

China Standards and IPRs  
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John Ure  
Associate Professor and Director  
Telecommunications Research Project  
University of Hong Kong  
<http://www.trpc.com.hk>

*A: Why China Has a Problem with Standards and IPRs*

*The Problem*

The problem China has with intellectual property rights, often associated with standards in the ICT sector especially, is highlighted by the following report on 15<sup>th</sup> May 2006 from the *China Daily*, the English language daily newspaper of the People's Republic of China.

Science and Technology Minister Xu Guanhua said on April 27 Chinese enterprises have paid more than US\$1 billion to compensate their foreign competitors over intellectual property rights (IPR) disputes since 2001. These IPR battles have involved a wide range of products, including TV sets, MP3 chips, DVDs, motorbikes, digital cameras and telecoms equipment, Xu said in a report to the Standing Committee of the 10th National People's Congress. Xu added that 99 per cent of Chinese enterprises did not hold any invention patents, and that domestic companies had to pay 20 to 40 per cent of the price of every mobile phone or computer they produced to overseas patent holders.<sup>1</sup>

Ninety nine percent of Chinese companies may not own any invention patents, but in 2003 domestic patent applications of all kinds ('invention', 'utility' and 'design') in China (56,767) outnumbered foreign applications (48,549) for the first time since China joined the Patent Cooperation Treaty in 1994, according to the State Intellectual Property Office (SIPO), although actual patents issued to domestic applicants (11,404) fell short of those issued to foreign applicants (25,750).<sup>2</sup> By 2004 'invention' patents for electronic digital processing ranked second behind medical and pharmaceutical patents, and in a close third came digital transmission patents, a category in which for the first time Chinese patents represented just over 50 per cent of the total. Included for the first time as a sub-category was China's home-grown IGRS digital equipment networking industry standard. 'The patent applications were mainly filed by several large corporations such as the Huawei Tech Co. Ltd., ZTE Communication Co. Ltd. Shenzhen, LG Electronics Tianjin Electric Appliances, Beijing Harbour Network Co. Ltd., Lenovo Beijing Co. Ltd., etc., and some universities, research institutions such as Shanghai Jiaotong University, Beijing University of Posts & Telecom, Beijing Aeronautics & Astronautics University,

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<sup>1</sup> [http://www.chinadaily.com.cn/bizchina/2006-05/15/content\\_589774.htm](http://www.chinadaily.com.cn/bizchina/2006-05/15/content_589774.htm)

<sup>2</sup> In 2004, domestic applications (65,786) also outnumbered foreign (64,347) while patents issued to domestic applicants (18,241) again fell short of those to foreign applicants (31,119).

Tsinghua University, the Chinese Academy of Sciences, etc.’<sup>3</sup> This indicates a catching up process in China, at least in the ICT sector.

Concern about being held hostage to high patent royalties is a frequent refrain in China. Among several widely quoted examples, two are cited in Andrew Updegrove (2005),<sup>4</sup>

As of August 2004, a global accounting firm estimated that a Chinese manufacturer was required to pay US\$15-US\$22 in patent royalties in order to build a DVD player with a retail value as low as US\$60.<sup>5</sup> And in another report, it was estimated that a staggering 50%-70% of the costs incurred by a Chinese company manufacturing a PC were allocable to IBM and Microsoft royalty payments instead.<sup>6</sup>

For the next generation of high-definition DVDs using MPEG-4 and H.264 standards suitable for High Definition TV (HDTV) and Internet Protocol TV (IPTV) over broadband networks as well as for home next generation DVD players,<sup>7</sup> royalties on coders-decoders (codecs) have been fixed at US20 cents per unit over and above 100,000 manufactured units and at US10 cents per unit above 500,000 manufactured units, up to a maximum of US\$3.5 million per enterprise 2005-2006, US\$4.25 million 2007-2008 and US\$5 million 2009-2010. Where enterprises produce codecs for PCs, either under their own brand or for other companies, the caps are set at US\$10.5 million 2005-2006, US\$11 million 2007-2008, and US\$11.5 million 2009-2010.<sup>8</sup> By contrast, the royalty to be charged on China’s home-grown competing Audio-Visual Standard (AVS) codec is thought to be US1.2 cents per unit.<sup>9</sup>

The significance of royalty payments is magnified in China’s case by the sheer volume of ICT products involved. According to OECD data, China (US\$180 billion) overtook the United States (US\$149 billion) as the world’s largest exporter of ICT goods in 2004,<sup>10</sup> but foreign-invested companies account for a sizeable proportion of these. In 2001 over 50 per cent of all China’s exports were by foreign-invested enterprises,<sup>11</sup> and by 2005

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<sup>3</sup> But overall by 2004 ‘invention’ patents were still only 23.6% of applications registered to Chinese companies compared to 86% registered to foreign companies. See SIPO Annual Reports at [http://www.sipo.gov.cn/sipo\\_English/ndbg/default.htm](http://www.sipo.gov.cn/sipo_English/ndbg/default.htm)

<sup>4</sup> Andrew Updegrove, ‘The Yin and Yang of China’s Trade Strategy’ *Consortium Standards Bulletin*, April 2005, v. 4.4

<sup>5</sup> Deloitte, ‘Technology Firms Risk Losing Advantages as China’s Influence on Global Standards Reaches Critical Levels’, August 2004 url: [http://www.deloitte.com/dtt/press\\_release/0,1014,sid%253D1018%2526cid%253D56070,00.html](http://www.deloitte.com/dtt/press_release/0,1014,sid%253D1018%2526cid%253D56070,00.html)

<sup>6</sup> Sherman So, ‘Low Cost Chip is Made for China’, *South China Morning Post*, 17 February 2004.

<sup>7</sup> There are two emerging *de facto* international standards, HD-DVD from Toshiba and BluRay from Sony, each backed by a consortium of electronics companies and motion picture studios.

<sup>8</sup> Royalties on content include fixing US0.2 cents per title. Royalties are agreed with MPEG LA. For full details, see ‘MPEG-4 Royalties Revealed’, 18 November 2003, contributed by ByteEnable at: <http://www.linuxelectrons.com/article.php/20031118211505452>

<sup>9</sup> AVS uses the red end of the laser spectrum, while HD-DVD and BluRay have shifted to the blue end. Shorter (blue) wavelengths (wider bandwidths) can carry more data.

<sup>10</sup> OECD ITS database url:

[http://www.oecd.org/document/8/0,2340,en\\_2649\\_201185\\_35833096\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/8/0,2340,en_2649_201185_35833096_1_1_1_1,00.html)

<sup>11</sup> *China Foreign Economic Statistical Yearbook 2002*

‘exports by foreign-invested enterprises accounted for 58.5% of China’s total foreign trade, the corresponding figure for state-owned enterprises was 25.7% (General Administration of Customs, 2005).’<sup>12</sup> In the case of high-tech exports the percentage is even higher.<sup>13</sup> Over two-thirds of foreign direct investment into China is into the manufacturing sector,<sup>14</sup> and as cited above, by 2004 two of the top three categories of exports were ICT products. The following table lists the top HS categories of ICT exports from China in 2004.

**Table X**  
**Top Categories of ICT Exports from China in 2004 by HS 4-digit code**

HS 8471 - Automatic data process machines, magnetic readers, etc., computer hardware (US\$59.9 billion),
HS 8473 - Parts, etc., for typewriters and other office machines, computer accessories (US\$24 billion)
HS 8525 - Apparatus for radio, telephony/telegraphy/broadcasting, television (US\$21.8 billion)
HS 8524 - Integrated circuits (US\$11.2 billion)
HS 8517 - Electrical apparatus for line telephony or telegraphy telephone sets, teleprinters, modems, facsimile machines (US\$7.7 billion)
HS 8521 - Video recording or reproducing apparatus (US\$7.4 billion)
HS 8528 - Television receivers, video monitors, video projectors (US\$5.5 billion)
HS 8522 - Parts & accessories of sound/video recording or reproducing equipment of 8519-8521 (US\$4.2 billion)
HS 8534 - Printed circuits (US\$3.8 billion)
HS 8529 - Parts for television, radio and radio apparatus (US\$2 billion)

### *China’s 11<sup>th</sup> 5-Year Plan*

In 1986 China’s leaders adopted a high technology R&D proposal known ever since as the ‘863’ High-Tech R&D programme, and ‘863’ has become a consistent theme of all the subsequent 5-Year Plans. It is again a major theme running through China’s 11<sup>th</sup> 5-Year Plan as presented by Premier Wen Jiabao to the 10<sup>th</sup> NPC in March 2006. It is presented in terms of the need for China to develop a capacity to drive technological innovation as a means of achieving domestic objectives, such as economic development that is less dependent upon capital-intensive investment and supportive of environmentally sustainable growth, and international objectives, such as China playing its part in the development of international ICT standards, becoming more self-reliant upon home grown technologies and acquiring its own substantial portfolio of ICT patents. In the 1980s ‘863’ was all about China developing its basic R&D capacity in science and technology. In the 2000s it is all about China developing national standards that can win

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<sup>12</sup> WTO *Trade Policy Review: Report by Secretariat - People’s Republic of China*, 28 February 2006 WT/TPR/S/161 p.2, fn 7 url: [http://www.wto.org/English/tratop\\_e/tpr\\_e/s161-0\\_e.doc](http://www.wto.org/English/tratop_e/tpr_e/s161-0_e.doc)

<sup>13</sup> ‘The foreign share of what China deems to be high-tech exports is now 88 per cent.’ Joe Studwell, editor of *China Economic Quarterly*. The CEQ on FT.com: China’s export conundrum, 5 June 2006.

<sup>14</sup> Due to ‘round tripping’ not all this FDI is genuinely ‘foreign’.

international recognition and patents on these standards. The emphasis of the 11<sup>th</sup> 5-Year Plan is upon the role to be played by the enterprise sector in achieving these objectives.

The six strategic priorities of the Plan are (1) building a new socialist countryside, (2) accelerating economic restructuring and reducing the social costs of economic growth, (3) promoting development among the regions, (4) increasing the capacity for independent innovation, (5) deepening market reforms and opening to the global economy, (6) building a harmonious society. ICT innovation and its adoption as a way to raise the efficiency of production methods and to introduce modern systems of information management runs like a red thread through all these objectives. Quoting Premier Wen,

We need to promptly develop core technologies and improve systems integration in some important industries and create technologies, products and standards for which we own intellectual property rights... We need to strongly promote upgrading of equipment and technology, focusing on energy saving and decreasing consumption of materials and more quickly eliminate production processes, technologies and equipment products that waste energy, water and raw materials.

### *The Challenge*

China has already gained much from the world trading system and is set to continue to make strong gains in sectors such as ICTs. These gains certainly offset the cost of royalty payments, although for individual Chinese enterprises locked into ICT products that have become low-value commodities and who face falling prices, royalty payments that eat up nearly half of revenue become onerous.<sup>15</sup> Looking for answers, the Chinese authorities have three choices and are taking all three. First, it is necessary to encourage a restructuring and upgrading of the domestic enterprise sector to achieve economies of scale in production and distribution, and also in development and design work to create local brands. Second, it is evidently advantageous to encourage partnerships with foreign firms involving the licensing of advanced technologies and the transfer of skills and knowledge. Third, every nation finds it desirable to raise the capacity to innovate. Developing comparative advantages in trade is the result of individual enterprises being able to innovate in process (production) or product (goods and services) to achieve lower costs or enhanced functionality and features, improved design, more efficient distribution, sales and after-sales services, etc. (Also see Appendix X for data on revealed comparative advantage.)

