes user base and market size same as important as technology level to the setting and diffusion of standards.<sup>7</sup> When technology is same or similar, user base and market size would be the critical factors to win the standard competition. 30 years' economic reform and development in China has resulted in a consensus

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<sup>6</sup> Walter Mattli & Tim Buthe(2003), Setting International Standards: Technological Rationality or Primacy of Power? *World Politics*, vol.56,(1):1-42

<sup>7</sup> Joseph Farrell & Garth Saloner, 1986. "Installed Base and Compatibility, With Implications for Product Preannouncements," Working papers 411, Massachusetts Institute of Technology (MIT), Department of Economics; David, P. A. (1987). Some new standards for the economics of standardization in the information age. In P. Dasgupta & P. Stoneman (Eds.), *Economic policy and technology performance*. Cambridge, England: Cambridge University Press; Katz, M. and C. Shapiro. Systems Competition and Network Effects [J] . *Journal of Economic Perspectives*, 1994 ,vol . 8, 93-115

that China is such an important market that almost every MNCs can not ignore. The huge user base and market size of China attracts a great many MNCs and international SSOs participating Chinese standardization to extend the network externality of their standards, technologies and products.<sup>8</sup> Chinese consumers have been the ones who are interested in all kinds of new and high-tech goods with effective demand, which means that they have both consume want and consume ability, based on their increasing income. A recent study by the Economic Intelligence Unit indicates that Chinese consumers only make up 5% of the world's \$36.9 trillion consumption<sup>9</sup>. To mobile phone users as an example, there have been 740 million mobile phone users in China by the end of 2009<sup>10</sup>, which was 16% of world mobile phone users then.

## 2.2 Technology

Technology import and transfer have been one of the most important channels of technology sourcing for domestic firms in China since 1978. MNCs contributed a lot to the rapid improvement of Chinese technology and economy. However, indigenous innovation became the national strategy in 2006 because technology transfer brought too much challenges to Chinese government and companies from the late 1990s. The main challenges are local firms rely on transferring technology too much and transferring technology is unlikely to help them develop innovation capabilities as they hoped before<sup>11</sup>. This policy change created two kinds of opportunities or challenges to MNCs in China. One is that MNCs can get more skilled workers and mature technology from Chinese market. The other is that it is not as convenient as before to affect Chinese technology improvement directly. Standardization provides MNCs an excellent opportunity or platform to influence the directions of Chinese technology improvement because standards affect the R&D, production, and market penetration stages of economic activity and therefore have a significant collective effect on innovation, productivity and market structure<sup>12</sup>.

## 2.3 Business model

Standards provide a valuable opportunity to combine economic analysis and business strategy<sup>13</sup>. Because of the rapid expansion of global innovation networks (GINs) that is driven by the ceaseless modularization and fragmentation of engineering, product development and research<sup>14</sup>, some MNCs like GE have to shift the business model from that MNCs develop high-end products

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<sup>8</sup> Some Chinese scholars are aware of that the huge user base and market size of China have a very important influence of to international standard competition. Hongxing Xiong(2006), Network Effect, Standard Competition and Public Policy(in Chinese), Shanghai:Shanghai university of finance and economics press; Mier Zhang and Yang You(2009), On large country effect in standard setting and its working mechanism(in Chinese), China Soft Science, (4); Yaozhong Wang, Junjun Hou(2008), "Network Effect, Large Country and international competition of standards", The 2008 International Conference on business intelligence and financial engineering (BIFE'2008)

<sup>9</sup> Helen Wang, , China's Booming Consumer Market,

<http://blogs.forbes.com/china/2010/08/27/chinas-booming-consumer-market>, last visit, Aug. 28,2010

<sup>10</sup> MIIT, National telecommunications industry statistical bulletin 2009,

<http://www.miit.gov.cn/n11293472/n11293832/n11294132/n12858447/13011909.html>, last visit, Apr. 20,2010

<sup>11</sup> Xudong Gao(2009), Understanding key features of the TD-SCDMA adopting process in China, manuscript in conference "Standards and Innovation Policy in the Global Knowledge Economy – Core Issues for China and the US" on Oct 14, 2009, hold by NBR and EWC.

<sup>12</sup> Gregory Tassej(2000), Standardization in technology-based markets, Research Policy,(29):587–602

<sup>13</sup> Peter Grindley(1995), Standards,Strategy,and Policy:Cases and Stories, Oxford:Oxford University Press, pv

<sup>14</sup> Dieter Ernst(2009), A New Geography of Knowledge in the Electronics Industry? Asia Role in Global Innovation Networks, Policy Studies 54, East-West Center, Honolulu,Hawaii

at home and adapt them for other markets around the world to that MNCs develop products in emerging markets and then distribute them globally because of the rapid development of populous countries like China and India and the slowing growth of wealthy nations.<sup>15</sup> As a result of this change, it becomes more difficult for MNCs to govern their global value chains. Standard works as an important tool to help MNCs govern every segment in global value chain effectively and ensure the maximum profit through market, corporate and industrial governance<sup>16</sup>. Standards can help promote the codification of knowledge in ways that lower costs within value chains<sup>17</sup>. In fact, many standards function as business models to seek commercial profits while some traditional advantages of standardization, such as interoperability and economies of scale are no longer the main benefits that many companies get from standardization.<sup>18</sup> Therefore, MNCs would be sure to participate the setting process of standards in emerging countries, specially when these standards are related to their global value chains.

### **3. Ways to affect Chinese standardization**

In order to get the maximum economical, political and other effects, MNCs take various kinds of ways to shape Chinese standardization, including participating in standard setting, academic activity, standardization education, international trade, IPR, investment as well as diplomatic channel.

#### **3.1 Participation in standard setting**

With the rising openness and transparency, more factors including MNCs are introduced into Chinese standardization, especially after its entry into the WTO in 2001<sup>19</sup>. MNCs and other international stakeholders have been active factors although Chinese standardization system is still government-centered and top-down. There are three channels by which MNCs take part in national standard setting directly, which is the most important way to shape Chinese standardization.

##### **3.1.1 To be the main technology suppliers of standards**

Any standard has to be based on some relevant technologies. Whoever provides the main technology of standard will exert important influence on the standard development. With the backwardness of some technologies in China, MNCs may be the main technology suppliers of some standards. This is only suitable to some types of standards based on technology which is not originally from China wholly, especially to technology developed jointly with MNCs.

