



FEATURE ARTICLE

THE YIN AND YANG OF CHINA'S TRADE STRATEGY: DEPLOYING AN AGGRESSIVE STANDARDS STRATEGY UNDER THE WTO

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Abstract: *Since the decision of Deng Xiaoping to subject his country's future to the effect of economic market forces, the Peoples Republic of China has made deliberate – and successful - efforts to become a force to be reckoned with on the global commercial stage. As part of that strategy, China embarked on an ultimately successful 15-year quest to be admitted to the World Trade Organization (WTO), thereby becoming bound by the Agreement on Technical Barriers to Trade (TBT). At the same time, China devised a sophisticated strategy to incorporate standard setting and compliance requirements into its economic strategy, and has invested significant resources in creating an infrastructure to support these activities. This strategy provides China with an alternative tool to replace the high tariffs barred by the WTO in order to convey advantaged to its domestic industry in key areas of technology, especially where foreign standards requiring the payment of significant patent royalties would otherwise place it at a competitive disadvantage. However, the deployment of this strategy at times has tested the boundaries established by the TBT, leading to vigorous objections from Multinational Corporations and the governments of the nations where they are headquartered. This article reviews China's efforts to become an equal partner in the global trade community, and the development in that context of its standards strategy, the infrastructure that supports it, and the status of those "home grown" standards that China is currently promoting in competition with correlative standards developed elsewhere in the world.*

Introduction: After 150 years of commercial (and sometimes political) domination by foreign interests, China's government passed into communist control in 1949. For the next three decades, the nation largely withdrew into itself. After deciding to reengage with other nations on a broad scale, China has now become the most rapidly growing economy in the world. With the combination of a vast pool of cheap labor, newly granted individual freedoms to launch commercial ventures, and continuing strong central government control, China has trade advantages that more developed nations are understandably viewing with concern.

One capability that central control and the adoption of five year plans has made available to China is the ability to rapidly conceive and execute a deliberate, coordinated and high priority standards strategy to provide advantages to domestic manufacturers. While the United States government continues to exhibit a laissez-faire attitude with regards to the creation and adoption of standards by its own industries, China has opted to follow the lead of the European Union in integrating standards (both generally and in specific cases) into its domestic and international trade strategy.

The decision to focus on standards evolved contemporaneously with China's final negotiations directed at earning admission to the World Trade Organization (WTO). With its eventual accession to the WTO, China became subject to that organization's Agreement on Technical Barriers to Trade (TBT) and increasing international pressure to conform to international treaties relating to the protection of patent, copyright and other intellectual property rights (IPR) conventions.

With these new restrictions in place, China has increasingly found itself balanced between huge trade opportunities as well as difficult economic restrictions based upon the dominance of other countries in the standard setting arena, as well as the enormous patent portfolios amassed by multinational corporations (MNCs) in core product opportunity areas such as consumer electronics, telecommunications and computer equipment.

As a result of these restrictions, China has aggressively moved to create its own standards in areas such as semiconductors and wireless telecommunications, where its needs are greatest and its preexisting patent positions are weakest. In doing so, it has carefully chosen which treaties it will decline to sign (such as those relating to government software procurement), and has pushed the envelope of compliance with others. These efforts have already resulted in more than one intervention by other nations at the highest levels of diplomacy, when MNCs have felt themselves to be at the greatest disadvantage.

Whether China will become a skillful player within global standards bodies and opt to compete solely at that level, or will primarily pursue internal standard setting initiatives that take advantage of its massive purchasing power, will be determined over the next several years. This decision will play out across the backdrop of the WTO and the dispute resolution mechanisms provided under its charter, as well as through more direct diplomatic channels and within the processes of both accredited standards development organizations (SDOs) and consortia.

This article will briefly review the relevant historical events leading up to China's current status as a member of the WTO and the architect of a robust domestic standard setting infrastructure, as well as the elements of that infrastructure and the standards that China has recently created to challenge those developed elsewhere.

A new Long March: The commercial, educational and social disruption caused by Mao Zedong's Cultural Revolution was followed by a long rebuilding of China's academic and productive capacity. With the increasing integration of China into global commerce, China faced the decision of whether to maintain high domestic tariffs to protect domestic interests, or to seek acceptance into the trade treaty networks that facilitate free trade and provide a mechanism for resolving international disputes.