Innovation stands at the centre of the 11<sup>th</sup> 5-Year Plan's industrial objectives, but reaping the full rewards of innovation also involves intellectual property rights (IPRs), so the two

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<sup>15</sup> In an interview, one company pointed out that too many 'screwdriver' firms in China were getting away with cheap DVD production by avoiding local Chinese regulations, such as minimum wages and avoiding royalty payments. The result is that larger and more reputable Chinese companies who do pay royalties are facing competition from cut-price DVD players that destroys their margins. Then simple arithmetic means royalty fees rise as a proportion of ex-factory prices even though the fees have remained unchanged.

go together. The dilemma, and it is a real one, is whether innovation leads to IPRs and the creation of technical standards that are purely home-grown and do not conform to standards involving competing IPRs in world markets. The temptation to ‘go it alone’ is always present when the domestic market is potentially a very large one, and there are the arguments that the exploitation of national standards can help a nation develop its technological capabilities, putting it in a better position to compete globally later on, in the ‘next next’ generation of ICTs, as well as saving on the payment of royalties to foreign companies. There is an element of truth in these arguments, but the question is whether they hold the *balance* of truth. China is rapidly developing ICT companies that can and are competing successfully in world markets, companies such as Huawei, ZTE, Legend (Lenovo), Haier, TCL. Even on the services side China Telecom and China Mobile have started making forays overseas, and numerous Chinese web-based service companies, such as Netease.com, Shanda Interactive, Sohu.com, are listed on the NASDAQ. For many of these companies, choosing technologies that have established themselves globally not only reduces their cost,<sup>16</sup> but enables them to extend their reach into foreign markets where these standards are accepted. These companies gain from technological transfer through licensing agreements, but as they become successful they develop their own capacity to research and develop equipment and services, in the early days often through a process of reverse engineering to find out how things work, but later through their own efforts.

The drive to develop national standards can, of course, be paralleled with efforts to persuade international standard setting organizations (SSOs) to recognize them. For example, China has been successful in getting recognition from the International Telecommunications Union (ITU) for the TD-SCDMA standard for 3G (third generation) mobile phone, a technology the Chinese state enterprise Datang has developed in collaboration with Siemens of Germany,<sup>17</sup> although even in this case some of the ‘essential’ patents are owned by foreign companies because the CDMA family of mobile technology involves historical patents. China has been less successful with other national standards (see below). Another important point is that standards do not need to be international in the sense of a single global standard; rather the bottom-line is they should be inter-operable. TD-SCDMA is a case in point. Datang has commissioned several mobile phone suppliers to produce dual-band or tri-band handsets that can navigate between the W-CDMA and the CDMA2000 standards, making possible ‘roaming’ between networks using different standards either within China or overseas.<sup>18</sup> Another example is RFID (radio frequency identity technology) where China has developed its own standard although the *de facto* world standard EPC is also used, especially by US companies exporting from China such as Walmart, and the debate in China has been how to make the home grown version of RFID inter-operable with EPC and with RFID standards in Korea and Japan.

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<sup>16</sup> Both the total cost of acquisition (cost of purchase) and the total cost of ownership (cost of maintenance, repair, upgrades, etc).

<sup>17</sup> The parent of Datang is the China Academy of Telecommunications Research, part of the Ministry of Information Industries (MII).

<sup>18</sup> While the handset production may take place in China, some of the manufacturers are Taiwanese.

The challenge in China, as elsewhere in the world, is twofold. First, domestically how far should government push industry into the adoption of standards that may or may not be the first choice commercially? In some cases, such as ‘market failure’ there may be strong arguments in favour of doing so. For example, regulations in the food and drugs sector to ensure health and safety in the use of materials in the production process or in the packaging and labeling of products. These may not be adopted fully on a voluntary basis by the commercial sector leaving the gains to the industry and to the public subject to the ‘free rider’ problem where a company simply avoids the costs involved in conforming to the regulations, and to ‘moral hazard’ where a company’s claim may be false. National security is another area in which it is widely recognized by international treaty organizations such as the WTO that governments are at liberty to impose national mandatory standards. In China’s case this issue was raised in relation to the security algorithms for wireless local area networks (WLANs) when China objected to the security flaws in the 802.11 series of WiFi (wireless fidelity) networks and devices championed, among others, by Intel. China has been making efforts to gain international recognition for its home grown WAPI (**W**ired **A**uthentication and **P**rivacy **I**nfrastructure), even at one stage threatening to mandate WAPI as the only standard within China. (See the section on Standards below.)

Although China enjoys Observer status, China is not yet a signatory of the WTO’s Agreement on Government Procurement (GPA) and up to this point in time has required security bureaux of government and state bodies to purchase local open source-based software, again citing security reasons not to use the Windows-based operating system which China feels is too vulnerable to unauthorized backdoor entry. These are cases in which China’s government feels justified to mandate or encourage national standards (or better technical regulations), but there are many more examples of technology standards that are being encouraged on economic and industrial policy grounds rather than on an environmental or security basis. Some examples of these are examined later, but the point to be made at this stage is that it makes good sense for governments to develop criteria for making an assessment of these decisions. For example, are these standards compatible with the principle of inter-operability? Are they enthusiastically embraced by the nation’s leading companies or will they burden these companies with higher costs and reduce their competitiveness? Are the standards setting processes truly reflective of the industry’s expertise and of the ‘pros’ and ‘cons’ of the standard? To what extent will the standard enhance the of the enterprise sector or the research and development centres to invent and to innovate, and what is the opportunity cost involved? In other words, are there other equally effective ways to achieve these aims?

One of the problems with technology decisions being driven by government is that policy priorities, once established take on a momentum of their own and threaten to override the criteria of peer review and objective assessment. This can lead to failures and worse in cases where large scale funding is involved.<sup>19</sup> Establishing criteria for guidelines for governments to use when choosing between mandating national standards, committing

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<sup>19</sup> The uncovering in 2006 of a fraud perpetrated by a senior research professor at a university in Shanghai who claimed originality and untrue functionality for a ‘Hanxin’ micro chip seems to be a case in point. Research funding is a temptation, overarching policy priorities a recipe for lax quality control.

significant resources towards research into new standards, and using a more light-handed approach to facilitating and promoting research and development by the commercial sector into invention and innovation, would be a practical thing to do and the discussion of the criteria on its own would go a long way to helping government make good decisions.

The second challenge is how to participate most effectively in the international arena. There are three international SSOs and hundreds of regional and industry-level SSOs and China has become actively involved in many of them. As ‘the new kid on the block’ China faces many of the problems other newcomer developing nations face, such as Brazil and India, and also those of the more developed nations such as Japan and Korea who have been required to enter a world of institutions architected since the 1940s in what is often perceived in Asia and other parts of the world as in the interests and traditions of the West. Experience has taught China that ‘the West’ is no more homogenous than ‘the East’ and certainly the appearance of different approaches to SSOs in the US and the EU may be more imagined than real in respect to the pursuit of national interests. For example, in the US where a strong private sector has become innovative and competitive enjoying a large and homogenous domestic market, the tendency is for government to influence the standards setting process only indirectly through the provision of resources to the private sector in terms of scientific and technological research and development grants, state contracts, etc., and leave SSOs to the private sector and to its lobbying efforts in Congress. The agenda in Europe has been more focused upon harmonizing standards to create a European Union, and unless the private sector spontaneously adopts such standards government action is required. The adoption of the European-wide GSM standard for 2G (second generation) mobile is a good example.<sup>20</sup>

China is well aware that different approaches may serve similar goals, and in China’s context the goals are associated with national development, economic, social and industrial transformation. The fact that many of China’s enterprises started out or remain as state-owned with the parent company being an organ of a ministry, for example Datang ultimately comes under the Ministry of Information Industries, gives government leverage. As pure central planning and Plan targets have given way in China to a ‘socialist market economy’ with an ever growing emphasis on the role of the market, the use of this leverage becomes problematic. Where state interests are closely involved, such as in security matters, China’s participation in international SSOs is fraught with difficulties as the WAPI case reveals. Where state interests are less obviously involved, for example with home and consumer networking equipment, there is greater room for negotiation and compromise at the international level. In the latter case, China’s enterprises will be freer to choose their best option. This raises an alternative strategic

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<sup>20</sup> The adoption of 2G standards in the US (mostly CDMA) and the EU (GSM) was reflected in the allocation of different spectrum radio frequencies, 800 MHz in the US and 900 MHz in the EU. Governments who appear technology-neutral nevertheless influence choice according to their spectrum management policies. Note, according to ITU protocols, spectrum allocation means opening up a part of the spectrum to certain types of usage, whereas spectrum assignment refers to the process of allowing specific companies to use spectrum, either licensed (rationed) or unlicensed (un-rationed).

approach open to China, namely to influence the adoption of national standards by creating market-driven economic incentives. One route towards this approach is to seek common or inter-operable industry standards at a regional level through the China-Japan-Korea ICT cooperation scheme, opening the door to collaboration on the research and development supply-side in the form of the International Cooperation Working Group, to which has been added a project on Cooperation on an RFID Sensor Network, and on the demand-side access to an even larger regional market that includes the three countries and possibly other Asian markets as well. (See Appendix X on China-Japan-Korea.)

## B: Standards, Organizations and System in the PRC

### *Standards*

Table X.a catalogues numerous ICT standards China has developed or is in the process of developing that would, if widely adopted, compete with international *de facto* standards.

**Selected ICT Standards**

Technology	International	China	Notes
Video Disk	Digital Versatile Disk (DVD). MPEG-1 used for CD (VCD); MPEG-2 for DVD; MPEG-4 for web video and 3G streaming	Enhanced Versatile Disk (EVD) based on MPEG-2; approved by MII and SAC	Chinese manufacturers produce 70-80% of world's DVD players, but can pay royalties of 40% or more of production costs; <sup>21</sup> EVD format licences are pegged at 1 yuan per device (US\$0.12) compared with UD\$2.50 agreed with the MPEG (Moving Picture Experts Group) Licensing Authority (pooled agreement April 2006). <sup>22</sup> EVD is being further enhanced by Versatile Multilayer Disk (VMD) tech based upon red laser optical storage of up to 40GB, potentially 100GB being developed in China by JV between NME and Beijing E-World Technology
High Definition Audio-Visual Compression	HD-DVD (Toshiba-led consortium, includes Microsoft) <sup>23</sup> vs	Audio-Visual Standards (AVS) codec designed to replace MPEG-2 and offer an	MPEG-4 and H.264 standards products which are suitable for HDTV and IPTV charge royalties on equipment (US\$0.20 per unit above 100,000 units falling to US\$0.10 per

<sup>21</sup> The holders of the 'essential patents' for DVDs (DVD 6C Licensing Agency) are Hatachi, Matsushita, Mitsubishi, Sanyo, Sharp, Toshiba, Victor Company of Japan, Warner Home Video. Royalties average around US\$0.05 per disk made, and 4% of the 'Net Selling Price' (gross minus discounts to third parties) or US\$4 per DVD player (US\$6 per DVD recorder; US\$1.50 per DVD encoder) whichever is the greater up to a maximum of US\$8. See <http://www.dvd6cla.com>

<sup>22</sup> [http://www.chinadaily.com.cn/bizchina/2006-04/28/content\\_579280.htm](http://www.chinadaily.com.cn/bizchina/2006-04/28/content_579280.htm). The agreement allows Chinese DVD manufacturers to pay back royalties over a period of time.

<sup>23</sup> Microsoft's Media 9 uses VC-1 codec, but mainly confined to PC usage.