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<sup>15</sup> Jeffery R. Immelt, Vijay Govindarajan and Chris Trimble (2009), How GE is disrupting itself, Harvard Business Review, (10):56-65

<sup>16</sup> Humphrey J. & Schmitz H. (2000). Does Local Co-operation Matter? Evidence from Industrial Clusters in South Asia and Latin America. Oxford Development Studies. Vol. 28 (3),323-336; Khalid Nadvi (2008), Global standards, global governance and the organization of global value chains, Journal of Economic Geography (3),1-21

<sup>17</sup> Gereffi, G., Humphrey, J., Sturgeon, T. (2005) The governance of global value chains. Review of International Political Economy, 12(1): 78 - 104

<sup>18</sup> Pieter Ballon and Richard Hawkins (2008), Standardization and Business Models for Platform Competition: the Case of Mobile Television, International Journal of IT Standardization Research, 7(1):1-12

<sup>19</sup> Wang Ping, Wang Yiyi and John Hill (2010), Standardization Strategy of China—Achievements and Challenges, East-West Center Working Paper—Economics Series #107, January

In the case of TD-SCDMA, there are many international cooperation and foreign technology suppliers. Siemens provided the main technology and 21.2% granted patents of SCDMA and 21.6% granted patents of TDD while Datang, the dominant local company in TD-SCDMA, only provided 15.2% of SCDMA and 12.2% of TDD<sup>20</sup>. Nokia, Qualcomm and Motorola provide essential patents in TD-SCDMA too. TD-LTE (TD-SCDMA Long Term Evolution), one of next generation mobile telecom standards, is the new focus of international standards what are made in China after TD-SCDMA. It is an excellent achievement based on the cooperation between Chinese telecom operators represented by China Mobile and telecom equipments suppliers represented by Nokia Siemens Networks. Nokia Siemens Networks established a standardization group consisting of more than 30 technical experts in 2007 to promote cooperation with China on TD-LTE standardization and remove its TD-LTE research center to Hangzhou, China in 2008<sup>21</sup>. At the same time, Motorola, Qualcomm showed their cooperation with China Mobile through the Shanghai 2010 World Expo<sup>22</sup>.

Another illuminating fact is that there are only 2 Chinese companies with the 31.21% share of total 15133 invention patents, while 8 foreign companies with the 68.79% share from Japan, Korea, USA as well as Netherland in the list of top 10 companies of patent of invention authorized amount in 2009<sup>23</sup>. These foreign companies are important supporters and collaborators of Chinese technological progress through various channels. The industries of electronics and information technology where these foreign companies work are very active in standardization too.

Table 1 The distribution of granted patents in TDD and SCDMA in TD-SCDMA(%)

	Siemens	Datang	Huawei	ZTE	Nokia	Motorola	Qualcomm	Others
Share in TDD	21.6	12.2	10.1	7.4	4.1	2.7	6.1	35.8
Share in SCDMA	21.2	15.2	12.1	24.2	--	--	--	27.3

Data resource: Norson Telecom Consulting

Table 2 Top 10 companies of patent of invention authorized amount in 2009

No.	Country	Name of company	Amount (unit)
1	China	Huawei	3377
2	Japan	Panasonic	2113
3	Korea	Samsung	1913
4	China	ZTE	1345
5	USA	IBM	1276

<sup>20</sup> These data is from a special report provided by Norson Telecom Consulting.  
<http://tech.sina.com.cn/t/2006-10-17/10291187550.shtml>, last visit, Mar. 17,2010

<sup>21</sup> <http://news.cnfol.com/100515/101,1587,7705156,00.shtml>, last visit, Aug. 17,2010

<sup>22</sup> <http://www.qualcomm.com/news/releases/2010/09/08/qualcomm-now-demonstrating-products-based-lte-tdd-technology>, last visit, Aug. 17,2010

<sup>23</sup> State Intellectual Property Office(2010), Patent Statistics Newsletter, No.3, www.stats.gov.cn, last visit, Mar. 27,2010



6	Japan	Sony	1188
7	Netherland	Philips	1187
8	Japan	Canon	944
9	Japan	Seiko Epson Corporation	899
10	Korea	LG	891

Data resource: State Intellectual Property Office(2010)

### 3.1.2 To be main players of standard alliances

It is increasingly common for companies to join one or more standard-setting alliances in order to develop standard technology and to sponsor adoption of a standard. To join a large standard-setting alliance may help a company increase the probability of successfully developing and sponsoring a compatibility standard and avoid allying with rivals, especially close rivals, in order to maximize its own benefits from compatibility standards that emerge from the alliance's efforts<sup>24</sup>. With the shift of Chinese approaches for developing open standards from top-down to bottom-up, standard alliances play an increasingly important role in standards development and implementation too. AVS, TD-SCDMA, WAPI and IGRS are the outstanding standard alliances in China. However the members of these alliances are not only from local companies but also from MNCs. Sometime the members from MNCs become the majority of standard alliances. The following table 3 shows that 56.5% of board and senior members of TD-SCDMA is from MNCs instead of local companies, and the same ratio in WAPI is 14.2%, in AVS is 35.5%, in IGRS is 20.0%.

Table 3 MNCs in some standard alliances

Standard Alliance	Total	MNCs	MNCs/ Total
TD-SCDMA*	53	30	56.5%
WAPI	70	10	14.2%
AVS**	121(37)	43(29)	35.5%
IGRS**	100(37)	20(8)	20.0%

\*Common members are not included.

\*\*The number in ( ) is of observer members.

Data resource: These data are from websites of these standard alliances directly. [www.tdscdma-forum.org](http://www.tdscdma-forum.org), [www.wapia.org](http://www.wapia.org), [www.avsa.org.cn](http://www.avsa.org.cn), [www.igrs.org](http://www.igrs.org), last visit, Mar. 17, 2010

Table 4 Board and senior members of TD-SCDMA Forum

Type	Local companies	MNCs
Board members	Datang; Huawei; China Mobile; China Telecom; China Union; Alcatel-Lucent; TCL; Potevio	Nokia Siemens Networks; MOTOROLA; InterDigital; QUALCOMM; ERICSSON

<sup>24</sup> Robert Axelrod, Will Mitchell, Robert E. Thomas, D. Scott Bennett, Erhard Bruderer(1995), Coalition Formation in Standard-Setting Alliances, Management Science, Vol. 41, ( 9 ): 1493-1508

