

Standards and the Chinese market

The Chinese government is establishing high-tech standards that differ from those accepted internationally. In effect, therefore, foreign high-tech IP rights are in danger of losing value. But it is not too late for high-tech companies to do something about it

By **Shengfeng Chen, Osama Hussain and Dennis Fernandez**

To compete within any industry, companies must look for an edge over their competitors. Companies based on high-tech intellectual property rights are looking towards China to gain that edge. The term high-tech intellectual property rights refers to the property rights of an innovation dealing with very advanced electronic devices or ideas. With the current growth of the Chinese economy, the value of high-tech intellectual property rights has the potential to skyrocket as that of their predecessors did during the late 1990s and early 2000s technology-boom. However, blindly jumping into the Chinese market has proven to be fatal for many high-tech companies in the past. Their failures were due to the Chinese government's failure to protect foreign intellectual property rights.

China's knowledge of its failures to protect foreign intellectual property rights and its desire to be a global player have moved it to take affirmative steps to protect intellectual property rights, such as updating its intellectual property laws for entry into the World Trade Organisation (WTO). The new laws have helped rights owners begin to address China's two most serious problems with taking intellectual property in the country: its inability to catch thieves and its inability or unwillingness to punish thieves.

However, a new threat to the value of foreign intellectual property rights in China is rapidly surfacing. China is adopting high-tech standards that differ from the current international standards, and the consequences for foreign companies that do not address this in the very near future could

be very serious indeed.

The Chinese economy is currently the strongest market worldwide and, with no real signs of slowing down, all companies must consider adapting their business models towards entering China. After all, it is the country that probably kept the global market afloat in 2003: while the rest of the world's economies suffered, the Chinese market alone accounted for nearly one-sixth of global growth. China is also responsible for a 21% increase in US exports since 1999. With the world's largest population and the fastest growing market, China now has the second highest number of internet users and has surpassed the United States to become the global leader for receiving foreign direct investment. With these statistics demonstrating the potential for profit, companies foreign to the country must consider how their business plans can be immediately amended to include China. They must incorporate themselves into the Chinese market to remain competitive.

Changing market for high-tech companies

But China is not making the entrance easy for foreign companies that own intellectual property rights in high-tech fields. China adopted a policy to obtain its own domestic intellectual property rights and is implementing this policy by establishing high-tech standards that differ from those of the international community. With the policy in place and a strong economy, *Fortune Magazine*, no less, has declared that China will set the standard for technology in the 21st century. Foreign intellectual property right holders in high-tech areas, therefore, could question whether their IP rights will have any real value in China at all.

The policy to seek actively to establish more domestic intellectual property rights was heavily influenced by the acts of other countries. The China Electronic Standards Institute (CESI) reported that China has been forced to develop its own intellectual property rights because of non-tariff trade barrier tactics utilised by developed foreign countries. CESI argues that even though membership within the WTO ensures the non-use of trade barriers against other members, China has fallen victim to a form of non-tariff trade barrier it referred to as a “technology barrier”. CESI defined this as “the use of laws, directives, regulations and standards to regulate trade between countries”. Developed countries, such as the United States, cannot compete economically with developing countries, such as China, in the production or development of technological devices or ideas, so according to CESI these developed countries implement technology barriers into international treaties and laws so that developed countries can suppress progress by the developing countries.

As a result of the technology barriers, China and other developing countries have been left with two options. One is innovation of new technologies to replace the patented invention while still following the established international standard. The other is to pay a hefty licence fee for using the foreign patent. The first option, however, would result in loss of opportunity to sell while the market needs the product. The second choice would lead to the loss of cost competitiveness. Either choice contradicts the economic plan for any country. With the largest market and fastest-growing technology sector in the world, China therefore developed a policy which help its economy while still maintaining its international agreements. The Chinese government decided to help its constituents obtain domestic high-tech intellectual property rights.