	Blu-Ray (Sony-led consortium, includes Philips); based on blue laser ISO/IEC JTC1 MPEG-4 and ITU H.264 video and G.7 audio standards	alternative to MPEG-4 and H.264 standards	unit above 5 million units) and content (US\$0.02 per title); <sup>24</sup> AVS charges royalties only on equipment (thought to be US\$0.12); <sup>25</sup> AVS standards are widely used in DVDs, TV sets, TV station equipment, online and satellite broadcasting
DTV, HDTV, IPTV, MTV	USA: Advanced TV Systems Committee (ATSC); Europe: MPEG2/Digital Video Broadcast (DVB)-T (terrestrial) or -C (cable) or -S (satellite) or -M (mobile); Standard Definition TV (SDTV)	For DTV in 2005 CCTV announced adoption of MPEG-2/DVB not AVS; 49 DTV trials ordered by SARFT to shift to DTV by June 2006; for China developing Digital Multimedia Broadcasting Terrestrial (DMB-T) HDTV	In 2005 AVS was not yet an established national standard. Its adoption for DTV, HDTV and IPTV will be crucial for its success, but China is also experimenting with Digital Multimedia Broadcasting (DMB) based on MPEG-4 which can transmit by terrestrial (DMB-T) or satellite (DMB-S) and can be accessed by mobile phone. DVB-T royalties on receiver products range from €0.50 to €0.75 (US\$0.60 to US\$1) <sup>26</sup>
Home Wireless Networking	Digital Living Network Alliance (DLNA), includes Sony, Intel, Microsoft, Philips and HP  Ubiquitous Open Platform Forum (UOPF) in Japan	Intelligent Grouping and Resource Sharing (IGRS) 3C-Convergence Standard	IGRS under the Science & Technology Dept of MII with over 20 local companies and several foreign companies such Intel, Microsoft, Sony, Samsung. But several Chinese companies, e.g. Huawei, ZTE, TCL and Konka, have also joined the DLNA (previously the Digital Home Working Group <sup>27</sup> )
3G Mobile Telephony	Wideband-Code Division Multiple Access W-CDMA (Europe) and Code Division Multiple Access CDMA-2000 (USA)	W-CDMA (tba); CDMA-2000 (tba); Time Division-Synchronous TD-SCDMA (tba). Postponed 3G licensing	TD-SCDMA became a recognized ITU (IMT-2000) 3G standard for Universal Mobile Telecom System (UMTS). Developed by Datang Telecom Technology Company (the China Academy of Telecom Technology under the MII is the parent) in collaboration with

<sup>24</sup> For full details, see 'MPEG-4 Royalties Revealed', 18 November 2003, contributed by ByteEnable at: <http://www.linuxelectrons.com/article.php/20031118211505452>

<sup>25</sup> 'With our own AVS standard, we will be able to develop China's audio video standards without being controlled by foreign patent-holders.' Gao Wen, head of the AVS standard working group. China Daily July 31, 2003

<sup>26</sup> At May 2006 exchange rate. See MPEG LA at <http://www.mpegla.com/dvb/dvb-agreement.cfm>

<sup>27</sup> See <http://www.windowsfordevices.com/news/NS4779637630.html>

		announcements suggest TD-SCDMA trials found problems.	Siemens. Qualcomm and Nokia hold many of the CDMA patents. <sup>28</sup> Chinese vendors are prepared to produce dual-band handsets, but service providers face an uncertain business case for TD-SCDMA
Wireless Local Area Networks (WLANS) - uses 'contention' method MAC (media access control)	802.11 security standards: Service Set Identifier (SSID); Media Access Control (MAC); Wired Equivalent Privacy (WEP) for WiFi (Wireless Fidelity) networks	Wireless LAN Authentication and Privacy Infrastructure (WAPI)	Xidian University National Key Lab and its company IWNCOMM developed the WAPI encryption algorithm. From 2001, ChinaBWIPS working group steered it, <sup>29</sup> and in 2003 SEMC and SAC declared it the national standard. <sup>30</sup> It was declared mandatory as a security issue in 2004 and foreign firms required to partner with licensed Chinese companies, <sup>31</sup> but China relented after international protest from the WiFi industry and US Government. China has been battling for the IEEE to accept the standard.
Worldwide Interoperability for Microwave Access or Wireless MAN (WiMax) – uses scheduled method MAC (media access control)	IEEE 802.16 fixed led by Intel, Nokia and Motorola; South Korea agreed to harmonize its WiBro standard with WiMax in the 802.16e mobile version using modulation Orthogonal Frequency	CCSA submitted 802.1d interface, equipment and testing standards	CCSA's 2006 submission suggests China is developing patentable technologies within the IEEE international standards framework. Companies involved include the MII Telecom Research Institute, ZTE, Alcatel Shanghai Bell, Huawei, CAS Institute of Computing, and the Shanghai Centre for Wireless Communications.

<sup>28</sup> Given that the largest market for handsets is domestic, Qualcomm offered Chinese manufacturers a lower royalty payment for handsets sold on the domestic market and a higher royalty payment for handsets exported than was being offered in other countries. The offer was extended to all Qualcomm customers, for example to South Korean companies, who as exporters saw no benefit.

<sup>29</sup> 'During drafting BWIPS [*Broadband Wireless IP Standard Working Group*] was quite secretive and apparently had far more connections with the security side of the Chinese government than with either Chinese industry at large or with the usual information technology regulators, such as the Ministry of Information Industries (MII).' Scott Kennedy 'The Political Economy of Standard Coalitions: Contrasting Wireless LAN and Home Networking Standards Development' WP (quoted with author's permission).

<sup>30</sup> SMEC (State Encryption Management Commission); SAC (Standardization Administration of China).

<sup>31</sup> Legend Group Ltd., Huawei Technologies Co. Ltd., Shenzhen Mingwah Aohan High Technology Co. Ltd., Wuxi Jiangnan Computer Technology Research Institute, Shanghai Koal Software Co. Ltd., Shenzhen ZTE IC Design Co. Ltd., SDT Telecom Group, Chengdu Westone Information Industry Co. Ltd., China IWNCOMM Co. Ltd., Shenyang Neusoft Co. Ltd. and Beijing Watch Data System Co. Ltd.

<sup>32</sup> One of the companies with patent claims on OFDM is Flarion, acquired by Qualcomm. See [http://en.wikipedia.org/wiki/WiMAX#Intel\\_WiMAX\\_Collaborations\\_with\\_Nokia.2C\\_Motorola\\_in\\_2005](http://en.wikipedia.org/wiki/WiMAX#Intel_WiMAX_Collaborations_with_Nokia.2C_Motorola_in_2005) and also <http://www.wimaxforum.org/home>.

	Division Multiple Access (OFDM) <sup>32</sup>		
Radio Frequency Identification (RFID) tags	Electronic Product Code (EPC) Network	MOST and 14 other ministries issued White Paper in June 2006 declaring China would develop its own standard; both EPC and local standards in use	China has established a working group to develop its own RFID standard, but many WOFEs such as Walmart already use the EPC standard; RFID is also part of the China-Japan-Korea ICT research agenda. RFID is used for ID cards, pioneered by the ‘Golden Card Project’ of the early 1990s. The most successful industry application is the MOR’s Automatic Train Information System begun mid-1990s. <sup>33</sup>

### *Standards Organizations*

China’s standards setting organizations are inherited from a national innovation system that relied heavily upon state subsidies and state directed resources, but state enterprise reform and the encouragement of a socialist market economy is changing the landscape. Some ministries, such as Science and Technology (MOST) and the Ministry of Information Industries (MII), remain key players in the process of supporting and encouraging state enterprises under their jurisdiction to develop new technologies and potentially new standards with associated patents.<sup>34</sup> But the growth of commercial enterprises beyond the state sector, although remaining heavily influenced by government policies, are more and more driven by market imperatives. In some cases this has led to conflicts of economic interests with the government agencies who have policy responsibility for their industry sectors. The TV market is a case in point. On the one hand SARFT (State Administration for Radio, Film and TV) came into conflict with regional cable network operators who resisted efforts to consolidate them,<sup>35</sup> and on the other hand SARFT (network content) resisted efforts by the MII (network transmission) during the 10<sup>th</sup> 5-Year Plan to promote the idea of convergence between telecom and cable networks.<sup>36</sup> The same tensions seem to have carried over to IPTV trials. SARFT has restricted authorization to carry out tests to the Shanghai Media Group in conjunction

<sup>33</sup> See Fujun Lai, Joe Hutchison and Guixian Zhang (2006) ‘RFID in China: Opportunities and Challenges’ *International Journal of Retail & Distribution Management*, Volume 33, Number 12, January 2005, pp. 905-916(12)

<sup>34</sup> China’s science and technology programmes operate at three levels: tier one, aimed at major economic, scientific and technology bottlenecks, like the Spark Programme to rejuvenate rural areas; tier two, aimed at emerging high-technology areas, like the ‘863’ Programme and the Torch Programme that funds S&T parks; tier three, aimed at basic and applied research. For details, see Jingsong Xie, William Blanpied and Michael Pecht ‘China’s Science and Technology in Electronics, Microelectronics and NanoTechnologies’ in Michael Pecht and Y.C.Chan (eds.) *China’s Electronics Industry – 2005 Edition*, see [http://www.law.gmu.edu/nctl/stpp/us\\_china\\_pubs/8.4\\_China\\_Sci\\_Tech\\_in\\_Electronics\\_2005.pdf](http://www.law.gmu.edu/nctl/stpp/us_china_pubs/8.4_China_Sci_Tech_in_Electronics_2005.pdf)

<sup>35</sup> ‘SARFT appears to have abandoned the acquisition road and is taking a new tack. Instead of buying up cable systems, it is looking to share revenue with the local cable operators.’ ‘Branding row threatens roll-out of national cable-TV’, *South China Morning Post*, 6 June 2003.

<sup>36</sup> See ‘Convergence in China – Divergent Views Persist’, <http://www.perkinscoie.com/page.cfm?id=85>

with China Telecom and China Netcom,<sup>37</sup> but reports suggest that even this authorization is not always sufficient to guarantee compliance at local levels. SARFT is also claiming responsibility for licensing mobile TV transmission by China Mobile and China Unicom.

The evolution of China's standards setting process is therefore not without its contradictions, and does not necessarily represent a unified collective view of the way forward. Indeed, on specific issues, different parts of the bureaucracy can have very different interests and priorities. For example, in the contentious case of WAPI, as Scott Kennedy (2006) notes, the standard 'was pushed by the SEMC,<sup>38</sup> which is part of the Chinese security system' and none of the economic or industry ministries, such as MII, MOST or MOFCOM, 'spoke up publicly on behalf of WAPI.'<sup>39</sup> In another dimension, there are many local interests, and local standards at play across the length and breadth of China, so it is unsurprising that China's standards setting organizations are many and the standard setting processes are varied. Sometimes a ministry or state commission may champion a standard, for example organizations associated with the Ministry of Defence will favour national Chinese security standards, and sometimes a ministry will set up a working group to develop and promote a standard, such as the AVS working group within the MII, and sometimes ministries will be guided by the workings of industry standards groups, some of which may have very open memberships.<sup>40</sup>

The Intelligent Grouping and Resource Sharing (IGRS) Working Group is an example of how China's authorities expect participating companies in the standards setting process to collaborate and contribute to a national development goal rather than confine matters to agreement around the basics of an abstract standard and leave the rest to the market and to competition. China's leading domestic home electronics companies are expected to participate. Compare the following statement from the IGRS WG, 30 June 2005 that came after the MII's adoption of the IGRS industry standard.