Senior members	Spreadtrum; Koretide; Longcheer; CYIT; Fiberhome Mobile; Seahigh; Rising Technology; Netrein; Allwin Telecommunication; KONKA; Postcom; Huacan Telecommunications; Borqs	T3G; ANALOG DEVICES; SAMSUNG; LG; Tektronix; NXP; MCCI; Infineon; FUJITSU; Intel; Agilent Technologies; Francetelccom; ROHDE&SCHWARZ; XILINX ; TEXAS INSTRUMENTS; NEC; ASUS; MEDIATEK; MARVELL; Sktelecom; Anritsu; freescale; DOLBY; TILERA; AEROFLEX; Innofidel
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Data resource: [www.tdscdma-forum.org](http://www.tdscdma-forum.org), last visit, Mar. 17, 2010

There are three types of membership in TD-SCDMA forum: board members, senior members and common members. The board and senior ones are the main part of membership so that there are instruction about board and senior members in the official English version of rights for TD-SCDMA Forum members. Rights for board members include to send representatives to participate in the top-level administrative agency of the Forum, to attend all kinds of meetings of the Forum, to enjoy 2 ~ 4 free attendant quotas in each meetings organized by Forum and enjoy free attendant quotas or favorable discount in each meetings co-organized by the Forum and its partners, to get the highest discount when sponsoring annual international TD-SCDMA summit, to enjoy individual services and to get TD-SCDMA marketing information reports. Senior members have the similar rights as board members except to send representatives to participate in the top-level administrative agency of the Forum. Obligations for board members include to uphold and abide by the Forum Constitution, to organize and participate actively technical exchanging activities in the Forum and to promote TD-SCDMA technology development and application, to make the Forum's devolping plan and to pay membership dues. Senior members needn't organize technical exchanging activities. TD-SCDMA Forum members include worldwide operators, manufacturers, instruments and meters vendors, scientific research institutions, as well as other relevant companies or bodies etc. However there isn't any difference on membership rights and obligations between local and foreign companies, which means MNCs can have as same chances and rights as Chinese companies to affect TD-SCDMA standardization. In fact, a lot of familiar MNCs are often appearing in the TD-SCDMA forum(Table 4).

### 3.1.3 To be supporter of local standard setting company or orgnization

MNCs have another way to take part in standard alliances instead of being members directly. That is to be the supporter of local standard setting companies or alliances. The reasons why these MNCs are the supporters might be their contirbution to standards are not enough to be members or they are more willing to be heros behind the scenes. China BWIPS is a standardization organization of broadband wireless IP. We can't find any MNCs' name in the list of its members but it is not very difficult to find that there are two foreign companies working as its supporters, which are Netiq and Wildpackets.<sup>25</sup> An interesting fact is Huawei's recruitment of 3 experienced and well-respected international standards experts, Adrian Farrel (who is now IETF's area director for routing), David Harrington(who is now IETF's transport area director), and Spencer Dawkins(who is now a member of IETF's Internet Architecture Board), which is regarded as the

<sup>25</sup> <http://www.chinabwips.org/link.htm>, last visit, Mar. 16,2010

key factor to Huawei's success in its standardization. Ever since 2003, Huawei has submitted 24 pieces of Request For Comments (RFC), 62 working group drafts, and 241 active drafts to IETF and this helps Huawei stand out as a fastest-growing major contributor to IETF<sup>26</sup>.

### **3.2 Academic activity**

The increasing developments of international standardization hastened academic activities between China and international factors. Standardization academic activity is one of important ways both to China to learn from developed countries and to MNCs to affect Chinese standardization. MNCs will attend, sponsor or organize many kinds of standardization academic activities to sell their standards and strategies.

#### **3.2.1 Academic conference**

It is a very popular way to keep all kinds of stakeholders, including corporate executives, government officials and leading scholars, in standardization together, to discuss core issues on standardization theory, practice and policy. MNCs are very interested in attending these conferences because this is a good chance to know the trend of Chinese standardization policy and to show their own opinions to others. With the support from the Ministry of Commerce of China, ETSI and EU-China Trade Project held an international conference "Standard, IPR and Competence" on Oct 31, 2001 in Beijing. 7 foreign companies, Qualcomm, Microsoft, Intel, Philips, Siemens, Sun Microsystems and Research In Motion attended this conference and discussed issues including standard and IPR, standard and innovation, standard and intellectual property licensing, intellectual property and competition policy<sup>27</sup>. In order to promote Pree-to-Pree Streaming Protocol as an international standard, China Mobile held a conference, International Peer-to-Peer Streaming Industrial and Standards Workshop, in June 17-18,2010. Many MNCs, Motorola, Nokia, Siemens, ASTRI, IterDigital, etc, as well as some international standard organizations IETF, ITU, 3GPP, and other telecom and internet companies, institutes attended this workshop<sup>28</sup>.

At the same time, Chinese scholars and government officials are often invited by international standard organizations or MNCs to attend international standardization conferences. AVS provides a complete and detailed record about its main great events from 1996 on its website, which shows that AVS scholars have been more than eight countries and regions, including Canada, Thailand, Germany, South Korea, Slovenia, Switzerland and Hongkong, to attend international standardization conferences or workshops to share or exchange opinions on audio video coding standard with experts who are from relevant international standard organizations or MNCs including ITU, MPEG, Digital Media Project, etc.<sup>29</sup>

#### **3.2.2 Academic paper**

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<sup>26</sup> <http://www.huawei.com/news/view.do?id=11190&cid=42>, last visit, Aug. 16,2010

<sup>27</sup> <http://www.cesi.ac.cn/cesi/fuwu/hangyedongtai/2007/1108/3433.html>, last visit, Aug. 16,2010

<sup>28</sup> <http://labs.chinamobile.com/focus/PPSP>, last visit, Aug. 17,2010

<sup>29</sup> <http://www.av.org.cn/history.asp>, last visit, Mar. 17,2010

Based on the fact that Chinese standardization theory and practice lags behind developed countries, Chinese scholars have been used to reading and studying academic papers in English on the mature and abundant theories and practices of developed countries. Nevertheless now there are more and more academic papers in English that focus on the Chinese standardization practice. Richard P. Suttmeier and Scott Kennedy wrote some papers with explicit description on Chinese standardization from the perspective of political economy.<sup>30</sup> John Whalley and his coauthors reviewed Chinese experience with global 3G standard-setting directly in a CESIFO working paper.<sup>31</sup> These papers pointed out a lots of problems in Chinese standardization, such as the profit conflicts among different stakeholders and insufficient commercialization of standards. However it is not undeniable that the papers themselves showed a recognition and attention on Chinese standardization from developed countries. And even some scholar, such as David, Abraham and Steven(2005), argued that China has a growing capability to rewrite the rules of the game in global market competition because China begins to deploy its expanding regulatory capabilities to set standards at home and at international market.<sup>32</sup>

### 3.3 Standardization education

Standardization education is one of the most fundamental factors to push standardization forward in developing countries. However lack of systematized and suitable curriculums and textbooks and qualified teachers are still major constraints in promoting standardization education.<sup>33</sup> But SSOs, MNCs and NGOs have been playing an increasingly important role in improving standardization education in China to build a national knowledge base and increase standardization human resources. de Vries and Egyedi(2007) listed 14 main activities related to education for standardization, which suggests a surge of interest in standardization education worldwide<sup>34</sup>.