In 1986, China opted for the latter course, and began the long process of seeking admission to the General Agreement on Trade and Tariffs (GATT). A protracted process of negotiations with treaty nations (sometimes overtaken and interrupted by political events) culminated eventually with China's accession in December of 2001 to the World Trade Organization (WTO), which had replaced GATT on January 1, 1995.¹

With its newfound status as a WTO member, China became subject to a variety of obligations, including those set forth in the TBT, which prohibits the use of standards and compliance testing regulations to erect technical barriers to trade. These rules prohibit (for example) the creation of standards that unfairly benefit domestic manufacturers and the imposition of requirements that foreign goods be subjected to burdensome and unnecessary compliance testing or tariffs.

Having achieved its goal of WTO accession after a 15-year quest, China embarked upon a path of both complying with, as well as testing the limits of its new WTO obligations and constraints – particularly in the area of standards. In doing so, it is hardly acting in a way different than other countries, such as the United States, which was subject to a ruling on November 10, 2003 in the WTO that steel tariffs imposed by the United States to protect domestic steel mills violated WTO regulations.²

But China is operating under much closer scrutiny than other nations, as it must comply with a myriad of commitments that it made with a variety of nations as preconditions to their agreeing to its accession to

¹ For an analysis of China's motivations for seeking accession to the WTO, see: Karen Halverson, "China's WTP Accession: Economic, Legal and Political Implications," (January 2004).
<http://www.bc.edu/schools/law/lawreviews/meta-elements/journals/bcicl/27_2/06_TXT.htm>

² For a critical review of United States conduct under the WTO, see: Stuart Anderson, "Unclean Hands: America's Protectionist Policies," *Cato Institute* <<http://www.freetrade.org/pubs/freetrade/chap6.html>>

the WTO. While in the main China's efforts to remake its economy into one acceptable to its new WTO partners has been impressive, as recently as this year, the U.S. Trade Representative put China on notice that "[this] Administration will continue to be relentless in its efforts to ensure China's full compliance with its WTO commitments...."³

Creating a Standards Infrastructure: As part of its efforts to both comply with WTO obligations as well as to optimize its competitiveness, China embarked upon a deliberate and systemic effort to create an educational, industrial and governmental infrastructure to support standards creation, implementation and compliance testing in support of domestic industry. In anticipation of its accession to the WTO, China created a new agency in April of 2001 through the merger of the existing State Administration for Entry-Exit Inspection and Quarantine and the State Quality and Technical Supervision Bureau. The new agency was named the Administration for Quality Supervision, Inspection and Quarantine (AQSIQ).

The AQSIQ, in turn, created the Standards Administration of China (SAC) and the China National Regulatory Commission for Certification and Accreditation (CNCA), both of which operate under its supervision. The AQSIQ also supervises the WTO TBT Inquiry Center, which operates as a liaison between China and the WTO.⁴

China also passed a variety of regulations intended to conform to the WTO and meet its commitments made to specific WTO members. These commitments include a promise to subject both domestic and foreign goods to the same compliance testing requirements. Consequently, China unified its compliance testing marks, creating a new "CCC" certification mark to supersede the former "CCIB" mark for imported products and "Great Wall" for domestic and imported products.

But China also embarked upon a far more aggressive infrastructural program than was required merely to comply with the requirements of the WTO and the TBT. Individual ministries, such as the Ministry of Information Industry (MII), were instructed to embrace a complex standards strategy as part of their core activities. The MII and numerous other ministries in turn deployed their personnel and other resources in support of the standards directives handed down from above.

The goals of China's post-WTO accession edicts are many and varied, including achieving economic self-sufficiency for government research and development labs. But they are also intended to create a level intellectual property rights (IPR) upon which China can compete more equally with other countries. This objective was articulated by Zhang Qi, Director General of the Department of Electronics and IT (a part of MII) as follows: "Owning independent IPR and winning the initiatives in setting industrial standards should be top priorities for domestic manufacturers."⁵ The motivation for such statements arises only partly from national pride. The greater goal being pursued is avoiding the payment of foreign patent royalties.

By the beginning of 2003, China had created 260 individual technical committees, each of which report to the SAC and can be directed to undertake specific standards projects by the government. 422 subcommittees were also in existence as of the same date. In all, some 27,800 technical specialists had been deployed by early 2003 to the creation of standards.