In comparison with traditional standards organizations, IGRS Working Group (WG) adopts an operation method that focuses on industrialization as a target, member enterprises as key contributors, innovation and collaborative achievement

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<sup>37</sup> 'With SARFT apparently fending off challenges from other arms of government for control of IPTV regulation, the licence gives SMG a headstart in launching legitimate services.' ('Harbin harbinger delivers Internet TV message', *Financial Times*, 2 December 2005)

<sup>38</sup> The State Encryption Management Commission (SEMC) regulates the importation, distribution and use of commercial encryption products in China under the Chinese Encryption Regulations that went into effect on October 7, 1999. 'Chinese entities are required to use only domestically developed encryption products, and the distribution to, or use by, Chinese entities of foreign commercial encryption products is prohibited.' See <http://www.bakernet.com/ecommerce/encryptionimport.doc>

<sup>39</sup> Scott Kennedy 'The Political Economy of Standards Coalition: Contrasting Wireless LAN and Home Networking Standards Development' paper prepared for the 'China's High-Technology Standards Workshop', National Bureau of Asian Research and Tsinghua University, Beijing, China, January 6, 2006.

<sup>40</sup> In Europe, about one quarter of standards are mandatory, triggered by the European Commission, and the rest purely stakeholder, mostly industry, driven standards. Several standards are directly linked to directives under the so-called 'New Approach' in which the essential requirements are laid down by the European Commission and the details are worked out by Europe's standards bodies, 'CEN, CENELEC and ETSI in the legal framework allowing for the free movement of goods.' See [http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/index\\_en.html](http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/index_en.html)

as principles in order to best define the IGRS standard, develop and promote IGRS products in the market. IGRS representing Chinese home networking alliance has signed an MOU to cooperate on a joint China, Japan and Korea home network industry standard.<sup>41</sup>

An essential aspect of this approach is that IPRs are expected to be declared from the outset of the process. Also, to be included in the outcome of the process is a clarification of the royalty payments and the licensing schemes as part of the common goal.<sup>42</sup>

### *China, the WTO and Reforms to Certification and to Standards Setting*

Entry to the WTO in 2001 required the overhaul of China's standards and certification system involving the creation of a new high-level body, the Administration for Quality Supervision Inspection and Quarantine (AQSIQ) through a merger of the existing State Administration for Entry-Exit Inspection and Quarantine (CIQ) and the State Quality and Technical Supervision Bureau (QTSB). Soon afterwards two additional bodies, the Standards Administration of China (SAC) and the China National Regulatory Commission for Certification and Accreditation (CNCA), were created under the administrative umbrella of AQSIQ, but under the policy direction of the State Council. WTO membership involves signing up to the TBT (Technical Barriers to Trade) Agreement which prohibits the use of standards or certification for product compliance to erect barriers to trade and as part of the WTO commitment China has established a TBT Inquiry Centre operating under the AQSIQ which not only disseminates information about standards in China and offers training to customs officials, but is also responsible for notifying the WTO of new domestic standards.

In 2001 and 2002 the National People's Congress (NPC) revised the PRC Import and Export Commodity Inspection Law and the PRC Product Quality Law, and AQSIQ and SAC issued codes of practice governing the adoption of international and mandatory standards. Included in the changes was the introduction of a unified certification 'CCC' mark to replace the 'Great Wall' mark for domestic products and the 'CCIB' mark for imported products. By February 2003 the CNCA reported 37,000 products from 25,000 domestic and foreign companies had been issued the 'CCC' mark, but as Weeks and Chen (2003) report there remain problems for products that do not require certificates but share the same custom's harmonization system (HS) code as products that do. While the CNCA has been pro-active in launching a capacity-building programme with the PRC General Administration of Customs to rectify the situation and to issue temporary certificates or exemption documents where necessary, and Weeks and Chen acknowledge the problems are diminishing, they also cite anecdotal evidence to suggest that delays at ports of entry have not yet been entirely eliminated.<sup>43</sup>

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<sup>41</sup><http://72.14.203.104/search?q=cache:9JCcmaykQnAJ:www.igrs.org/english/04news/readennews.jsp%3Fnewsid%3D212+IGRS+and+China&hl=en&gl=hk&ct=clnk&cd=2&client=firefox-a>

<sup>42</sup> In a private interview with the author on 19 July 2006, an official of the IGRS strongly denied a report that the IGRS had no plans to charge patent fees for 15 years 'IGRS Promises Not to Charge for 15 Years', *SinoCast China Business Daily News* (Abstracts), 7 June 2006.

<sup>43</sup> For a summary, see Ann Weeks and Dennis Chen, 'Navigating China's Standards Regime', *China Business Review*, 1<sup>st</sup> May 2003 url: <http://www.chinabusinessreview.com/public/0305/weeks.html>

## *China's Principal National Bodies with Relevance for ICT Standards and IP-Related Issues or Organizations*

- *State Council Information Office (SCIO)*

The executive secretariat to the State Council's Leading Group for Informatization that coordinates across those ministries and commissions with major responsibilities for the development, supply or application of ICTs in various sectors of the economy.

- *Legislative Affairs Office of the State Council*

The Office through which all new legislation passes.

- *National Development and Reform Commission (NDRC)*

Commission responsible for macro-economic planning, including the 5-Year Plans (5YP) and major public investment programmes.

- *The Administration for Quality Supervision Inspection & Quarantine (AQSIQ)*

A ministry-level agency responsible for commodity inspections and quarantine issues, but also for the overall management of standards setting and certification compliance and customs issues. SAC (Standards Administration of China) comes under AQSIQ which conducts nation-wide IPR and anti-counterfeiting campaigns in conjunction with other ministry-level agencies such as SAIC (State Administration of Industry and Commerce).

- *Standards Administration of China (SAC)*

Has overall responsibility for approving and publishing standards, even those determined by other ministries by authorizing their scope. SAC represents China on international and regional standards organizations, and on hundreds of working groups of these bodies. By 2003 there were 260 technical committees reporting directly to SAC and over four hundred subcommittees supported by 27,800 specialists drafting standards. The SAC also has responsibility for the implementation of the WTO's Technical Barrier to Trade (TBT) Agreement.

- *China Communications Standards Association (CCSA), (WTO TBT Inquiry Centre)*

Established in 1995, the Centre is under the supervision of the AQSIQ and has three main tasks, the Centre answers inquiries about China's standards and conformity assessment regulations. Second, the Centre submits inquiries regarding TBT to the WTO regarding overseas markets. In this capacity the Centre also carries out research on overseas standards and proposals for new standards to see how far they conform to the WTO's TBT Agreement. Third, the Centre acts as a clearing house of information for all new standards notified to or by the WTO. In addition the Centre offers training facilities on WTO protocols and customs procedures for AQSIQ staff.

- *China National Certification Accreditation Commission (CNCA)*

Responsible for the administration of certification bodies, testing laboratories, the issuing of certification marks, inspection organizations and issuing an official list of certified products. CNCA works closely with the AQSIQ to periodically update the certified list and to carry out inspections at local levels.

- *Ministry of Information Industries (MII)*

Created by the merger of the Ministry of Posts & Telecommunications (MPT) and the Ministry of Electronic Industries (MEI), the MII combines responsibilities for both sectors. CSSA and CESI both come under the MII, as well as various research institutes, such as the Communications Standards Research Institute (CSRI) of the China Academy of Telecommunication Research (CATR).

- *Ministry of Science and Technology (MOST)*

Responsible for medium and long term planning of China's science and technology research and development.

- *State Administration for Radio, Film and TV (SARFT)*

Responsible for the regulation of cable, terrestrial and satellite TV networks and broadcast content, including the licensing of Internet TV (IPTV) and mobile TV (MTV).

- *State Intellectual Property Office (SIPO)*

The executive agency of the National Working Group on IPR Protection with responsibility for the implementation of the Patent Law, 2000. State Patent Office comes under the SIPO.

- *State Administration of Industry & Commerce (SAIC)*

Responsible for the implementation of the Trademark Law, 2001.

- *General Administration for Press and Publications (GAPP)*

Responsible for licensing press and publishers, and for content control. Incorporates the State Copyright Bureau, responsible for the implementation of the Copyright Law, 2001.

- *Ministry of Public Security (MPS)*

Responsible for public security, health and safety aspects of ICTs as in emergency communications and dangerous levels of radio emissions.

- *Ministry of State Security (MSS)*

Responsible for national state security and encryption issues, such as software and LAN/WAN security issues in the state sector.

- *Ministry of Defence (MOD)*

Responsible for ICT R&D with direct military applications.

- *Ministry of Culture (MOC)*

Responsible for issues of culture and public morality.

- *General Administration of China Customs (GACC)*  
Responsible for checking import and exports certificates, the levy of duties, etc.
- *The National Leading Group of Rectification and Standardisation of Market Economic Order – National Working Group of IPR*  
Composed of the State Office of Intellectual Property Protection (SOIPP) and the National Office of Rectification and Standardization of Market Economic Order (MORO), this Group led by Vice-Premier Wu Yi is responsible for the overall supervision and coordination of IP protection and enforcement in China.
- *Ministry of Justice (MOJ)*  
Responsible for the judicial enforcement of IPR laws. Under the proposed Anti-Monopoly Law there are questions as to whether claims for the payment of patent royalties may come into conflict with local interpretations of abuse of significant market power and anti-competitive behaviour. (See below.)

### *Examples of Industry Associations and Working Groups*

Restructuring of the standards development organizations in 1998 has led to numerous industry associations being established. Ministries with smaller SDOs often turn to the industry associations for input. Other ministries set up their own working groups to which they invite industry representatives. In all such cases, two other bodies give their authorization, the Standards Authority of China (SAC) and the Ministry of Civil Affairs. At the local level some provincial authorities are encouraging industry associations, for example, in 2002 Shanghai issued ‘Regulations on Promoting the Development of Industry Associations’ to authorize industry associations, under municipal direction, to draft local standards. The following are examples of such industry bodies.

- ***China Communications Standards Association (CSSA)***  
Comes under the MII and coordinates the work of many telecom standards working groups, such as:
  - *China Broadband Wireless IP Standard Working Group (ChinaBWIPS)* - established in 2001 with MII approval with founding members CESI, Xidian University, Beijing Institute of Post and Telecommunications, Jiaotong University, Xi'an Institute of Post and Telecommunications, Hanwang Technologies, Guilin University of Electronic Technology Research, Center for Commercial Key of China, National Radio Monitoring Center and China IWNCOMM Co. (Group Leader)
  - *Mobile Multimedia Technology Alliance (MMTA)* - founded by China Academy of Telecommunication Research (CATR) of the MII, CM, CNC, CT, CU, China Putian (Potevio), Huawei, ZTE and Vimicro to promote 3G applications
  - *Future Mobile Communications Forum (Shanghai)* - founded by 26 companies in 2006 to boost development beyond 3G, including 9 multinationals (Siemens, Nokia, Ericsson, Philips, Shanghai Bell-Alcatel, Motorola, Samsung,