#### 3.3.1 SSOs

SSOs or SDOs are the primary force to promote standardization education since they must sell their standards to public. Therefore SSOs have taken lots of measures for this topic.

Take ISO for example, it has been providing a great many e-learning textbooks for many years to

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<sup>30</sup> Richard P. Suttmeier, Xiangkui Yao, "China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism," The National Bureau of Asian Research, NBR Special Report, May 2004. Richard P. Suttmeier, Xiangkui Yao, and Alex Tan, "Standards of Power? Technology, Institutions, and Politics in the Development of China's National Standards Strategy," The National Bureau of Asian Research, NBR Special Report, June 2006. Scott Kennedy, "The Political Economy of Standards Coalitions: Explaining China's Involvement in High-Tech Standards Wars," *Asia Policy* 2 (June 2006): 41–62. Scott Kennedy, Richard P. Suttmeier, and Su Jun, "Standards, Takeholders and Innovation: China's Evolving Role in the Global Knowledge Economy," The National Bureau of Asian Research, NBR Special Report, Seb. 2008

<sup>31</sup> John Ahalley, Wenmin Zhou, Xiaopeng An, "Chinese Experience with Global 3G Standard-Setting," CESIFO Working Paper No.2537, Feb, 2009

<sup>32</sup> David Bach, Abraham Newman, Steven Weber(2005), *China's Impact on the Global Economy: from China Price to China Standard*, IE Working Paper, WP05-31

<sup>33</sup> Yukiko KAMIJO, How to sell Education on Standardization to Universities, Industries, ICES Workshop 2009, [http://www.standards-education.org/uploads/ices2009/How\\_to\\_sell\\_Education\\_on\\_Standardization\\_Kamijo.pdf](http://www.standards-education.org/uploads/ices2009/How_to_sell_Education_on_Standardization_Kamijo.pdf), last visit, Mar. 21,2010

<sup>34</sup> de Vries, H.J. and Egyedi, T.M. (2007), Education about Standardization: Recent Findings, *International Journal of IT Standards and Standardization Research*, 5(2), 1-16

support national interests in international standardization for ISO members' staff, particularly in developing countries. ISO's e-learning modules cover all the core competences of an Expert in International Standardization Management including implementing international standards, assessing priorities for standardization and managing participation in international standardization. ISO Award for Higher Education was established in 2006 aims to raise awareness of the importance of standardization worldwide by supporting institutions of higher education that have developed and implemented successful programmes relating to standardization as a tool to access world markets, transfer technology and promote good business practice and sustainable development. The first winner is Professor Song Mingshun who is from China Jiliang University for its undergraduate programme of standardization 2007. The another award from ISO is Helmut Reihlen Award which was created in 1999 in the form of a contest for young standardizers in developing countries and economies in transition, focusing attention on standardization and related matters. The purpose of the contest is to mobilize the enthusiasm of young standardizers in developing countries and economies in transition and to raise awareness of the importance of standards in promoting safe and sustainable development.

In 2004, IEC created the IEC 1906 Award to commemorate the IEC's year of foundation and to honour IEC technical experts around the world whose work is fundamental to the IEC. Three Chinese experts, Ouyang Jinshong, Cui Bo, and Zhao Ying won the IEC 1906 Award in 2009, and Mou Tongsheng and Zhang Ruibiao won it in 2010<sup>35</sup>. ITU established a program named Bridging the Standardization Gap (BSG) in 2000 between developing and developed countries to facilitate increased participation of developing countries in standardization. One of best practices for maximizing national standards capability what described in the report is to increase standards education<sup>36</sup>. IEEE established a standards education committee, which is a partnership between Educational Activities and the Standards Association, to provide resources to help introduce and teach undergraduate and graduate students, as well as professors and educators, about technical standards by providing free online tutorials and case studies<sup>37</sup>.

### 3.3.2 MNCs

MNCs, in particular these companies who are the main makers of some important standards or have patents embedded in standards, show tremendous interest in education about standardization. It is an effective way to promote MNCs' standards and products to embed their standards with IPR in standardization education resources and activities.

Take IBM as an example. During the summer of 2008, IBM organized a notable online forum, in which 70 independent, forward-thinking experts across the globe, including many from China, debated the question of if standard setting bodies have kept pace with today's commercial, social, legal and political realities. IBM introduced its standard policies successfully in this conversation.<sup>38</sup> IBM has special University Awards to support research, curriculum innovation and educational assistance and provides sufficient materials to develop inter-disciplinary graduate

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<sup>35</sup> [http://www.iec.ch/about/awards/1906/2009\\_list.htm](http://www.iec.ch/about/awards/1906/2009_list.htm), last visit, August. 16,2010

<sup>36</sup> [http://www.itu.int/dms\\_pub/itu-t/oth/32/02/T32020000010001PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/32/02/T32020000010001PDFE.pdf), last visit, April. 16,2010

<sup>37</sup> [http://www.ieee.org/education\\_careers/education/standards/why.html](http://www.ieee.org/education_careers/education/standards/why.html), last visit, Aug. 15,2010

<sup>38</sup> [http://www.research.ibm.com/files/standards\\_wikis.shtml](http://www.research.ibm.com/files/standards_wikis.shtml), last visit, Mar. 16,2010

curriculum in universities. Over 200 universities have been engaged in IBM standards.

As a global communication leader, Motorola and Nanjing University of Posts and Telecommunications co-established NUPT-Motorola Wireless Technology Application College in June 2009. The main objective of this college is to cultivate professionals of wireless internet technology and to promote the application of wireless internet technology in China<sup>39</sup>.

Qualcomm Incorporated, a leading developer and innovator of advanced wireless technologies and data solutions, established 3G A-List Award to recognize innovative and successful enterprise wireless data solutions worldwide based on 3G CDMA standards. China International Trust and Investment Company was selected as one of 15 winners throughout multiple industries because of its outstanding wireless implementations in financial services<sup>40</sup>.