Finally, a number of industry associations have emerged (some at the instance of government agencies) at the local, regional and national level. These associations also play a role in the promotion of products based on homegrown Chinese standards.⁶

³ United States Trade Representative, "2004 Report to Congress on China's WTO Compliance", p. 8 <http://www.ustr.gov/assets/Document_Library/Reports_Publications/2004/asset_upload_file281_6986.pdf>

⁴ Ann Weeks and Dennis Chen, "Navigating China's Standards Regime," *China Business Review* (May-June 2003) (no pagination) <http://www.bc.edu/schools/law/lawreviews/meta-elements/journals/bciclr/27_2/06_TXT.htm>. For a ready reference to these agencies and their operations, see "Administration" under "Chinese Standard Setting at a Glance" at the end of this article.

⁵ *China Daily*, "Independent IPRs Vital to Tech Industry," (February 11, 2003), no pagination. <http://ce.cei.gov.cn/enew/new_h1/nl00hb56.htm>

⁶ Weeks and Chen, "Navigating China's Standards Regime."

In a related effort, China has dramatically upgraded its patent infrastructure, with the result that the number of patents applied for by Chinese inventors has grown dramatically in the new millennium, with a total of 308,487 patent applications being received by the State Intellectual Property Office in 2003 (an increase of 22.1% from the prior year).⁷ More than *one million* Chinese patents were filed by domestic inventors in 2004.⁸ Over time, this increasing patent portfolio will provide defensive as well as offensive tools, as Chinese manufacturers compete with MNCs.⁹

In, short, within a remarkably short period of time, China has constructed a formidable machine that it can deploy at will to pursue its strategic standards agenda.¹⁰

Opportunities and burdens: As China's manufacturing capacity has rapidly increased and its enormous and low-cost labor supply has attracted customers such as Wal-Mart, the impact of standards-related issues for domestic manufacturers have multiplied, particularly in the technology area. Chief among them is the wealth of patents owned by non-Chinese companies that must be licensed to build a wide variety of products. As a result of the price advantage enjoyed by the owners of these patents, China is often reduced to the level of providing cheap labor in manufacturing facilities controlled by foreign nationals (often Taiwanese), rather than having the ability to build equivalent, higher margin products under its own brands.

Under how great a disadvantage does China suffer with respect to IPR? As of August of 2004, a global accounting firm estimated that a Chinese manufacturer was required to pay US \$15 – 22 in patent royalties in order to build a DVD player with a retail value as low as \$60.¹¹ 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.¹²

The result, not surprisingly, has been the development of a policy by China directed at enabling the building of products based upon standards that either do not infringe upon foreign patents, or which would in fact require foreign vendors to pay royalties to Chinese patent holders.

Such an effort would have been less constrained in pre-WTO times and in situations that did not involve technology products and services that rely upon global interoperability. But China has found that with its accession to the WTO generally, and in the area of technology in particular, the practical, treaty and technical difficulties presented by such a strategy are much greater.

One pre-WTO accession attempt to use a technology standard as a barrier to trade proved to be too heavy handed to succeed. That effort, in 1999, saw the creation of a standard by the State Encryption Management Commission (SEMC) requiring registration of all products with the State that included any encryption component, however incidental. The practical (and intended) impact was to provide incentives to purchase more Chinese software, mobile phones, and other types of products.

⁷ *State Intellectual Property Rights Office*, "Report on the Protection of Intellectual Property Rights in China 2003 (Abstract)," (April 13, 2004), no pagination. <
http://www.sipo.gov.cn/sipo_English/gfxx/zyhd/t20040414_33974.htm>

⁸ Carl Cargill, Director of Standards, Sun Microsystems, *private communication based on MII information* (April 29, 2005).

⁹ At the same time, China's success at protecting foreign copyright and patent rights remains abysmal, with "counterfeiting and piracy rates...exceeding 90 percent for virtually every form of intellectual property." United States Trade Representative, "2004 Report to Congress on China's WTO Compliance", p. 5.