- France Telecom and NTT DoCoMo), China Telecom, China Mobile, China Netcom and China Unicom, and domestic equipment manufacturers including Huawei, ZTE and Datang Telecom
- *TD-SCDMA Alliance (TDIA)* - formed in 2002 by Datang Telecom and seven local vendors
  - *Internet Society of China (ISC)* - founded in 2001 under the MII with more than 70 sponsors, the current chair is Mdm. Hu Qiheng, the Vice-Chair of CAST (China Association for Science and Technology) and the academician of Chinese Academy of Engineering.
- ***China Electronics Standards Institute (CESI)***  
Comes under the MII and coordinates the work of many electronic standards working groups, such as:
- *China Digital TV Industry Alliance(DTVIA)* - established 1998 with more than 20 members: Konka, TCL, SkyWorth, Xocec, Fujian Hitachi, SVA, Panda, ZhenJiang Com. Co., Soya, Hisense, Peony, C&W, BBEF, GreatWall (Tianjin), NTC, Tong Fang, AutoSoft, Wall Investment, Guang Yu, ZhongXing, Academy of Broadcasting Science (SARFT) and Research Institute of TV & Electro-Acoustics (MII)
  - *China Audio Industry Association (CAIA)* - represents 60-70 DVD manufacturers in China
  - *Intelligent Grouping and Resource Sharing (IGRS)* - home networking group (MII) founded in 2003 with 22 local companies to support its emerging standard, including Lenovo Group, Great Wall Computer Co., consumer electronics and communications makers such as TCL Group, Konka Group, and Hisense Group
  - *Audio and Video Coding Standard Workgroup of China (AVS Working Group)* - set up under the Science and Technology Department of the MII in June, 2002<sup>44</sup>
  - *WAPI Industry Alliance* - founded in 2006 by 22 companies, including China Telecom, China Mobile, China Unicom and China Netcom, computer makers Lenovo and Founder, chip designers China IWNCOMM Co and Beijing LHWT Microelectronics Inc.
  - *China IPv6 Alliance* - ‘industrial bodies, research institutes, universities, individual experts, etc., are welcome to join the council not only domestically but also internationally’
  - *China Software Industry Association (CSIA)* - founded in 1984 and assigned responsibilities for promoting the aims of the State Council’s Document 18 issued June 2000 ‘Encouraging the Development of Software Industry and IC Industry’ including intellectual property

### *Issues for China’s Standards Setting Organizations*

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<sup>44</sup> According to Su Jun and Du Min (2005) ‘Market Failure and Government Failure: Research on the Mechanism of AVS Standard Setting’ (Draft) Social Science Development Office, Tsinghua University, the Chinese Government played little direct role on the R&D process until approval by MII and SAC in 2002 after which funding of RMB8 million came from the National Development and Reform Commission and a further RMB10 million from the Zhongguancun Science Park. (p. 15)

The following issues are raised as a basis for discussion and further research. None of these issues is presented as established or undisputed fact.

- (a) How transparent are standards organizations in China? There have been complaints by foreign companies that standards organizations are sometimes closed and non-transparent, that the technical committees and subcommittees drafting standards are not open to foreign companies or to public scrutiny, and there is no process of widely distributing in a timely manner review documents for external comment, despite China's WTO commitment (Protocol of Accession, paragraph 178). Balancing these claims, there are many examples of standards organizations being open to foreign companies who participate fully, so how real is the problem?
- (b) Is there sufficient coordination between and harmonization across the standards organizations at central, provincial and industry levels? There are sometimes 'multiple agencies at different levels set standards according to the special interests of central and local PRC government agencies and domestic enterprises.' (Weeks and Chen, p. 4)
- (c) How effective is harmonization with internationally accepted standards? China pledged to adopt 2,000 international standards a year for the first five years to reach the target of 80 per cent of 'key' industrial standards conforming to international standards. 'By the end of 2002, China had 8,931 national standards based on international standards. Of these 42.4 per cent (or 3,794) were not equivalent to international standards. Only 2,169 were identical, and a sizeable portion (2,968) were modified versions of their international counterparts.' (Weeks and Chen, p. 4)<sup>45</sup>
- (d) Is 'national treatment' fully applied to ICT companies in all sectors according to WTO commitments? For example, China is not yet a signatory to the WTO's GPA.
- (e) How many mandatory standards are there and what criteria are used to determine the scope of mandatory standards? The issue of WAPI raised many concerns.
- (f) When do standards in China violate WTO TBT rules, and how can national interests be reconciled with international standards?

This list of issues, which is not exhaustive, underscores the importance of a dialogue between the EU and China on 'best practice' and the sharing of experience for two reasons. First, to increase mutual understanding and to dispel misunderstandings of how each other's systems work, what are the principles guiding their operation, and how they are evolving. Second, to make progress finding a common purpose and a shared view on how to meet the challenges of the future.

## C: IPRs in the PRC

### *Laws, Regulations, Rules and Enforcement*

The State Council published a nine chapter White Paper on 21 April 2005 entitled *New Progress in China's Protection of Intellectual Property Rights* along with a short Foreword 'in order for the international community to have a better understanding of the real situation regarding China's IPR protection...'<sup>46</sup> China sees laws and regulations

<sup>45</sup> Ann Weeks and Dennis Chen, 'Navigating China's Standards Regime', *China Business Review*, 1 May 2003: <http://www.chinabusinessreview.com/public/0305/weeks.html>

<sup>46</sup> See [http://www.chinadaily.com.cn/english/doc/2005-04/22/content\\_436527.htm](http://www.chinadaily.com.cn/english/doc/2005-04/22/content_436527.htm)

regarding IPRs as needing to find the right balance ‘appropriate for its own national situation’ between ‘the interests among intellectual property creators, users and the general public’ to ensure a ‘benign circle for the creation and use of intellectual property.’<sup>47</sup>

The Forward to the White Paper lists the major state bodies responsible for implementing IPR protection, but below we add to the list many of the major state bodies also responsible for approving and monitoring national and industry standards which include essential local IPRs together with foreign-owned IPRs associated with international standards or with foreign-invested enterprises and local joint ventures or with China companies involved in OEM production and China enterprises with IPR licensing agreements. It becomes immediately apparent how complex the picture can become.

- National Reform and Development Commission (NDRC)
- State Intellectual Property Office (SIPO)
- State Administration for Industry and Commerce (SAIC)
- General Administration for Press and Publication (GAPP) - includes the State Copyright Bureau
- Ministry of Information Industries (MII) + Communications Standards Research Institute of China Academy of Telecommunication Research
- State Administration for Radio, Film and Television (SARFT)
- Ministry of Culture
- Ministry of Commerce (MOFCOM)
- Ministry of Public Security
- General Administration of China Customs
- Supreme People’s Court
- Supreme People’s Procuratorate
- Administration for Quality Supervision Inspection & Quarantine (AQSIQ)
- Standardization Administration of China (SAC)
- China National Certification Accreditation Commission (CNCAC)
- China Electronics Standards Institute (CESI)
- China Communications Standards Association (CCSA)

Some of these bodies are industry-level standards setting organizations, such as the CCSA set up with authorization from the MII, the SAC and the Ministry of Civil Affairs, but the scope of activities nevertheless include, according to Article 7 (1) of Chapter 2 of the ByLaws, ‘to promulgate the state laws, regulations and policies on standardization.’<sup>48</sup> The myriad ministries, administrations and industry bodies involved not only pose a problem of knowing exactly which body is responsible for what, especially for foreign companies unfamiliar with the structure of China’s IPR and standards implementation and enforcement procedures and mechanisms, but also pose a problem of clarification

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<sup>47</sup> The White Paper was followed in June 2006 by the publication of two Action Plan documents by the State Intellectual Property Office (SIPO) setting out the forthcoming reform agenda See [http://english.ipr.gov.cn/ipr/en/info/ArticleList.jsp?col\\_no=102](http://english.ipr.gov.cn/ipr/en/info/ArticleList.jsp?col_no=102)

<sup>48</sup> <http://www.ccsa.org.cn/english/const.php>

and coordination between the administrative and the judicial bodies and their respective roles.

### *Patents and licensing*

Chinese companies developing a portfolio of patents, copyright and trademarks (brands) are seen as concomitant to the objectives of the *Eleventh Five Year Plan* and the *Plan for National Informatization Development 2006-2020* announced 12<sup>th</sup> May 2006 jointly by the General Office of the Central Committee of the Communist Party of China (CPC) and the General Office of the State Council.

The ultimate objective is to elevate China from a position of learning and using foreign technologies to one that creates.<sup>49</sup>

Paying billions of dollars in royalties and a sense of dependency on foreign technologies is a state China wishes to move beyond, at least to the point where China can participate on more equal terms in the world market for high technology products. The key to success lies in moving part of China's enterprise sector towards the higher value end of the ICT industry, and this means less focus over time on mass produced commodities and more on innovation in product functions and designs. China has become the preferred location for the outsourcing of mass production for many industries, and Chinese OEMs (original equipment manufacturers) are especially active in the ICT sector,<sup>50</sup> but the aim of national government is to steer the economy further up the value chain, and trade data for the past decade does suggest that China is gaining comparative advantage in more than 30 ICT categories, over half of them intermediate categories. **See Table AY-1, Appendix Y.** This accords with the evidence cited above of China's growing propensity to register patents. Another way to gauge the progress of China's ICT sector is to focus on leading sector companies. **Table AZ-1 in Appendix Z** reviews some of the evidence pointing to China's leading ICT companies such as Huawei, ZTE and Datang building a portfolio of patents and licensing agreements with foreign companies. It may be noted from the table that not all attempts to maintain joint ventures with foreign firms have been successful. This is particularly the case in highly competitive and somewhat volatile markets where technologies change rapidly, such as for telecommunications equipment.

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<sup>49</sup> For official summary see [http://english.gov.cn/2006-05/12/content\\_279021.htm](http://english.gov.cn/2006-05/12/content_279021.htm)

<sup>50</sup> For example, 302 of the 390 exhibitors at China's Fourth International SinoCES (consumer electronics show) held in Qingdao, July 2006, were Chinese companies, many of them originally OEMs now trying to establish domestic and global brands. Companies included Top Victory Electronics (TVP) which holds around 30% market share for the production of LCD screens, TCL and Hisense, the two leading manufacturers of DVD and TV sets in China, Ningbo Bird, China's largest mobile phone maker, Lenovo who bought IBM's PC unit, Huawei and ZTE, leading telecom equipment manufacturers, and Haier, China's leading manufacturer of white goods such as refrigerators. (See 'A Show of Strength in Technology', *Financial Times*, 14 July 2006, p.7.) But a word of caution is needed. OEM here refers to the outsourcing of production under licence, often involving IP, sometimes to a foreign-invested company or joint venture, sometimes to an independent domestic enterprise. It is a slightly confusing term because it can also refer to value added resellers who sell other companies products under their own brand name and offer their own service guarantees and after sales services.

### *Anti-Monopoly Law and IPRs*

A draft Anti-Monopoly Law exists, but currently China does not have an anti-monopoly or fully developed competition law, although since 1993 there has been a Law Countering Unfair Competition administered by SAIC (State Administration of Industry and Commerce). Related laws include the Price Law (1998) that includes provisions against price-fixing cartels, and the Law on Bid Invitation and Bidding or Tendering (2000) with provisions against collusive behaviour. In 2004 China's Foreign Trade Law of 1994 was revised in light of WTO membership. 'The 1994 Foreign Trade Law contained no provision concerning the protection of intellectual property rights. A new section, entitled "Protection of Intellectual Property Rights Related to Foreign Trade" has now been added which allows the State to enforce intellectual property rights under the law.' Also 'New articles (33 and 34) were added to the Foreign Trade Law that specifically prohibit monopolistic activities as defined in existing laws and administrative regulations against monopolies. These articles also prohibit acts of unfair competition such as selling commodities at an unfair low price, colluding in the submission of tenders, publishing false advertisements and engaging in commercial bribery.'<sup>51</sup> In addition to extending the law to include IPRs, these provisions give China a legal protection against foreign companies accused of dumping and a level playing field for international trade negotiations.