Helping the domestic sector

To help obtain domestic high-tech intellectual property rights, the Chinese government will

assist its technology industry when needed and by whatever means are available. For example, when Chinese nanotechnology struggled, the government created a committee under the China National Accreditation Board for Laboratories to provide aid to the sector. The vice mayor of Beijing commented: “We are now pushing the development of nanotechnology into a new phase – gaining independent intellectual property rights to the core technologies in the gradual process of industrialisation.” As a result of this new policy, domestic patent applications in 2003 outnumbered foreign applications for the first time in China since it became a member of the Patent Cooperation Treaty in 1994.

Concern for how far China would act to help obtain domestic intellectual property rights did not arise until after it started to adopt high-tech standards that were not compatible with those employed internationally. Though there is no official group or organisation to establish technology standards for the world, there are many bodies that have been organised by different sectors of the technology industry that decide standards which would best help the progress and development of their respective sectors. High-tech companies frequently align their research and development, in an effort to obtain valuable intellectual property rights, with the decisions of these groups. Developing countries set their national high-tech standards to the agreed standards of the international community, in an effort to make their markets more inviting to high-tech companies. In theory, this procedure would help the country develop faster, while also helping the company by providing it with a market for its products.

With its strong economy, however, China gambled on moving away from this idea and started to adopt high-tech standards based on inventions by Chinese companies. Unfortunately for foreign high-tech companies, the gamble is paying off, because China’s development continues to grow and its economy continues to hold strong. While foreign high-tech companies may still profit from other markets, their years of research and development are in danger of becoming valueless in the world’s most profitable market.

The enormity of new high-tech standards truly became an issue for foreign high-tech companies in the first half of 2004. In January, the Intel Corporation (Intel), the world’s number one chip producer, came into direct conflict with a Chinese established security standard for wireless chips. China allowed all chip vendors

Figure 1: China as large market in PC, TV, mobile phone and internet industries

Industry	2000	2010	CAGR
GDP	1.1 trillion dollars	2.3 trillion dollars	8%
PC sales (units)	6 million	35 million	18%
TV sales (units)	35 million	76 million	9%
Mobile users	96 million	510 million	18%
Internet users	15 million	170 million	27%

just six months to comply with the Wireless Authentication and Privacy Infrastructure (WAPI) security standard for all circuitry utilising wireless local-area network (WLAN) technology. If chips did not comply, then they would be banned from the Chinese market. Intel complained that the standard did not comply with the standard agreed upon within the Wi-Fi Alliance, an international organisation set up to help WLAN devices stay compatible with each other. Intel would have lost the entire Chinese market for its now popular Centrino chipset had the Chinese not taken the decision to suspend the standard after international pressure. Because it has the ability to stop a company as big and strong as Intel from profiting in China, other high-tech companies grew worried that China would try to do the same to them as well.

Sometimes China is put in a position to develop its own standards by acts of foreign intellectual property right holders. For example, China attempted to license the next generation audio video compression technology, which still followed the international standard. When negotiations among licensors of H.264, a high-definition (HD) DVD format, failed to provide China with a licence, China adopted its own standard, the Audio Video Coding Standard (AVS). The AVS is completely Chinese-owned compression technology and, when fully developed, will compete against the H.264 codec technology. China further utilised its new standard for technology to rival DVD. Enhanced Versatile Disc (EVD) is also partially Chinese owned and was designed to offer high-definition for audio and video. Licensing for EVD will be simplified for any licensee and, if it proves to be of superior technology, may become a new global standard.

Companies and governments worried

Foreign industry groups and organisations are extremely worried about China's new policy and have asked their respective governments to get involved. The American National Standards Institute (ANSI), an organisation set up to administer the United States' voluntary standardisation and conformity assessment system, issued a report to US Commerce Secretary Donald Evans, Secretary of State Colin Powell and US Trade Representative Robert Zoellick entitled "Intellectual Property Rights Policies in Standards Development Organizations and the Impact on Trade Issues with the People's Republic of China". The report requested that the US government intervene and dissuade China from developing its own standards. The report emphasised that international involvement in standard setting is critical to the entire technological

community. Additionally, ANSI claimed that the Chinese government favours domestic patent applications, favours Chinese companies over foreign companies and changes international standards such that foreign patents are "neutralised".