### 3.3.3 NGOs

NGOs have taken a more positive action to promote standardization education because of the dissatisfaction of government and university education in the standardization field. ICES (International Cooperation for Education about Standardization), which started in 2006, is an outstanding non-government organization for promoting education about standardization and exchanging educational approaches and materials internationally. ICES facilitates the development of policies and infrastructures to support education about standardization in nations, regions, worldwide, industries and companies. At the same time, ICES makes an effort to establish a repository for curricula and educational materials, which is the main constraint to develop standard education systems. ICES has organized many workshops on education about standardization in some countries including China. What is interesting is that one of the main founders of ICES is a standards manager of Sun Microsystems and the financial support is from Ecma International<sup>41</sup>, an industry association founded in 1961, whose members include Microsoft, IBM, Intel, Sony, Samsung, and so on.

EURAS, the European Academy for Standardization e.V., was founded in Hamburg in 1993 by researchers from various academic fields including economics, engineering, social sciences, law, and information sciences. Its activities focus on promoting standardization research, supporting the development and professionalization of standards education and so on. EURAS wants to help change a much neglected situation about standardization in higher education and supports the development of standardization curricula by providing a platform and opportunities for the discussion, development and exchange of teaching material<sup>42</sup>. One of EURAS education activities is the project EU ASIA LINK – Standardisation in Companies and Markets, which is to promote the European Standardization System by developing a curriculum for "Standardization in

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<sup>39</sup> <http://mediacenter.motorola.com/content/detail.aspx?ReleaseID=11432&NewsAreaId=2>, last visit, Aug. 17,2010

<sup>40</sup> <http://www.qualcomm.com/news/releases/2007/10/24/qualcomm-announces-winners-fifth-annual-3g-list-awards>, last visit, Aug. 17,2010

<sup>41</sup> John L. Hill, An overview of ICES's strategy document, [http://ts.nist.gov/Standards/upload/An\\_Overview\\_of\\_ICES\\_Strategy\\_Document.pdf](http://ts.nist.gov/Standards/upload/An_Overview_of_ICES_Strategy_Document.pdf), last visit, Mar. 26,2010

<sup>42</sup> <http://www.euras.org/about-us>, last visit, Aug. 17,2010

Companies and Markets" at the Asian partner institutions. The programme targets students of various existing Masters' programmes, and takes into account the special requirements of Asian countries. There are two European universities and four Asian universities including China JiLiang University as the partners<sup>43</sup>.

### 3.4 International trade

It is international trade, in particular the trade friction based on the difference of standards among trade parties, that makes Chinese stakeholders aware of the importance of standard in market although there were some standardization activities long ago in Chinese history.

Technical barriers to trade(TBT) have been the leading factor that blocks Chinese export for some years while other traditional trade measures such as tariff and quote don't work well by and by. To overcome TBT from foreign countries and companies is one of the direct motives of Chinese standardization strategy that plans to speed up national standard setting and to strengthen international standardization participation.<sup>44</sup> Most of Chinese officials and scholars argue that it is the best way to face international competition based on standard.<sup>45</sup> It is noticed that some national standards, focusing on the agriculture products, are directed against the trade friction based on the difference of standards among trade parties. Japanese positive list system works as the engine of Chinese agriculture standardization because of its enormous influence on Chinese agricultural product export.<sup>46</sup>

What is more important is that MNCs or FDI play a critical role in China foreign trade. China's FDI's import and export volume achieved \$12174.4 billion in 2009, which occupied 55.2% of total; export volume was \$6722.3 billion, accounting for 55.9% of total export, and import volume was \$5452.1 billion, sharing 54.2% in total import<sup>47</sup>. These exports and imports mainly originate from foreign-owned enterprises (joint ventures and wholly foreign-owned firms, including those controlled from Hong Kong, China; Macao, China; and Chinese Taipei). Wholly foreign-owned enterprises have significantly increased their share in hightechnology exports during the past decade, while that of joint ventures and especially SOEs has decreased.<sup>48</sup> The foreign-owned enterprises in China not only introduce international and foreign standards to Chinese market through manufacturing but also take part in Chinese standards setting in name of themselves or its Chinese cooperaters.

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<sup>43</sup> <http://www.asia-link-standardization.de/index.php?section=project-management&sub=partner>, last visit, Aug. 17,2010

<sup>44</sup> The 11<sup>th</sup> Five-Year Plan (2006-2010) for Standardization Development, issued in 2006 by SAC, expressed this kind of thought clearly. In its preface there is a saying that "Chinese standardization played an important role in ..... promoting international trade". Art.3.3 is "to research testing standards to deal with technical trade barriers".

<sup>45</sup> Some scholars regard the conflict of TBT as an economic game. One of reasons why China experienced so many TBT is lack of corresponding standards or TBT to against TBT from foreign countries or companies. So China should develop more national standards and TBT. Yaowu Shi and Xiaoling Kang(2005), A game analysis on increasing effect of TBT on China(in Chinese), Journal of taiyuan university of technology(social sciences edition), (3): 48-51

<sup>46</sup> Yueju Ni(2006), On Japan's Positive List System implementation and its influence on China's food and agricultural exports (in Chinese), International Trade, (7): 22-26

<sup>47</sup> The data is from <http://zhs.mofcom.gov.cn/tongji2009.shtml>.

<sup>48</sup> OECD Reviews of Innovation Policy: China, 2008, p267



### 3.5 IPR

What MNCs, particularly those companies who have lots of patents embedded in standards, are most concerned about Chinese standardization now should be IPR policy related standards because it has been the core topic of international standard competition. In 2004, the Standardization Administration of the PRC (SAC) issued a draft of the “Provisional Rules regarding Administration of the Establishment and Revision of National Standards Involving Patents” (the “Draft Rules”) but it didn’t work because there are so many different comments from every part of society, including many MNCs. SAC issued a new version of the Draft Rules and requested public comments on November 2, 2009. This latest version is believed to be closer to the finalized and promulgated than before because there are many pleasant adjustments about the way of patents information disclosing and royalty determining and other topics. However, it still didn’t work until present days. China National Institute of Standardization (CNIS) issued a draft of the “Disposal Rules for the Inclusion of Patents in National Standards” and called for public comments again on Jan. 28, 2010. We can see so many compromises and concessions in these different versions about Chinese IPR policy related standardization, which should be recognized as a politic and economic game between China and MNCs. In other words, MNCs’ comments had influenced the policy setting or made it more complicated. Because they have different position, profit and opinion from China and even there are many disagreements among MNCs themselves.