Anti-monopoly legislation is the responsibility of MOFCOM. China begun the process of drafting an anti-monopoly law in 1994, but the first draft was not available until 2003. It would seem that IPR issues could be raised under the proposals of the latest draft, approved in June 2006 by the State Council, in Article 15 that includes 'refuse to trade with trading partners without valid reasons' as abuse of dominant market position. Some Western commentators have seen this as a potential weapon against the IPRs of foreign companies.<sup>52</sup> Other provisions include Article 27 which reins in the powers of state administrations to 'hinder products from free transit and sufficient competition between the regions' by (i) imposing 'discriminatory charging items/standards', (ii) 'adopt different technology requirements, examination of standards on the products of other places... repeated authentication or other discriminatory technology measures on the products of other places', (iii) discriminate against 'products from other places, such as approval requirement, licence requirement to restrict access to the local market', (iv) 'set up checkpoint or adopt other means to restrict products from other places to access the local market or restrict local products shipping out.' Article 28 restrains state administrations from imposing 'discriminatory qualification requirements, examination standards or not to publish information in accordance with the laws to eliminate or restrict the undertaking from other places to take part in local bids.'<sup>53</sup>

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<sup>51</sup> Alex Yang of Duan and Duan Law Firm [http://www.duanduan.com/fgsd\\_e\\_2004-07-23.htm](http://www.duanduan.com/fgsd_e_2004-07-23.htm)

<sup>52</sup> An editorial in the *Financial Times*, 12 June 2006, argues that the draft law 'promises to be largely toothless – except in one respect: it would empower Beijing to act against foreign companies' market positions, competitive conduct and mergers. For some senior officials, that is the legislation's main attraction.'

<sup>53</sup> The English draft is an unofficial translation and comes through private correspondence.

The role of law and in particular the role of anti-monopoly and competition law in determining IPR issues is potentially an interesting one, especially in light of the March 2006 case of *Nokia Corporation versus InterDigital Technology Corporation [2006] EWHC 802 (Pat)* in which a British court of law agreed to hear a case brought by Nokia contesting the ‘essential’ nature of InterDigital’s 3G FDD patents. The hearing was accepted by the Court not on the grounds that InterDigital was claiming in its submission to the Court that its patents were ‘essential’ (which it wasn’t) but on the ground that InterDigital had already notified to ETSI the patents were essential. The ruling of Mr Justice Pumfrey was that ‘In my judgment, to approach an international standards body and suggest that the use of a particular invention is essential... necessarily involves a formulated claim against potential users of the standard.’<sup>54</sup>

The implication would seem to be that in future owners of patents involved in standards setting bodies will need to take into account the possibility of legal challenges to the essential nature of their patents and by implication to the financial terms they offer for the use of those patents. This situation appears to raise issues related to IPRs and the standards setting process which are close to the concerns of China. Similar concerns have arisen in the European Union. In October 2005 six equipment providers<sup>55</sup> brought allegations of anti-competitive behaviour against Qualcomm to the European Commission, accusing Qualcomm of not offering FRAND terms on WCDMA patents and calling for a cap to be placed upon excessive royalty payments. In November 2005, several network providers including Orange, T-Mobile and Vodafone called upon the General Council of ETSI to require terms of licensing agreements to take place *before* the setting of a new standard. In all such disputes, different parties have different and usually legitimate interests to defend, and the issue of the balance of stakeholder interests arises. Stakeholder interests are usually narrowly defined in market economies when private transactions do not involve anti-competitive outcomes and are therefore traditionally excluded from public interest concerns. But private transactions that result in ‘significant market power’ are considered legitimate areas of public interest. The question posed by China, and by the EU examples just given, albeit they all have vested interests, is a boundary issue. At what point do IPR issues connected to particular standards, especially the issue of royalty fees and the terms and conditions of licensing, raise issues of - to coin a phrase - ‘significant public interest’?<sup>56</sup> In other words, when does the balance of stakeholder interests include the ‘national’ interest however defined – for example, consumer interest in market choice, public interest in environmental issues, national interest in security and policy issues?

Finally, if IPR issues are becoming of a wider concern than to the immediate commercial parties involved what mechanisms and procedures should best handle them? Should, as China has argued, these procedures be developed within the standards setting bodies or

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<sup>54</sup> William Cook, ‘FRAND or Foe’, *Managing Intellectual Property Journal*, 2006. <http://72.14.235.104/search?q=cache:UAaWVA7RUToJ:www.managingip.com/%3FPage%3D10%26PUBID%3D34%26ISS%3D21936%26SID%3D633203%26TYPE%3D3+Frاند+of+Foe&hl=en&gl=hk&ct=clnk&cd=1&client=firefox-a>

<sup>55</sup> Broadcom, Ericsson, NEC, Nokia, Panasonic Mobile Communications and Texas Instruments

<sup>56</sup> The court case involving Nokia and InterDigital does not necessarily imply there is a wider public interest issue at stake. The argument is that a case can arise where it is.

should they be outside and independent of them? If outside and independent then should they be based upon voluntary procedures, third party arbitration procedures or legal procedures? In Europe the issue is already under consideration. Reacting to a European Commission threat to investigate the practices of the standard setting body, ETSI has set up an IP group to look into standards setting rule changes. On the face of it, it would seem timely and appropriate for the EU, EU standards setting bodies, industry associations, chambers of commerce, consumer councils and other stakeholder organizations to explore dialogue with their China counterparts around these issues while they are in their formative stages. Potentially, this could prove to be one of the most fruitful areas of collaborative thinking and policy dialogue for the future, and could certainly help to avoid misunderstanding about the way to think through these tricky issues.

### *Government Procurement and Software Issues*

China is not yet a signatory to the WTO's Agreement of Government Procurement (GPA) and access to the important public procurement market in China remains an issue of concern for foreign companies, especially as it affects the market for software products, just how important becomes evident because, according to the WTO, 'in most countries, procurement represents, on average, 12-15% of GDP.'<sup>57</sup> In China, central government procurement accounted for 1.4% GDP in 2003. This figure excludes state-owned enterprises, public utilities and defence-related organizations. Data provided to the WTO suggests local government authorities in China purchase 14 times as much as central government.<sup>58</sup>

China's Law on Government Procurement (2003) links government purchases to the achievement of the government's economic and social goals and applies to State organs, public institutions and social organizations, but not to state-owned enterprises.<sup>59</sup> As the WTO (2006, p. 60) report observes, 'It also appears there is a preference for state purchases of "domestic goods, construction and services", which are not defined by the

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<sup>57</sup> WTO (2006) *Trade Policy Review: Report by the Secretariat – People's Republic of China*, p. 94, citing OECD data.

<sup>58</sup> Total government procurement grew from 0.04 % GDP in 1998 to 9.64% GDP in 2002 according to Richard P. Suttmeier and Yao Xiangkui (2004), 'China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism', NBR Special Report, <http://www.nbr.org/publications/specialreport/pdf/SR7.pdf#search='Richard%20P.%20Suttmeier%20and%20Yao%20Xiangkui'>

<sup>59</sup> According to the MII in 2002 foreign companies accounted for 95.3% of China's software and software integration markets. In 2000 the State Council issued Document 18 'Notice of Certain Policies to Promote the Software and Integrated Circuit Industry Development' and in 2002, Document 47 'Programme of Action for Promotion of the Software Industry', incorporating new software development in the '863' programme. The State Council called for 60% of software value to come from domestic firms and the creation of 20 large domestic software companies with revenue goals of RMB1 billion. See <http://www.china.org.cn/english/features/investment/36736.htm> for details of tax incentives. See also Richard P. Suttmeier and Yao Xiangkui (2004), 'China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism', NBR Special Report, <http://www.nbr.org/publications/specialreport/pdf/SR7.pdf#search='Richard%20P.%20Suttmeier%20and%20Yao%20Xiangkui'>

law.’ Specifically on the issue of software procurement, the WTO (2006, p. 97) reports the following:

The Ministries of Finance, Information Industries, and Science and Technology, and the NDRC are considering a set of possible measures on government procurement of software, to be promulgated at the appropriate time. According to these measures (as they were initially proposed), procuring entities at all levels of government would be required to procure domestic software. Exceptions would be made where the domestic software does not meet the needs of the procuring entity or the items to be procured are deemed to be overpriced. The measures would not apply to the purchase of software by enterprises (including state-owned and non state-owned enterprises) and individuals, and the government expects that they will only have limited impact on the entry of foreign software into China’s market. Nonetheless China’s trading partners have expressed concerns about the potential impact of this policy in excluding foreign suppliers from software procurement. Recently, China has indicated that it will delay issuing these measures pending further consideration of public comments and possible changes in light of WTO rules.

Software became the first application of the Law.

In November 2004, China's Ministry of Information Industry and Ministry of Finance released an outline of the draft software regulations that would define "domestic software" very narrowly -- to qualify, a product would have to be made in China, IPR would have to be held by a PRC person, and China-based development costs would have to comprise at least 50 percent of total development costs. If domestic products or services are not available, the draft regulations would permit foreign software to be considered, but only if the foreign firm conducts certain (yet to be defined) levels of China-based research and development, investment, subcontracting, or taxable transactions. In March 2005, China released a more complete draft of the measures, which maintains many of these restrictive conditions.<sup>60</sup>

Typical of the responses from software companies and industry associations is the policy position of CompTIA (Computer Technology Industry Association).<sup>61</sup>

Policymakers should develop procurement policies that are neutral with respect to technologies, platforms or licensing models and that are based on reasonable, objective criteria such as the following:

- Value for money
- Reliability

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<sup>60</sup> ‘USTR Official Urges China To Implement WTO Procurement Standards’, U.S. Department of State, Washington File, <http://usinfo.org/wf-archive/2005/050513/epf503.htm>

<sup>61</sup> CompTIA (undated) *Position Paper: Government Procurement of ICT Assets*. Lenovo International is represented on the CompTIA Board of Directors. See [http://www.comptia.org/about/board\\_of\\_directors.aspx](http://www.comptia.org/about/board_of_directors.aspx)

- Vendor support
- Ease of use
- Security

The application of the WTO's Agreement on Government Procurement (GPA) to all products, including software, is subject to exceptional clauses involving issues of national security and 'public morals, order or safety, human, animal or plant life or health or *intellectual property*; or relating to the products or services of handicapped persons, philanthropic institutions or of prison labour.' [Emphasis added]<sup>62</sup> But otherwise the GPA lays down specified threshold values at SDR130,000 (US\$192,000) for central government purchases, SDR200,000 (US\$195,000) for sub-central government purchases, and SDR400,000 (US\$590,000) for utilities, and DSR5 million (US\$7.4 million) for construction contracts.<sup>63</sup> Since 2002 China has been an observer to the GPA and has committed to join the GPA, but no date has been specified although 'China expected to launch GPA entry negotiations before the end of 2007' according to the *China Daily*, 17 May 2006.<sup>64</sup>

One concession made by China towards software IP protection came on 31 March 2006, the month before President Hu Jintao's visit to the US and to Microsoft's headquarters, when a statement by the Ministry of Information Industry, the State Copyright Bureau and the Ministry of Commerce announced an order that 'Computers manufactured within the country's borders should have preinstalled authorized operating software systems when they leave the factory.'<sup>65</sup> The Windows O/S is by far the most widely used across China, the great majority of it pirated according to the Business Software Alliance, yet the rate of piracy seems to be falling, from 93% of all copies used in 2003, to 90% in 2004 and 86% in 2005. (Andrew Batson 'Software Piracy Drops in China as Government Applies Pressure', *Wall Street Journal Asia*, 24 May 2006, B. 2.)<sup>66</sup> Following President's Hu's US trip, Mr Wang Ziquang, director of the State Copyright Bureau, declared that 'the central government has set aside about US\$18 million to purchase properly licensed software... Mr Wang called inaccurate an estimate that as much as 70% of software used in government offices is pirated.' ('President pledges to protect intellectual property rights', *Wall Street Journal Asia*, 20 May 2006, p. 17.)

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<sup>62</sup> See GPA Article XX111, clause 2, [http://www.wto.org/english/docs\\_e/legal\\_e/gpr-94\\_e.pdf](http://www.wto.org/english/docs_e/legal_e/gpr-94_e.pdf)

<sup>63</sup> IMF Special Drawing Rights valued at SDR1=US\$1.476450 in July 2006.