¹⁰ For a more lighthearted look at standards nationalism in Pacific Rim countries, see: Andrew Updegrave, "Soy Sauce, Kimchi and the Golden Rule," *The Standards Blog* (October 18, 2004) <
<http://www.consortiuminfo.org/blog/blog.php?ID=21>>

¹¹ Deloitte, "Technology Firms Risk Losing Advantage as China's Influence on Global Standards Reaches Critical Levels," (August 4, 2004). <
http://www.deloitte.com/dtt/press_release/0_2309.cid%253D56070%2526pre%253DY%2526lid%253D1%2526new%253DU_00.html> Not surprisingly, China has created its own video disk standard, called EVD, which was authorized for use in February of this year.

¹² Sherman So, "Low-cost Chip Is Made for China," *South China Morning Post*, (February 17, 2004). <
www.chinastudygroup.org>.

The reaction from foreign vendors (and their governments) was predictable, vigorous, and ultimately successful. The scope of the SEMC standard was eventually narrowed to “only hardware and software for which encryption is a core function.”¹³

More recently, China once again used encryption concerns in an effort to advantage its domestic manufacturers. This time, the effort involved a wireless standard for laptop computer chips. In this case, the government contended (with some justification) that the then-current generation of Wi-Fi standards created by the IEEE did not provide adequate security protection. In response to this perceived deficit, the government announced that it would require that all products sold in China must comply with its own WLAN standard, which included what it regarded as superior security protection provided by the WAPI (Wired Authentication and Privacy Infrastructure) standard included in WLAN. Not coincidentally, addressing security concerns represents an exception under the TBT justifying the creation of a domestic standard rather than employing an available, globally acceptable standard.¹⁴

In employing a domestic standard rather than adopting Wi-Fi, Chinese manufacturers hoped to avoid the necessity of paying royalties to foreign patent holders. Moreover, foreign manufacturers would be required to make arrangements with the small number of Chinese manufacturers that had been granted patent licenses by the government to implement the standard in order to manufacture products in China that would comply with the WLAN standard.

Once again, the international hue and cry was great, led in particular by Intel and several other chip vendors, which announced that they would not sell wireless enabled chips into China at all. Eventually, through the intervention of Colin Powell and other senior United States trade officials, China announced that it would “indefinitely postpone” requiring compliance with the WLAN standard.¹⁵

In part, the crisis was averted by both sides agreeing that China would pursue its concerns regarding the IEEE standard through the international standards process, and mutual statements were made on both sides announcing China’s anticipated cooperation. Though the story largely dropped out of the public press following these public statements, China’s efforts to address its original goals continued.

In 2005, relations have once again soured over this issue, with the Chinese delegation withdrawing from the ISO/IEC JTC/SC06/WG1 working group that is now considering wireless standards, after that group rejected a Chinese proposal to adopt the WAPI standard. In a written statement, the Chinese delegation alleged unspecified “unfair treatment” as the reason for its withdrawal. At a press briefing, a Chinese spokesperson alleged that “international monopoly forces” were blocking WAPI in order to promote the Wi-Fi standard for their own benefit.¹⁶

The perceived slight to the WAPI standard continues to rankle in China. For example, Shen Changxiang, a member of the State Informatization Advisory Committee and the Chinese Academy of Engineering, was quoted on April 8, 2005 as follows: “In order to promote its own standard, the US has manipulated

¹³ *The China Business Review*, “Raising the Standard: China’s Rush to Develop Technology Standards (Part I),” (May-June 2003).

¹⁴ According to report prepared by the Patent Group of the American National Standards Institute, development of the WAPI standard was part of a systemic effort to revise international standards to avoid infringement of foreign patents, and require licensing of Chinese patents. See; *Patent Group, American National Standards Institute (ANSI)*, “Intellectual Property Rights Policies in Standards development Organizations and the Impact on Trade Issues with the People’s Republic of China,” *ANSI*, (June 10, 2004), p. 5. <<http://public.ansi.org/ansionline/Documents/News%20and%20Publications/White%20Papers/China%20IPR%20PaperFinal.pdf>>

¹⁵ For a detailed review of the Wi-Fi/WAPI face-off, see: Andrew Updegrave, “Breaking Down Trade Barriers: Avoiding the China Syndrome,” *Consortium Standards Bulletin*, Vol III, No. 5 (May 2004) <<http://www.consortiuminfo.org/bulletins/may04.php#trends>> and United States Trade Representative, “2004 Report to Congress on China’s WTO Compliance,” pp. 42-43.