What attracted MNCs concerns to Chinese IPR policy is the strategy of independent innovation which initiated in 2006. In order to implement the strategy, a lot of related policies and measures, including the government procurement of independent innovation products, come into being. The Notice on the Promulgation of the 2009 National Independent Innovation Products Accreditation Program jointly issued by MOST (the Ministry of Science and Technology), NDRC (the National Development and Reform Commission), and MOF (the Ministry of Finance) in November 15, 2009 to carry out the work of assessment of independent innovation product nationwide. However, this document encountered many negative opinions originate from MNCs because the definition of independent innovation product would probably prevent the MNC’s products from the government procurement catalogue of independent innovation products. MOST, MOF and NDRC jointly issued Draft Notice on the Launch of the National Independent Innovation Product Accreditation Work in May 15, 2010, in which the definition of independent innovation product has been modified. Two accrediting factors of Independent Innovation Product, proprietary intellectual property rights and independent brand, have been exchanged into two vague regulations, which is regarded as a big victory of American high-tech companies who lobbied to Chinese government<sup>49</sup>.

### 3.6 Investment

The investment from foreign countries in China market has played a decisive role in Chinese economic development since 1979. There are more than half of “World Top 500” companies invested in China. Total volume of imports and exports of foreign-invested enterprises has been

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<sup>49</sup> Jie Huang, MNCs Lobby and the policy of independent innovation modified, <http://www.21cbh.com/HTML/2010-4-16/0MMDAwMDE3MzA0Mg.html>, last visit, Aug. 1, 2010



over half of national total volume since 2002.

At the same time, foreign-invested enterprises are arising more and more frequently in Chinese standardization. China Standard Innovation Award is established by SAC to reward those companies or organizations who have outstanding performance and contribution for Chinese standardization every year. It is the grand prize for standardization award in China. However it is very interesting that six foreign-invested enterprises' and MNCs' names can be found in the list of winners in 2009.<sup>50</sup> Although there are not too many MNCs' names in the list and the industries involved are not very popular, the phenomenon itself indicates an implication to public that Chinese government approves MNC's contribution of Chinese standardization.

Table 5 Foreign-invested enterprises in China Standard Innovation Award(2009)

Awarded standards' number	Foreign-invested enterprises	Foreign invest source
GB 8624—2006	Armacell(Guangzhou)	Germany
	Bayer(Shanghai)	Germany
	Armstrong(Shanghai)	American
	Aeroflex(Shanghai)	Thailand
GB/T 20173—2007	FASTEN SUMIDEN	Japan
GB/T 20621—2006	Outaihua	Sino- foreign joint

Of course, more and more stories are behind this kind of list. Many MNCs are hidden in Chinese standardization through establishing joint ventures with local companies or other ways. As ranking second in global market share of radio access equipment, Huawei is the most influential company in Chinese standardization. Currently, Huawei employees hold 148 leadership positions in 123 industry standards organizations globally, including as board members of authoritative organizations such as OMA, IEEE, ATIS, and the WiMAX Forum. Huawei submitted more than 18,000 standards proposals and filed a total of 42,543 patent applications by December 2009.<sup>51</sup> However, it should not attribute the success to Huawei himself. What should be noticed is that Huawei has many technical cooperations and sets up joint laboratories with Intel, Texas Instruments, Freescale Semiconductor, Qualcomm, Infineon, Agere Systems, Microsoft, IBM, Sun Microsystems and HP and establishes joint ventures with Symantec, Global Marine, Siemens and 3Com.<sup>52</sup> Ying Zhang(2009) reviewed the details of Huawei's alliance with foreign companies and international institutes(Table 6)<sup>53</sup>. As a result, some interesting things can be found that there some disagreements on standard and IPR policy among Huawei and Chinese government and other local companies.

Table 6 The Memo of Huawei's Alliances (1989-present)

Announced Date (mm/dd//yy)	Name of Partners	Partner Nation	Joint Venture Flag
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<sup>50</sup> <http://www.sac.gov.cn/templet/default/ShowArticle.jsp?id=5426>, last visit, Apr. 1,2010

<sup>51</sup> Huawei annual report 2009,

[http://www.huawei.com/corporate\\_information/annual\\_report/annual\\_report\\_2009.do](http://www.huawei.com/corporate_information/annual_report/annual_report_2009.do), last visit, Apr. 1,2010

<sup>52</sup> [http://www.huawei.com/corporate\\_information.do](http://www.huawei.com/corporate_information.do), last visit, Apr. 1,2010

<sup>53</sup> Ying Zhang(2009), Alliance-based Network View on Chinese Firms' Catching-up: Case Study of Huawei Technologies Co.Ltd., UNU-MERIT Working Paper Series 2009-039

1989-1994	Shanghai Bell Telephone Manufacturing Company	Sino-U.S.JV	No
02/20/97	Texas Instruments	USA	No
04/09/97	BETO TELEKOM	Russian Fed Russian Fed	Yes
06/08/00	QUALCOMM Inc	USA	No
11/27/01	NEC Corp Matsushita Commun Industrial	Japan Japan	Yes
10/21/02	Agere System	USA	No
10/21/02	Microsoft	USA	Joint lab
10/23/02	NEC Corp	Japan	Yes
03/19/03	3Com Corp	USA	Yes
06/04/03	Avici Systems Inc	USA	No
08/29/03	Siemens Info & Commun Mobile	Germany	Yes
09/16/03	Infineon Technologies AG	Germany	No
02/12/04	Information & Communication Mo	Germany	Yes
04/25/05	Intel	USA	No
03/02/06	HP	USA	No
05/31/06	Freescale Semiconductor	USA	No
07/25/06	Motorola Inc	USA	Yes
02/13/07	Qualcomm Inc.	USA	No
05/14/07	Global Marine Systems Ltd	United Kingdom	Yes
05/21/07	Symantec Corp	USA	Yes
10/31/07	ITU	International Institute	No
1998-2003	IBM	USA	Consultant Agreement
12/12/08	Microsoft	USA	No
03/20/09	Infineon	Germany	No
08/09/09	Sun Microsystems Inc.	USA	Telecom Lab
01/01/01			
1997-Now	Hay Group	USA	Consultant Agreement
1997-Now	PwC	Britain	Consultant Agreement
1997-Now	FhG	USA	Consultant Agreement

Source: SDC database and various media announcement. The author makes some changes based on Ying Zhang(2009).