<sup>64</sup> Quoting Yu Guangzhou, Vice Minister of MOC, that 'most of the information on China's government procurement is available on the Internet', <http://chineseculture.about.com/gi/dynamic/offsite.htm?site=http://english.people.com.cn/200605/17/eng20060517%5F266331.html>

<sup>65</sup> 'Wang Ziqiang, director of the copyright management department at the State Copyright Bureau, said the notice was not about reacting to foreign criticism. "This is not because of foreign pressure," he told reporters. "This is about the country's economic development."' ('China targets PC makers in antipiracy drive', Reuters, *ZDNet News*: 10 April 2006, see [http://news.zdnet.com/2100-3513\\_22-6059324.html](http://news.zdnet.com/2100-3513_22-6059324.html))

<sup>66</sup> Mr Zhang Qin, Vice-Commissioner of SIPO, rejects this claim on the grounds that 'the BSA's study mostly focused on the software for personal computers and other end-users. It is biased to calculate the percentage of pirated software based on such limited samples.' ('Copyright official dismisses software piracy claim', *South China Morning Post*, 20 April 2006, A5.)

But the government in China has also expressed concern at the possibility of a ‘backdoor’ being opened from Microsoft’s Window’s O/S once it is installed into computers to allow online spying into state, military and industry secrets. For this stated reason, and to help the development of China’s own programming and coding industry, local versions of Linux open source software systems have been encouraged and used by Government for more sensitive applications.<sup>67</sup> At the same time, the China Software Industry Association (CSIA) is collaborating with the Japan IT Services Industry Association (JISA) and the Federation of Korean Information Industries (FKII) to create an open-source software promotion body in their respective countries.<sup>68</sup> At the same time, however, the CSIA has expressed doubts about the government placing too much stress on open source.<sup>69</sup>

#### D: Standards and IPRs: Trade and Trade-Offs?

China’s official position is that the standards setting process with respect to IPRs is flawed and in need of reform. ‘China is of the view that, IPR issues in preparing and adopting international standards have become an obstacle for Members to adopt international standards and facilitate international trade.’ (Communiqué to the WTO Committee on Technical Barriers to Trade, dated 23 May 2005.) China has urged the TBT to consider further IPR policies in standardization.

For example, ‘standardization bodies declare that they shall not be responsible for concerned information about essential IPRs to be integrated into standards. There should be more concrete measures to encourage concerned parties to disclose related information... IPR policies in standardization should help strike a balance between standardization needs and IPR protection.’<sup>70</sup> As cited above, this view is similar to that held by some European companies, and this indicates it is an issue that does need EU-China dialogue.

In contrast to the US focus on market forces and the EU’s focus on the need to harmonize standards across European continent, China’s position is that the standards setting process should as far as possible help promote national development through the diffusion of new technologies and their benefits. In China’s view this is best achieved if the standards setting organizations see the incorporation of IPRs as part of the standards setting process, and by implication that the SSOs exercise some influence over the conduct and fees charged by the owners of ‘essential’ IPR. This is China’s own domestic practice according to one recent conference account.

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<sup>67</sup> It might be noted that a shift towards pre-installed Windows software, which could add RMB300-600 to the cost of a PC compared to the cost of pirated Windows at around RMB10, could trigger a shift of consumers towards Linux-based open source O/S. See ‘Small steps in the fight against piracy’, *EU-China Information Society Project*, <http://www.eu-china-infso.org/News-RegulatoryEnvironment02.htm>

<sup>68</sup> ‘Major Asian IT groups to collaborate on open source’ Martyn Williams, IDG News Services, 14 November 2003, *InfoWorld Special Reports* [http://www.infoworld.com/article/03/11/14/HNAsianitgroups\\_1.html](http://www.infoworld.com/article/03/11/14/HNAsianitgroups_1.html)

<sup>69</sup> A CSIA report in 2005 argued ‘the government’s “excessive preference” for the open-source Linux platform is harming the domestic software industry and Linux’s business model is flawed as the low, or no, charge is thwarting the profitability of Linux developers.’ Quoted in a rejoinder by Li Weitao ‘Linux needs to be backed, not dumped’, *China Daily*, 8 September 2005.

<sup>70</sup> See [http://www.etsi.org/sos\\_interoperability/w25\\_IPR\\_china.pdf](http://www.etsi.org/sos_interoperability/w25_IPR_china.pdf)

Wenwen Li, engineer at the China National Institute of Standardization, for example, suggested that, in China, they look at intellectual property as a feature of a standard. They base their decision on whether to include a specific IP, especially one with royalties, on whether it will add value. Participants in that decision include not only lawyers, but engineers, business people, and government representatives.<sup>71</sup>

In 2003 the China Electronic Standards Institute (CESI), in the September edition of *Information Technology & Standardization*, spelt out China's concerns about the standards setting process and the place within it of IPRs.<sup>72</sup> According to CESI, in the early stages of WTO negotiations China was primarily concerned with the issue of reducing tariffs, but China then encountered a more serious problem, namely the high licence fees or royalty payments being demanded by the holders of IPRs on a range of goods. In 2002 these included the manufacture of cigarette lighters and the fees levied on China's DVD players. In the latter case the royalty payments could reach as high as fifty percent of the export sales price of the low end players. The article notes that developed countries have established and consolidated their lead in innovation through the use of the patent system and 'led by the United States, wanted to connect intellectual property with trade issues' enshrined in TRIPS which is 'more stringent than most international treaties, in the name of consumer protection, it had included protection of not-yet-disclosed information.' TRIPS extended the Paris Treaty on trademark protection 'to cover similar products' and extended copyright law to 'protection to software, multimedia and digital storage.' Along with the WTO's Technical Barriers to Trade (TBT) and Sanitary and Phyto-sanitary Standards (SPS) treaties, 'we can see that the rules are under the control of the developed countries.'

While this is probably a fair representation of the views of many developing countries, CESI does not conclude that China should remain outside the system. On the contrary, CESI asserts the 'need to use the patent system to promote our technological advancement' and recommends the Government to encourage local companies and to assist local companies 'apply for timely patents'. While for local companies paying 'high prices for a licence is just a short-term solution for the immediate market. For the long term, we should elevate our technology R&D level. Owning our own IP is the only way we can cross the technology barriers set by the developed countries.' So China's position is clear. Despite a system that appears stacked against them, Chinese companies must play by the rules while at the same time must develop their own capacity to innovate and join the game at a higher level.

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<sup>71</sup> Sherrie Bolin (2006) 'Standardization: Unifier or Divider? Conference Summary and Analysis' December 5-7, 2005, Vancouver, Canada: organized by the Berkeley Center for Law and Technology, p.34. url: [http://www.thebolingroup.com/standardization\\_unifierordivider\\_conference\\_analysis.pdf](http://www.thebolingroup.com/standardization_unifierordivider_conference_analysis.pdf)

<sup>72</sup> See English translation on the Simmtester website at: <http://www.simmtester.com/page/news/showpubnews.asp?title=Review+on+Technology+Barriers+Related+with+Intellectual+Property&num=103>

Playing the by rules is not a passive process. CESI has two further recommendations. On the one hand, it is important China develop its own rule-based system. ‘In our legislation, we not only have to encourage standard setting but also rules for implementation and creation of new standards... For products that will benefit their industry, we should speed up the compliance under TBT requirements and standards. We should also push them to become international standards.’ On the other hand, ‘we should take full advantage of TBT and SPS treaties. We will take all the exemptions within them to remove technical barriers imposed on us. We will utilize the rules to avoid double standard and unfair treatments.’ This is a pro-active position, as reflected in China’s energetic participation in international and regional standards bodies. [**Examples of China involvement in regional bodies here**]

But the CESI article also raises another fundamental issue, that ‘the developed countries are facing serious cost competition from the developing countries. That is the reason they are building barriers based on their technological advantage... In fact use technological advancement and IP position to counter price advantage of the developing countries.’ There are in fact two arguments entangled here. First, standards *per se* can be used to exclude goods. If goods are excluded because they fail to meet legitimate standards, for example health and safety standards such as power emission limitations on radio equipment, then such cases would not be considered technical (non-tariff) barriers to trade, but otherwise standards can be used as a smokescreen for protectionism and as such should fall foul of the WTO’s TBT. Second, standards may include patents which according to established international SSO protocols should be either free to use by companies adopting the standards or available on reasonable and non-discriminatory terms (RAND). But only ‘essential’ IPRs are usually involved in standards, so in principle each country and company has the opportunity to develop its own ancillary standards for components, parts, design, production process, and so on. In reality, at the development stage of economic growth, a country like China is largely dependent upon foreign designs and patents, especially in the technologically more advanced and higher value end of ICT products.

In the same CESI article the author points out that ‘presently we have national standards, local standards and industry standards applied simultaneously. The standards are primitive. We also lack a system of enforcement.’

## E: The Way Forward

### *Issues*

In much the same way as highly developed economies run up against potential conflicts of interest, for example between individual companies that hold patent rights over important technologies and the wider interests of industrial and commercial users and their end user consumers, so China is having to confront a series of difficult issues.

- Managing the cost of IPR royalty and licence fees to foreign companies
- Making participation more effective in international SSOs
- Finding a better way to incorporate IPRs into the standards setting process

- Developing greater transparency and participation in China’s SSOs
- Drafting and passing updated legalisation on IPR policy and standards where this remains necessary, and developing and adopting policies that conform to, but may also contribute new thinking to, international best practices.
- Demonstrating ‘best practice’ in action through the harmonization and enforcement of policies nationwide to make IPR protection effective for both foreign and domestic companies.
- Finding the right balance between stakeholders, between patent owners, patent users, end users and the national interest

### *EU-China Dialogue*

In each of the above the EU has faced the same set of issues and dilemmas in a situation that is continually evolving, so yesterday’s answers are often today’s questions giving the fast changing pace of technology and the ubiquity of ICTs. For these reasons, the issue of EU-China dialogue cannot be seen as simply a case of the EU having experience and learning of ‘best practice’ to offer China, but needs to be seen as the EU and China as equals confronted with a similar set of domestic and international issues, and with a mutual interest to find solutions that are harmonious. The theories supporting free trade and investment are predicated on the principle that at least one party benefits and no party is worse off – the ‘Pareto optimum’ – and it is difficult to think of a better case than when two or more trading partners gain from the harmonization of standards and a regime of IPRs that meets the objectives of FRAND.

What then are the issues that could be part of a fruitful dialogue, and what are the mechanisms that could bring that dialogue about? The following is proposed as an indicative not an exhaustive list.

### *Issues*

1. The EU and China have a different focus on standards setting and IPRs. For the EU, harmonization of practice and policies across Member States has been the primary goal. In contrast, China has seen the standards setting process and IP as primarily serving the goals of national development. Between these two approaches can common ground be found as to the rules and procedures to be adopted in the standards setting process, for example rules governing disclosure, the level and means of transparency of proceedings, how to facilitate the IPR search process, and crucially how to resolve the difficult issues of royalty fees, whether it is desirable and whether there are ways to establish their structure and levels *ex-ante* without compromising the technical work of SSOs, and whether there are means of creating *ex-post* safeguards and dispute resolution mechanisms that are equitable and cost effective.
2. Is the pursuit of interoperable standards at odds with, or a second best option to, the pursuit of international standards? What are the costs and benefits involved?
3. How to best ensure the timely and full disclosure of patent ownership or filings of participating parties in the standards setting process?