¹⁶ Liu Yuan, “ISO Meeting Fails to Back WAPI Standard.” *China Daily* (February 25, 2005). <http://www.chinadaily.com.cn/english/doc/2005-02/25/content_419204.htm>

the International Standardization Organization [*sic*] (ISO) to block a Chinese standard through application procedures."¹⁷

Current standards efforts: Standards-related issues are becoming, if anything, more urgent for China. Because it has largely leapfrogged the fixed-line based phase of telecommunications development, China has become the largest user (as well as the largest manufacturer, due to low labor costs) of cell phones in the world, with over 300 million currently in use. And, while some 35% of the world's cell phones are manufactured in China, the vast majority of these products bear names such as Nokia.¹⁸ As with DVD players, the royalties payable to implement existing telecommunications standards can be prohibitive for manufacturers that do not own patents of their own that can be cross-licensed to offset royalties required by other patent owners.

Chinese manufacturers are anxious to avoid a repeat of this situation as new 3G (and eventually 4G) systems are deployed. The result is the creation of the TD-SCDMA (Time Division-Synchronous Code Division Multiple Access) specification by China, which is in competition with a European-backed 3G standard, WCDMA (wideband CDMA) and a U.S. contender: CDMA 2000. Chinese manufacturers are particularly anxious that the homegrown standard be used domestically.

The high stakes surrounding Chinese standards decisions are well illustrated by the latest developments in the 3G standards competition. With billions of dollars at stake and the date for final licensing decisions by the Chinese government rapidly approaching, vendor end game moves have become increasingly frequent and dramatic: as of February 8, 2005, *Asia Times* reported that China Telecom and Netcom would bundle the technically compatible TD-SCMA and WCDMA, if technical trials of TD-SCMA did not go well.¹⁹ More recently, the proponents of two competing European approaches reached an agreement to make their standards compatible to "help speed up China's decision."²⁰ After the European companies reached détente, their U.S. vendor counterparts decided it was time to make common cause with China, and consider supporting TD-CDMA.²¹

While a detailed discussion of China's commitment to open source software is beyond the scope of this article, the Chinese government (which has always resented Microsoft's dominance in software, even while it continues to turn a blind eye to rampant piracy of the same products) is also embracing open source software. Already, local vendors have launched such products, including the Red Flag Linux distribution.²² China's government has also sought to give advantage to the development of its domestic software industry by throwing its own vast procurement weight behind domestic open source and traditional software products. While this behavior has elicited protests by MCNs, it does not violate the letter of China's WTO obligations, as China declined to become a party to the WTO Government Procurement Agreement.²³

¹⁷ *China.org*, "Call to Back WAPI Standard," (April 8, 2005).

<http://www.china.org.cn/english/2005/Apr/125979.htm> Interestingly, while MCNs certainly can marshal forces in the standards bodies of many nations (and regions), a frequent complaint in the U.S. is that it has negligible influence in ISO, while "block voting" (e.g., by the European Union) conveys far greater power to nations that agree upon a common standards strategy.

¹⁸ Eric Nee, "The China Syndrome," *CIO Insight* (March 1, 2004), no pagination. <
<http://www.cioinsight.com/article2/0,1397,1551757,00.asp>>

¹⁹ *China Times*, "China Weighs 3G Phone Options" (February 8, 2005) <
<http://www.atimes.com/atimes/China/GB08Ad05.html>>

²⁰ *Bloomberg.COM*, "Ericsson's Svanberg Expects Four 3G Licenses in China," (March 8, 2005).
<http://www.bloomberg.com/apps/news?pid=10000085&sid=aKHs6nQ7vDfc&refer=europe> >.

²¹ *Peoples Daily*, "China Ushers in Era of 3G Cooperation" (April 9, 2005). <
http://english.people.com.cn/200504/09/eng20050409_180265.html>

²² For a detailed review of China's software strategy in general, and its anti-Windows/pro-Linux strategy in particular, see Richard P. Suttmeier and Yao Xiangkui, "China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism," *The National Bureau of Asian Research, NBR Special Report No.7* (May 2004), pp.31-42.
<<http://www.nbr.org/publications/specialreport/pdf/SR7.pdf>>

²³ *Ibid*, p. 5

The future: China has made admirable and impressive commercial progress in many respects, including the creation in record time of one of the most comprehensive standards infrastructures in the world. With the benefits of continuing central management, this intricate and vast network of technicians and supporting staff can be deployed to work on thousands of standards at a time.