### 3.7 Diplomatic channel

Basically, most of international standard competition is among involved enterprises and SSOs of different countries. But some diplomatic factors will be used in these process sometimes. That is to say some MNCs will take diplomacies into international standard competition and exert diplomatic pressure to rivals. For instance, USTR(Office of the United States Trade Representative)、AmCham-China(The American Chamber of Commerce in the People's Republic

of China), EUC (The Coastal & Marine Union) play important diplomatic roles in some cases related standard competition with China. AmCham-China recommends China to engage with the US to address issues involving standardization and antitrust law and to permit foreign rights holders to participate in an identical manner with Chinese rights holders in standardization matters in the 2010 White Paper on the State of American Business in China<sup>54</sup>.

The competition between WAPI and IEEE 802.11 is a typical example. In May 2003 WAPI was approved by the Chinese government as a mandatory standard and would be implemented at the end of 2003. But it was regarded as a kind of Chinese technical barriers to trade in the high-tech sector more than security measure<sup>55</sup>. Some MNCs such as Intel requested to delay the implementation because there was insufficient time to prepare at that time. November 2003, the State Administration of Quality Supervision and the National Standardization Management Committee issued a public notice that domestic wireless local area network products must adopt WAPI standard started from June 1, 2004. Intel, Broadcom and other U.S. companies strongly boycotted this decision, threatened to stop the wireless business in China and claimed that WAPI standard would force companies to share sensitive information with China. Then U.S. Secretary of State Colin Powell, Commerce Secretary Don Evans and Trade Representative Robert Zoellick sent a joint letter demanding China give up the WAPI standard and claiming it was a trade barrier. Furthermore U.S. devoted to this subject in the meeting of Sino-US Joint Commission on Commerce and Trade and the Chinese side agreed to give up implementation of WAPI standards in June 1, 2004 and to extend the deadline indefinitely. This is a successful case of international standard competition through diplomatic channel although WAPI was approved by ISO as one of three kinds of international standards of wireless local area network access security mechanisms in June 2009.

#### **4 Possible effects to China's standardization**

Undoubtedly, there will be lots of influences on China's standardization when MNCs take so many actions as mentioned above although it is very difficult to judge its consequence on China in the present circumstances. What these effects result from are MNCs' actions directly or indirectly and from Chinese standardization stakeholders' reactions to MNCs' actions.

##### **4.1 To accelerate China's standardization**

The pace of China's standardization has accelerated significantly in recent years, which is shown not only from the increasing total amount of national standards and national standards based on Chinese technologies but also from all kinds of increasing standardizational activities throughout the country. A large amount of standardizational activities have been carried out not only in Beijing but also in other local provinces and cities. Firstly, almost all provinces have developed local standardization strategies according to their own characters after China's entry into WTO, especially after the release of the Outline of Eleventh Five-year Plan on the Development of

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<sup>54</sup> 2010 AmCham-China White Paper on the State of American Business in China, <http://www.amchamchina.org/article/6309>, last visit, Oct. 14, 2010

<sup>55</sup> Zia K. Cromer(2005), China's WAPI Policy: Security Measure or Protectionism?, Duke Law & Technology Review, 18

Standardization formulated by the SAC in 2006<sup>56</sup>. Secondly, almost all provinces have increased investment to standardization through governmental financial support and market capital or other supporting measures<sup>57</sup>. These policies and measures have greatly aroused the enthusiasm of people who are in the cause of standardization and provided an institutional guarantee for standardization development. The main motive of formulation and implementation of local standard strategies are to promote local economic and technological development, one of which is to boost international competitive power to improve international trade and attract investment through meeting MNCs' request of product and manufacturing standards.

#### **4.2 To strengthen the transparency of China's standardization**

Transparency is one of WTO's basic principles, which also have been a main point that western countries, WTO and MNCs criticize China for a long time for its obscure standard setting and implementing process.<sup>58</sup> Nonetheless now the degree of dissatisfaction should be significantly reduced since Chinese standard administration will invite all kinds of stakeholders including MNCs to participate standard setting or ask for comments and will regularly give WTO and its members the most recent information about China standards and technical regulations. All of these measures and activities strengthen the transparency of China's standardization at international level. Another outcoming of these activities is that the transparency of China's standardization at national level is improved too. More stakeholders, including consumers, manufacturers, salesmen, researchers and officials are invited to attend the process of standard setting. SAC, national standardization technical committees and standard associations or consortia disclose related documents in time to ensure the transparency of standard setting process.

#### **4.3 To strengthen the internationality of China's standardization**

The internationality is an important target of Chinese standardization strategy<sup>59</sup>. What Chinese government emphasizes is to "go out", which means substantive participation in international standardization activities. There are three types of substantive participation that are to set international standards, to manage international standard setting organizations and to hold international conference. Another point of internationality what Chinese government emphasizes is to adopt more international and foreign advanced standards into local standards. MNCs' involving Chinese standardization as a player and stakeholder is a new way of internationality, which enriches the practical meaning of internationality and strengthens the operability of China's standardization internationality. MNCs make the process, outcome and policy of Chinese standardization related directly to international market instead of being domestic market. In other words, MNCs, as well as other factors such as international standard organizations, are acting as the

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<sup>56</sup> Lixin Sheng and Weikai Zhao(2008), Comparative Study on typical standard strategy of provincial local government(in Chinese), Chinese standardization, (10):22-24

<sup>57</sup> Ke Wang(2010), Analysis of standardization incentives policy of major domestic cities(in Chinese), Standard science, (2): 52-54

<sup>58</sup> What WTO reviewed Chinese trade and investment policy framework in 2008 were "some aspects of China's trade policy regime remain opaque" and "it has continued to adopt measures to increase the level of transparency of its trade and trade-related policies, practices, and measures". [WT/TPR/S/199, 12 August 2008] is available at [www.wto.org](http://www.wto.org), last visit, April 16,2010

<sup>59</sup> The 11<sup>th</sup> Five-Year Plan (2006-2010) for Standardization Development, Art 2.2 "Adhere to the principle of internationality".

bridge between China and international market.