4. There are various patent royalty fee mechanisms (RF, patent pools, FRAND, etc.) designed to achieve an equitable balance between stakeholder interests. Are they working? If not, in which areas are they not working and under what circumstances are they not working, and what are the available options?
5. What are the advantages and disadvantages of including concrete decisions on the amount of royalties and terms of licensing into the standard setting procedure? How important a factor in practice is the knowledge on the exact amount of royalties for agreeing on and passing a standard?
6. Do royalty caps on multiple license fees hamper or promote standard setting procedures? What is the influence on the level of participating members drafting a standard if royalty caps exist?
7. What is the impact and role of cartel law on royalty issues in the context of standard setting?
8. What is the appropriate way to resolve royalty fee disputes? For example, is there a role for arbitration and would the establishment of a system of national arbitration tribunals and/or an international arbitration tribunal be helpful and acceptable to all sides?
9. In the past standardization was often portrayed as open to legal challenge as collusive or monopolistic, while IPRs was portrayed as protecting the individual innovator against companies dominant in the market, but the reality is more complex and today IPRs are sometimes seen as securing significant market power whereas standards are seen as guaranteeing market entry. Is the balancing shifting and if so, what should be the response of the market and the regulators?
10. Maintaining an ongoing dialogue around issues of ICT standards setting and IPRs is important if potentially difficult issues are to be identified before they become contentious and barriers to trade and investment. Are the various existing channels of communication between the EU and China sufficient for this purpose?

#### *Mechanisms*

1. The EU and China should actively ensure protection and enforcement of patents and IPR used as part of standards while at the same time establish a permanent forum for discussion of standardization and IPR issues. The two sets of issues probably need to be discussed within the same forum. The fruits of these discussions should be fed into the relevant international fora.
2. The EU and China should encourage a permanent consultation process between their respective standards setting organizations in different sectors.

3. The EU and China should encourage regular contact between their respective industry associations, chambers of commerce, and other relevant industry and civil organizations to discuss ways to remove obstacles to trade and investment arising from standards and IPR issues. Both the EU and China should provide resources to assist their respective associations in understanding the issues in detail for their sectors.

## **Appendix X:**

### China-Japan-Korea ICT Cooperation

The first China-Japan-Korea (CJK) ICT ministers' meeting was convened in Marrakech, Morocco in September 2002, the second in Chejudo, Korea in September 2003, and the third in Sapporo, Japan in July 2004. The fourth meeting was hosted by China in the southeastern coastal city of Xiamen which added to the list of areas of ICT R&D collaboration, RFID. The complete list is as follows:

- 3G and next generation mobile communications (4G)
- Next generation Internet (IPv6)
- Digital TV and Broadcasting
- Network and information society
- Open source software
- Telecommunications service policies
- The 2008 Beijing Olympics
- RFID

Technical Working Groups have been established in each of these areas. At the ASEAN+3 (China, Japan and Korea) held in Singapore in 2003 it was agreed that starting 2004 there should be strengthened cooperation between ASEAN countries and the three in the field of ICTs. This raises the interesting longer-term possibility of certain ICT standards being adopted on a regional-wide basis, offering regional economies of scale that could rebalance the bargaining power in commercial negotiations between patent rights holders in the US and the EU and patent rights holders in the China-Japan-Korea bloc. In the shorter term it builds support for Chinese, Japanese and Korean companies in the ASEAN region.

## Appendix XX

### Revealed Comparative Advantage in China's ICT Sector

A key indicator that China is developing an ICT production capacity beyond low value-added activities such as assembly, testing and packaging is the growth of a domestic intermediate goods and services sector, in particular the 'parts and components' categories of the SITC 5-digit industrial index. In undertaking an assessment of China's progress Amighini (2005)<sup>73</sup> makes use of the net trade index (NET) which measures the net balance of a country's exports and imports (exports - imports) of a particular product or sector as a proportion of the country's total of trade (exports + imports) for that particular product or sector.<sup>74</sup> Amighini concludes 'the dramatic surge in exports of high-technology goods has been accompanied over time by a switch from China being a net importer to it being a net exporter of parts and components for ICT products (which suggests that the core of ICT production has progressively moved to China through foreign direct investment by leading manufacturers).' (p.213)

NET measures the shift from import-dependency towards sectors that are export led, and Amighini finds significant gains in the IT (SITC 752) and telecom equipment (SITC 764) categories, including parts and components. The office machines (SITC 751) category shows selective gains, for example in photocopying equipment, while the semiconductors (SITC 772) category shows little change with China remaining a major net importer of electrical circuits and parts and components.

A second measure of China's increasingly competitive trade position in ICT products is revealed comparative advantage. This is indicated by a country devoting a greater share of its total exports to a particular product or sector than the proportion of world trade represented by trade in that product or sector. In Table A1-1 Amighini identifies the following 5 digit SITC categories in China's ICT sector where between 1991 and 2001 the date reveals comparative advantage in trade. In Table A1-1 the higher the value is above 1 the greater the comparative advantage.<sup>75</sup>

**Table AXX-1**  
**Revealed Comparative Advantage of China's ICT Sector**

SITC	Description	1991	2001
751	<i>Office machines</i>		
75121	Electronic without external source of power	7.46	6.70
75122	Other calculating machines	5.75	2.43
75132	Electrostatic photocopy, apparatus, indirect process	0.02	2.11
75199	Office machines, n.e.s.	0.80	2.05

<sup>73</sup> Alessia Amighini (2005) 'China in the international fragmentation of production: Evidence from the ICT industry' *The European Journal of Comparative Economics*, v.2.2, pp.203-219

<sup>74</sup> Values range from 1 which indicates pure exports and maximum comparative advantage, to -1 which indicates pure imports and maximum comparative disadvantage, and 0 which indicates the highest proportion of intra-industry trade.

<sup>75</sup> Values ranging from <1 down to zero indicate lack of comparative advantage, while values ranging from 1 to infinity indicate positive and rising levels of comparative advantage.

7591	Parts, accessories of the apparatus of heading 7513	0.02	1.25
75995	Parts, accessories of the machines of sub-group 7512		
764	<i>Telecom products</i>		
76411	Telephone sets	6.90	7.07
76419	Other telephonic or telegraphic apparatus	0.30	1.15
76421	Microphones and stands therefore	1.36	2.23
76422	Loudspeakers, mounted in their enclosures	0.37	4.91
76423	Loudspeakers, not mounted in their enclosures	0.99	4.60
76424	Headphones, earphones & combined microphone/speaker	5.02	10.05
76425	Audio-frequency electric amplifiers	0.80	1.41
76426	Electric sound amplifier sets	0.45	1.89
76431	Transmission apparatus	0.30	1.00
76432	Transmission apparatus with reception apparatus	2.38	4.27
76491	Parts and accessories for apparatus of heading 7641	0.12	1.68
76492	Parts and accessories for apparatus of heading 7642	0.44	2.03
76493	Parts and accessories of 761, 762, 7643, 7648	0.39	2.11
76499	Parts and accessories for apparatus of heading 763	1.18	3.66
752	<i>IT products</i>		
7526	Input or output units, whether or not with storage	0.23	3.56
7527	Storage units, with the rest of the system or not	0.01	1.54
75997	Parts, accessories of the machine of group 752	0.14	2.06
772	<i>Semiconductors</i>		
7722	Printed circuits	0.11	1.20
77253	Other apparatus for protecting electrical circuits	0.87	4.18
77257	Lampholders, voltage < 1000 volts	2.20	1.56
77258	Plugs & sockets, voltage < 1000 volts	0.85	2.18
77259	Other apparatus for electrical circuits < 1000 volts	0.31	0.98
77629	Parts of the tubes, valves of the sub-groups 7761, 7762	0.05	1.22
77631	Diodes, not photosensitive nor light emitting diodes	0.08	1.01
77632	Transistors, dissipation rate < 1 w	0.18	1.24
77681	Piezo-electric crystals, mounted	0.15	3.38

Source: Amighini (2005) Table 3.

Table AXXX-1  
Patents and Licensing Agreements

Patents & Licensing Agreements	Partnerships	Notes
<b>Chinese Vendors – Huawei</b>		
WCDMA, cross licensing (Shanghai Daily, 25 April, 2006)	Nokia	In 2005, Huawei had filed 249 PCT (Property Cooperation Treaty) international patent applications, ranking 37 among the global applicants and exceeding Cisco Systems' 212 applications. Huawei owns 5 percent of the global wideband code division multiple access patents
WCDMA, cross licensing (Ericsson, 22 Aug, 2002)	Ericsson	
cdmaOne and CDMA2000 1X equipment, royalty-bearing licensing agreement (Qualcomm, 1 Nov, 2001)	Qualcomm	
LAN switches and routers, formed a JV called 3Com-Huawei (Business Week Online, 22 Dec, 2003)	3Com	But in Dec. 2005 3Com announced it would assume majority ownership of the JV (BusinessWeek Online, February 2, 2006)
Broadband network technologies, JV (Business Week Online, 2 Feb, 2006)	Nortel	But the JV was dissolved in June 2006
TDSCDMA, formed a JV called TD Tech Ltd (Internet News, 29 Aug, 2003)	Siemens	
WCDMA platform (3GNewsroom, 16 Sept, 2003)	Infineon	Huawei and Infineon opened a joint R&D lab in 2002
Operations support systems (OSS), research partnership (Light Reading, 2 March, 2006)	HP	Jointly establish an OSS laboratory in Shenzhen
<b>Chinese Vendors – ZTE</b>		
Granted a license to develop, manufacture and sell cdmaOne and CDMA2000 1X equipment, royalty-bearing licensing agreement (Qualcomm, 2 July, 2001)	Qualcomm	
Wireless broadband chip,	Intel	

'Rosedale', based on the IEEE 802.16 specification (WiMaxxed, 13 Jan, 2005)		
TD-SCDMA, OEM (NE Asia Online, 23 May, 2005)	Ericsson	Ericsson will integrate ZTE's TD-SCDMA Node B into its radio access network
3G equipment and NGN, partnership (Business Week Online, 23 Nov, 2005)	Cisco	
<b>Chinese Vendors – Datang</b>		
TD-SCDMA, partnership (eeTimes Online, 16 Jan, 2003)	Siemens	Parent company is the China Academy of Telecommunications Technology of the MII
TD-SCDMA chipset and protocol stack, form a JV in Feb, 2002 called Commit, (eeTimes Online, 16 Jan, 2003)	Nokia, T1, LG, Putian (now Potevio), DBTel	
Core TD-SCDMA chipsets and reference designs for mobile terminals, formed a JV called T3G in Dec, 2002 (eeTimes Online, 16 Jan, 2003)	Philips and Samsung	
Key applications such as the micro-browser, messaging client and Java virtual machine, partnership (Peoples Daily, 6 July, 2004)	Access, Internet access technologies provider in Japan	
ARM Technologies for wireless applications, licensing agreement (ARM, 25 Jan, 2005)	ARM	
eZiText™ technology, five-year licensing agreement (Zi Corporation, 16 Oct, 2001)	Zi Corporation	
ZSP540 digital signal processor (DSP) for 3G wireless applications, licensing agreement (3G Newsroom, 30 Nov, 2004)	LSI Logic Corporation	
TD-SCDMA, partnership agreement (TelecomAsia, 12 Nov, 2004)	Alcatel	
<b>Foreign Companies</b>		
Alcatel - CDMA radio access solutions, OEM (ZTE, Partnership Breakthroughs In 2005)	ZTE	ZTE's CDMA radio access portfolio integrated into Alcatel's end-to-end CDMA solutions.

France Télécom - Linux operating system for 3G handsets, research partnership (8 Dec, 2005)	ZTE	
Nokia - WCDMA and TD-SCDMA, JV ( <i>China Daily</i> , October 14, 2005)	Putian (now Potevio)	
STMicroelectronics - TD-SCDMA System-on-Chip (SoC) products, licensing agreement (eeTimes Online, 16 Jan, 2003)	Datang	