But while creating such a structure is necessary to achieving China's commercial goals, it is not sufficient in and of itself.

One limitation that China has already experienced is its own dependence on technology. During the Wi-Fi/WAPI controversy, the Chinese government was faced with the fact that it was itself highly dependent on Intel-powered laptops; an actual refusal by Intel to sell state of the art chips to wirelessly enable this equipment would have been at minimum inconvenient. Similarly, while Chinese telecommunications vendors are clamoring for China to require compliance with the TD-CDMA 3G standard, the nation can scarcely afford to build a communications network based on that standard unless it proves to enable robust performance in field tests.

Similarly, while compliance with the WTO TBT can be stretched by any nation to a degree, there are limits to how far China can go without overplaying its hand. In consequence, it is finding it necessary to learn how to participate more fully in global standards processes within organizations such as ISO and the IEC. To date, it has (perhaps not surprisingly) found the formal hierarchies of nationally accredited organizations operating under the global umbrella of the ISO, IEC, ITU and other *de jure* organizations to be more to its liking than the more dynamic consortia that are often dominated by MCNs. Still, as demonstrated by its withdrawal from the ISO working group noted above, successful participation in even such formal international technical groups is an art that China is still acquiring.

Summary: China has made remarkable progress in designing and implementing an extensive domestic standards infrastructure. With its continuing strong central control of many aspects of its national economy, it is well situated to deploy that infrastructure to its advantage.

Whether it will be successful in doing so, however, remains to be seen. Significant challenges to achieving its goals include:

- Designing strategies that are successful in creating standards that advantage domestic manufacturers within the tolerances of the WTO TBT and the political offensive power of MNCs and national governments. China's early efforts in the areas of encryption have thus far been unsuccessful in this regard.
- Balancing the need to maintain its aggressive growth in an increasingly networked world with its desire to create and mandate standards intended to benefit domestic industry. At times, these goals will be in conflict.
- Navigating the tumultuous and complex waters of international standard setting. While executing standards strategies internally may be challenging, persuading global standards bodies to adopt the same standards to grow a larger export market for sophisticated technology products bearing the brands of Chinese manufacturers will be even more difficult.

It is likely that the future standards strategy of China will solidify in the next few years. Whether China will opt to truly integrate with the rest of the world of commerce and go toe to toe in the myriad standards bodies that already exist, or whether it will once more withdraw into its vast borders and adopt an isolationist standards policy leading to ongoing complaints within the WTO remains to be seen. That decision will be awaited with great interest by MNCs and governments throughout the world.

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Appendices:

I. Chinese Standard Setting at a Glance

A. Selected Comparative Statistics:

<i>Statistic</i>	<i>China</i>	<i>United States</i>
Population (2004)	1,300,000,000	293,000,000
Economic Rank (2004)	6 th - \$1.2 trillion	1 st - \$10.2 trillion
Growth Rate (1990s)	10%	3.4%
PC Rank/Sales (2003)	2 nd - 13.3 million	1 st - 52.7 million

B. A Chinese Trade and Standards Timeline:

<i>1949:</i>	First standards body organized
<i>1984:</i>	First commodity inspection procedures instituted
<i>July 1985:</i>	Applies to join the General Agreement on Tariffs and Trade (GATT)
<i>June 1989:</i>	Tiananmen Square crack-down; GATT negotiations cease
<i>December 1989:</i>	GATT negotiations resume
<i>January 1995:</i>	WTO formed; China fails to become founding member
<i>April 2001:</i>	Administration for Quality Supervision, Inspection and Quarantine (AQSIQ) formed through merger of two predecessor agencies
<i>December 2001:</i>	Accession to the World Trade Organization
<i>May 2002:</i>	“CCC” certification mark adopted, superseding former “CCIB” mark for imported products and “Great Wall” for domestic and imported products
<i>December 2003:</i>	WAPI encryption standard becomes effective (compliance to be mandatory on June 1, 2004)
<i>March 2004:</i>	U.S. Secretary of Commerce Donald Evans, U.S. Secretary of State Colin Powell and U.S. Trade Representative Robert Zoellick send letter to Chinese Vice Premiers Wu Yi and Zeng Peiyan protesting WAPI standard requirement
<i>April 2004:</i>	China “indefinitely postpones” mandatory compliance with WAPI
<i>February 2005:</i>	Chinese delegation withdraws from ISO working group, protesting the rejection of a Chinese proposal to adopt WAPI