#### **4.4 To weaken the sovereignty of China's standardization**

National standard is an extension of property rights of enterprises and national sovereignty in economic area<sup>60</sup>. Herbert(2001) discussed the challenges of the development and implementation of international standards to the sovereign right of nations to establish their own regulatory frameworks and standards<sup>61</sup>. However, Herbert(2001) focused on the international standard-setting organizations only and didn't involve in MNCs. In fact, basing strong economic and political power earned from the development of production and management worldwide, MNCs affect the whole standardization process of some critical standards from theoretical investigation to practical implement in China. This means a fact that some part of the state sovereignty in standardization has been transferred to MNCs. In other words, the sovereignty of China's standardization has been weakened to some extent. It is a good example that Chinese government has to give up implementing some national standards such as WAPI and some domestical policy such as the policy of IPR related to standards because of strongly negative opinions from international factors including factors including MNCs. USCBC even required China to avoid using unique standards that are not harmonized with international standards Draft Notice on the Launch of the National Independent Innovation Product Accreditation Work in an amending advice to Draft Notice on the Launch of the National Independent Innovation Product Accreditation Work in May 10, 2010<sup>62</sup>.

#### **4.5 To make it harder to get agreement in standardization**

It is very difficult to reach agreement in the process of standard setting because of significant difference among all kinds of stakeholders. Relatively it is easier to make agreement among local stakeholders since the central government has the physical power to coordinate their different points and profits conveniently in the market economy with Chinese characteristics. However, it will be harder to do so when MNCs are involving in standardization because of more different and complicated points and profits from MNCs. For instance, on the draft of Disposing Rules on Patent Related National Standards issued by CNIS on Jan. 28, 2010, USCBC brought forward different opinions from 5 aspects including the scope of essential patent, participation in standard setting and its obligation, requirement of patent information disclosing, and requirement of patent licensing<sup>63</sup>. Intellectual Property Watch argued that this draft is more closer to international rules but still controversial in some aspects<sup>64</sup>.

### **5 Policy implication**

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<sup>60</sup> Kyle Bagwell and Robert W. Staiger(2001), Domestic Policies, National Sovereignty and International Economic Institutions, *The Quarterly Journal of Economics*, (5): 519-562

<sup>61</sup> Herbert V. Morais(2001), *The Quest for International Standards: Global Governance vs. Sovereignty*, *Kansas Law Review*, 2001, 779-821

<sup>62</sup> [http://www.uschina.org/public/documents/2010/04/indigenous\\_innov\\_recommend\\_eng.pdf](http://www.uschina.org/public/documents/2010/04/indigenous_innov_recommend_eng.pdf)

<sup>63</sup> [http://www.uschina.org/public/documents/2010/03/uscbc\\_comments\\_patents-chin.pdf](http://www.uschina.org/public/documents/2010/03/uscbc_comments_patents-chin.pdf)

<sup>64</sup> <http://www.ip-watch.org/weblog/2010/04/29/china%E2%80%99s-latest-draft-disposal-rules-for-patents-in-standards-a-step-forward-2/>

MNCs feel the process of Chinese standardization is not sufficiently open and transparent, meanwhile the policy is ambiguous and inconstant, thus there are always some conflicts including the directions and approaches among China and multinational companies as well as international SSOs. In fact we can learn more common interests, for example the common aspiration of promoting standardization, from the practice of MNCs' participation in Chinese standardization. Moreover, it would be highly merited to draw some policy implication from these conflicts and common interests.

### **5.1 Chinese stakeholders keep a more open mind to MNCs**

Chinese government and companies often show two kinds of different characters in the process of standardization. One is unconfidence. There are some cases that Chinese experts don't or can't express their own opinions because of concern on language ability and technology level in the international standardization activities. Meanwhile, unconfidence brings a lot of hesitation. An illuminating example is the delay of publishment of IPR policy in standardization several times. The other one is anxious, which means Chinese government wants to enter international standard arena as soon as possible. This kind of character was showed obviously in 11<sup>th</sup> Five-Year Plan (2006-2010) for Standardization Development.<sup>65</sup> Both unconfidence and anxiety bring Chinese stakeholders a closed mind, which means over-cautious when they are facing international stakeholders. It is not effective for communication for information accurately and thoroughly.

Therefore, Chinese standardization stakeholders should keep a more open mind to international ones including MNCs. Some pragmatic steps could be done as follows:

- Build a constant mechanism to invite more international factors into the setting process of national standards and international standards based on China.
- Increase transparency of standardization, shorten the period of setting standard and speed up the response to comments.
- Strengthen research and education for standardization, particularly to enhance standardization capability to communicate and negotiate with international stakeholders.
- Find more new channels to be involved in international standardization arena and express Chinese voice.

### **5.2 MNCs keep more patience to Chinese standardization**

Although it has not been a long time since China is involved in international standard business, MNCs regard China as a mature incumbent impatiently and urge China accept the concepts and technologies from developed countries without resistance and neglect when they deal with Chinese standardization, which brings lots of misunderstanding and conflicts about standards among China and international factors. At the same time too much trade frictions and even

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<sup>65</sup> Clear objectives of local standards internationalization are designed in this document is to submit 50 international standard proposals, to participate the setting and amendment of 500 international standards that are related closely to Chinese industry development and to increase the proportion of undertaking the work of international secretariats of ISO Technical Committees and its branches. In fact, it is very difficult to achieve any one of these objectives.

political frictions based on standards exist. In fact it is undeniable that China still is a newcomer and student in international standard arena. MNCs should keep more patient to Chinese standardization to

- Understand in depth China's development strategy and culture about standardization, particularly the culture of harmony, which is very good for understanding Chinese style politics among different local and international stakeholders.
- Tolerate the difference between China state and non-state actors and between China and foreign actors and the resulting hesitation on standard setting and policy publishing.
- Provide more standardization ability education to Chinese firms or other stakeholders.

### **5.3 More communication and collaboration among Chinese stakeholders and MNCs**

Although controversies and conflicts still exist among Chinese stakeholders and MNCs, more open-ended and in-depth communications and collaborations at all levels should be promoted. Here is some suggestions from the content discussed in this paper:

- More cooperation about academic researches and basic education for standardization.
- More cooperation about important technologies and services through investment and other channels. For instance, more experienced experts take part directly or indirectly in Chinese firms' international standardization activities, as staff member or consultant.
- More exchange of experts in technical standardization committees in both China and developed countries.

## **6. Concluding Remarks**

MNCs are involved in and play an important role in China's standardization increasingly. This paper discusses main ways that MNCs affect China's standardization and its possible effects. MNCs' participation accelerates the speed and strengthens the transparency and internationality of China's standardization, however, it weakens the sovereignty of China's standardization and make it harder to get agreement in standardization. In order to get a better win-win situation, this paper believes that Chinese stakeholders should keep a more open mind to MNCs, MNCs should keep more patience to Chinese standardization and there should be more communication and collaboration among Chinese stakeholders and MNCs.

The issue discussed in this paper is a very practical subject and need more interview with companies and more case studies, which are the next steps to focus on the issue in depth.