The US, however, has greater issues to worry about when it comes to China's new policy and admits it is wary of the global stance the Chinese government is gaining through its new high-tech standards. Roger Robinson, the Chairman of the US-China Economic and Security Review Commission, issued a statement at a hearing before the House Armed Services Commission that read: "[Technology] advances that allow China to challenge US competitiveness in technology development is a vital matter for US economic security." Moreover, American military analysts are keeping a keen eye on China's advances in high-tech. In its 2004 report to Congress, the Defense Department stated that the "civilian electronics industry plays a key role in military modernisation" in China.

As a consequence of pressure from the technology industry and its own concerns at the governmental level, the US has tried to keep open communications with China. The US-China Joint Commission on Commerce and Trade (JCCT) has been used as a vehicle for such communications. On 21st April 2004, the JCCT discussed and agreed to "technology neutral approach(es)" in establishing current Chinese standards. This meant that China would make it easier for companies to build around its newly adopted high-tech standards. Unfortunately for high-tech companies, this agreement does not actually fix the problem posed to them by new high-tech standards.

China is making itself even more attractive by increasing trade growth by 17% to reach one trillion US dollars in 2004, and holding conventions such as an International High-Tech Exposition in May 2004 in an effort to "strengthen international cooperation in the [technology] industry". Wu Banguo, Chairman of the Standing Committee of the Chinese National People's Congress, also visited four Eastern European countries in the second quarter of 2004 to encourage global market relations. Plus, trade between the US and China has increased by an average of 43% for the last three years and the Ministry of Science and Technology of China spent US\$1.3 billion in 2004 "to fuel the country's high-tech".

These statistics leave high-tech companies no choice but to keep pursuing entry into the Chinese market. Even Intel, after its chagrin over the Chinese adoption of the WAPI security

Figure 2: Top 10 industries involving changing industry standards in China

Software	Operating systems
	Business and office software
Technology	RFID
	DTV
Media	Video disc
Networking	Home networking
Telecommunications	Cell phones
	Wireless LANS
	Satellite positioning systems

standard, continues to be active there. Knowing that the Chinese government has favoured domestic companies in the past, Intel licensed out a portion of its manufacturing to a Chinese start-up, Nanotech Corporation. Although Intel is not committed to any foundry work within China, the deal gives Intel the ability to compete among other Chinese semiconductor companies. Intel did not shy away from the Chinese market, but it is important to note that it very carefully set up its business plan for China following the realisation that investments might prove futile if standards are changed.

Strategic challenges

Many companies recognise China as a huge market and a cost-effective manufacturer. But many companies have not yet realised that China is becoming a leading player in setting industry standards. Companies must be aware of the loss of value their intellectual property rights may face when operating within the Chinese market. Those that do not respond strategically will fail. By 2010, China will become the world's largest market in PC, TV, mobile phone and internet services. By 2002, China's domestic market for electronic

information products had increased to US\$77.1 billion from US\$20.2 billion in 1999. Large firms with strong support in Chinese companies and customers can promote their own industry standards. Young companies will have to cooperate with this trend in order to succeed.

Saving intellectual property rights from the changing standards in China is difficult. In any attempt, it is important to take some basic measures, including registering intellectual property rights in China and other international markets. Registration requires knowledge of key domestic and international rules and laws. Additionally, creating a joint venture with a Chinese company will also help protect intellectual property rights because China has always protected intellectual property rights of domestic companies. Finally, easy licensing of intellectual property rights is the most important protection measure to take because China has decided to invent its own solutions when licensing problems occur or when the licensing price is set too high.

As illustrated in Figure 2, there are 10 major industries in China undergoing rapid changes in industry standards setting. These areas cover a wide range of standards, from software to technology, media, networking and telecommunications.