C. Administration:

Administration for Quality Supervision, Inspection and Quarantine (AQSIQ): Oversees standards and certification activities for both foreign and domestic products; supervises SAC and CNCA and sets their budgets; also supervises WTO TBT Inquiry Center

China National Regulatory Commission (CNRC): Administers the China Compulsory Certification (CCC) program, which tests product safety and technical conformity to standards

Standards Administration of China (SAC): Sets and oversees national standards; sets annual standards agenda; represents China in the International Organizations for Standardization (ISO) and the International Electro-technical Commission (IEC)

State Council: Oversees policy related activities of CNRC and SAC

WTO TBT Inquiry Center: Acts as the formal liaison with the WTO, responding to WTO and WTO member inquiries, disseminating WTO information domestically, and informing the WTO of new PRC standards and procedures. Also trains AQSIQ employees.

D. Chinese Technology Standards Competing with International Standards:

<i>Application</i>	<i>Chinese Standard</i>	<i>Competing Standard(s)</i>
3G Wireless Phones	TD-SCMA	CDMA2000; WCDMA
Audio and Video compression	AVS	MPEG-4; H.264
Video Disc Players	EVD	HVD; HDV
Wireless (with Encryption)	WLAN/WAPI	Wi-Fi

II. Annotated Bibliography

The following resources were particularly useful in supplying the data included in this article:

"China's Accession to the World Trade Organization (WTO)." *International Economics*. January 2000. <<http://intl.econ.cuhk.edu.hk/topic/index.php?did=17>> An exhaustive review of the history of the accession of the Peoples Republic of China to the World Trade Organization, the details of the accession process, and the specific commitments made by China to gain entry to the treaty.

"Monitoring China's WTO Compliance: U.S. Government Reports, Hearings, and Other Resources on China's WTO Compliance." *Congressional-Executive Commission on China Virtual Academy*. <<http://www.cecc.gov/pages/virtualAcad/commercial/wtochinacompl.php>> This site aggregates key government information from the U.S. Trade Representative, including links to the full text of the Representative's "Annual Reports to Congress on China's WTO Compliance" and "National Trade Estimate Reports and Special 301 Reports on Intellectual Property Protection;" the text of Congressional hearings on China; and white papers and other relevant material from a variety of non-governmental sources. Of particular relevance are the Annual Reports to Congress.

Halverson, Karen. "China's WTO Accession: Economic, Legal, and Political Implications." *January 2004*. This Article discusses the challenges that confronted China during WTO accession, and suggests that WTO accession has acted as a lever for economic and legal reform by locking in reform and making it irrevocable.

Suttmeier, Richard P. and Yao, Xiangkui. "China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism." *National Bureau of Asian Research*. May 2004. <<http://www.nbr.org/publications/specialreport/pdf/SR7.pdf>> The authors explore China's development of a new technology policy based on the promotion of its own technical standards "best understood in terms of a 'neo-techno-nationalism' in which technological development in support of national economic and security interests is pursued through leveraging the opportunities presented by globalization for national advantage."

Updegrove, Andrew. "Breaking Down Trade Barriers: Avoiding the China Syndrome." The ConsortiumInfo.org *Consortium Standards Bulletin, Vol. III, No. 5*. May 2004. Reviews the context, development and resolution of the US-China face-off over the WAPI wireless encryption standard.

Weeks, Ann and Dennis Chen. "Navigating China's Standards Regime." *China Business Review*. May 2003. This article provides a detailed and practical overview of the internal organization and operation of China's standard setting infrastructure, as well as an in-depth assessment of the efficiency and fairness of

this system in operation as of the date of its publication. Of particular interest is an enumeration of specific issues encountered by foreign vendors and the origins of these issues.

For much more material on the subject matter of this article and all other standards-related topics, see the ConsortiumInfo.org Standards MetaLibrary: <http://www.consortiuminfo.org/metalibrary/>