Figure 3: China as an emerging key player in industry standards

	International standard	China standard	Next generation
Operating system	Windows, Linux, Unix, Macintosh etc.	Linux	–
Business and office software	Microsoft Office, Java Desktop, etc.	Java Desktop	–
RFID	Electronic Product Code Network (EPC); ISO standard	Underdevelopment; will use EPC and ISO standards, but with some modifications to satisfy special needs in China	Plans to participate in creating a global standard, but will use its own intellectual property to build a royalty-free standard
DTV	ATSC, HDTV, SDTV, DVBC	DVBC	Digital Multimedia Broadcasting-Terrestrial (DMBT); and Advanced Digital Television Broadcast-Terrestrial (ADTBT)
Video disc	DVD	EVD	–
Audio video coding	MPEG 4, H.264	AVS	–
Home networking	DHVG	IGRS	–
Cell phones	WCDMA – European, CDMA2000 – US	TD-SCDMA	–
Wireless LANS	SSID, MAC, WEP	WAPI (suspended)	–
Satellite positioning system	GPS – US, Galileo – European	Galileo	Beidou

Operating system, business and office software

For security concerns and commercial considerations, the Chinese government has recently committed to the Linux operating system and is likely to make it a new standard for the software industry soon. This new standard opens up opportunities for many Linux software companies to innovate specifically for the Chinese market. For example, TurboLinux partnered with Chinese company RedFlag to develop Chinese-language versions of the Linux operating system. In November 2003, Sun Microsystems offered its Java Desktop System at an affordable price to an estimated 200 million computers in China. Java Desktop is an office software kit including GUI, StarOffice and the Mozilla web browser, as well as applications for emails and instant messaging. California-based company MontaVista has joined forces with Chinese company Pocket IX to distribute and support MontaVista's HardHat Linux in China.

In response to this changing standard, Microsoft plans for further investment in China with "tens of millions" dollars in developing China's fledgling software industry. In April 2004, Timothy Chen, president of Microsoft China, announced that "Microsoft continues to actively support the development of China's

software industry". Microsoft is trying to promote its own standard in China by investing in the training and education of future engineers and consumers. The company is building a US\$750 million technology centre and spending over US\$20 million on software schools.

Video discs

For commercial considerations, Chinese companies are trying to establish Enhanced Versatile Disc (EVD) standards not only to replace DVD standard, but also to provide superior performance. In effect, EVD will be able to handle high-definition audio and video just as HD-DVD, the DVD upgrade, is purported to do. Some companies have become involved in the new Chinese standards to invent or obtain intellectual property rights that are compatible with new standards. This may be a better option than risking the loss of intellectual property right values that are not compatible with Chinese standards. American companies, such as LSI Logic and On2 Technologies, have taken this approach and are helping China develop EVD.

Cell phones

China has its own globally approved standard for 3G, also known as the Time-Division Synchronous Code-Division Multiple Access (TD-SCDMA). To gain an edge in China's huge telecommunications market, companies like Siemens have decided to share their technology and partner with Chinese companies to establish a 3G standard. For the next generation, 4G standard, more companies are involved in partnership with China, including NTT, KDDI, Hitachi, NEC and Fujitsu. After assessing the risks carefully, these companies have decided to share their intellectual property rights, and by doing so are in a position to gain a share in the world's largest telecommunications market.

Looking forward

As an emerging industry standard setter, China is changing, or has already done so, in many of its major industry sectors. With the country's growing market and the impact this is having on IT industries, Chinese companies and consumers are becoming increasingly powerful. This also means in future China will gain more influence in global industry standard setting. For companies that are currently part of international industry standard bodies, China's involvement in further standard development would be desirable. After considering the risks carefully, it would be a favourable option to invite

Chinese companies and standard setters to participate in future international standard development.

Seeking to benefit

China is the fastest-growing economy in the world. The Chinese market's potential for profit to high-tech companies is undeniable. However, due to China's policy of obtaining more domestic intellectual property rights, China is setting high-tech standards that differ from those of the international community. With a strong economy, China's new technology standards are affecting foreign intellectual property rights. The most profound effect of China's changing standards is the diminution of IP values. Protecting intellectual property rights in such a fickle environment is difficult; however, keeping licensing simple and reasonably priced, as well as remaining informed about the Chinese market, will improve the chances of protection. Furthermore, companies should not resist this trend. Instead, they should actively take the following measures in order to benefit most from China's market:

- Work with Chinese companies and standard setters in developing Chinese industry standards by sharing technology.
- Invent specifically for China's market and actively seek intellectual property protection in China.
- Make long-term investments in research, development, education and training to promote companies' own standards.
- Invite China to participate in the development of international industry standards. ■

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