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Hearing on Intellectual Property Rights Issues and Dangers of Counterfeited
Goods Imported Into the United States

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Introduction

Mr. Chairman, Members of the Commission, I am pleased to submit my response to the four questions asked by the Commission and to testify before you at today's hearing. I really appreciate the opportunity to comment. I am honored to appear before you with my fellow panelists.

In 1991 the Soviet Union-led Comecon disbanded, demonstrating to the world that strong security starts with a strong economy. The United States emerged as the global leader through its resiliency to economic setbacks such as energy crises, monetary failures, banking failures, overseas credit defaults, and wars. Even Great Britain was driven to the IMF. The lesson is that any examination of our security policy with regard to China must first look to preserving and extending our own economic health.

In today's global economy, the countries that set the technological agenda of the world enjoy outsized benefits of economic prosperity and power. The means to do this is to create the technology standards the world uses to create valuable products, which in turn creates economic leverage that directs global manufacturing and resource consumption. In the past century the United States has been the driving force for most of these standards and has enjoyed the resulting economic strength and security. Losing this leadership position not only hurts our global competitiveness, it creates a risk for our security.

In response to the questions presented I will make several points in my testimony:

1. Standards have been the key driver of our economic prosperity and competitiveness.

¹ All URLs are as viewed on June 1, 2006.

2. Patents and the enforcement of global patent rights form a cornerstone of global standards. Without such protections standards lose their economic value to us.
3. China has a strategic plan to become a leader in technology standards. This creates an incentive to respect patents. They have no such incentive for copyrights.
4. We should encourage China to adopt our culture of intellectual property. When a country adopts an effective system of economically valuable intellectual property they become more market driven, capitalist, transparent and democratic.
5. We must preserve our ability to lead in technology. Strong domestic patent policies are an essential part of this.

Background

First and foremost I am an American inventor and patent owner. In my current position I both invent and invest in inventors and inventions. Attached as an appendix to my testimony is a list of my granted patents and published patent applications related to consumer devices, software, healthcare and manufacturing. I have been involved in every aspect of the invention food chain: as a published scientist, an inventor with patents, an entrepreneur starting several small businesses, a part of a National Academy of Sciences study group, and as an executive at Microsoft. I have participated in several technology standards including Internet XML data, CORBA, and the Microsoft COM technology used in over a billion pieces of software. In 2000 Nathan Myhrvold and I founded Intellectual Ventures, a company focused purely on inventions.

While my perspective is as a technologist and a business executive I am also very much aware of the critical role agriculture and manufacturing play in our culture and economy. I was born in Rochester, New York and raised near Buffalo, and spent several summers working on the small farms of friends in Missouri near St. Louis and even in a beef slaughterhouse in 1984.

Standards Guarantee Economic Prosperity and Competitiveness

Much of the furor over Chinese IP policy is over copyrighted material. While this is an important economic and IP problem, I will not focus on it. Instead, I will discuss technology and patents, which I argue more fundamentally drive our economic future. In fact, without patents, virtually all copyrighted material would be very difficult to protect and digital content would not exist.

Technology standards unlock the creative talents of the world by allowing innovators to build on top of other innovations (standards) independently. The presence of standard platforms reduces the cost and risk of bringing new ideas and products to market and thereby increases diversity and innovation. Those who create standards and are able to monetize them through royalties or

products are able to enjoy substantial economic benefits from being able to leverage the popularity of the world's follow-on innovations. Technology standards create interoperability, greater economy of scale, and open competitive markets where economic benefits flow to the standards holders.

The United States has produced many of the world's standards for over a century. The list is amazing. From screw threads to railroad gauges, from wired telephone systems to alternating current electricity, from automobile design to aircraft, from movie cameras to television systems, most of the fundamental standards of the world's technology products came from the United States. This significant creative activity of scores of inventors drove stunning domestic economic performance and transformed us from a rural economy into a global power by our catalyzing growth worldwide based on our standards.

As products become more complex and therefore risky, standards become even more important. Today the Society for Automotive Engineers (SAE) International maintains over 8300 technical standards² pertaining to automobiles. The American National Standards Institute (ANSI) manages over 10,000³.

In the interconnected world standards play a critical role in shaping economic power. The world of digital technology has networked us closer than ever, and the speed at which the items of digital commerce can be created and deployed has made standards even more important and more economically interesting to our competitiveness. Internet standards allow telecommunications firms to leverage both independent content providers and independent network hardware vendors worldwide to drive growth in their business. Operating system standards enable PC vendors to rely on thousands of independent application developers to drive adoption of their hardware. In both cases, customers enjoy an explosion of new products and services. As diagnostics, medical devices, and healthcare become more digitized and networked, standards will also play an important role in future products that improve and save lives.

Inventors in the United States produced most of today's global digital standards: CDMA for cellular phones, TCP/IP for networking, operating systems for computers, database technology, microcomputer architectures, USB and Firewire for connecting devices, public key cryptography, inkjet printing, digital compression, and digital rights management illustrate but a tip of American ingenuity. These standards drive incredible value embodied in tens of thousands of companies.

This value comes to the United States despite the fact that most of the products are manufactured in countries like Malaysia, China, Mexico, Korea and Taiwan. The lion's share of profits still comes to the organizations that established the standards while the manufacturers see low margins and risk continual commoditization. Just perform the following thought experiment: would you prefer to have Acer or Microsoft in the United States? SMC or AMD? LG or Qualcomm?

² See <http://www.sae.org/standardsdev/>

³ See http://www.ansi.org/standards_activities/overview/overview.aspx

IBM made a choice to exit the PC business by selling it to Lenovo, but it's important to point out that IBM *had the choice to make!*

Technology standards also generate value in companies profiting from copyright. The many movie, personal computer, Internet, wireless, and digital rights standards pioneered in the United States enable America to export tremendous amounts of content and culture. The shorter time period of patent protections sometimes makes it easy to forget that our movie, television, book and software industries were built on technology developed and patented in the United States, such as the phonograph⁴, paperback book binding machine⁵, movie camera⁶ and projector⁷, television⁸ and microchips.

Standards are a form of economic and business leverage based on innovation. Simply put, our industries profit from the manufacturers of the world, whose output we direct through our innovative standards. This is a successful and smart business strategy that is central to maintaining the global competitiveness of the United States.

Patents Create Economic Value From Standards

It is important to remember that standards are a function of innovation. And, perhaps unique to America, standards are usually created by small companies, scientists, or individuals. Novel standards are rarely created by large companies, although they may be maintained and defended by large companies. Standards enable the little guy to leverage their intellectual property in the marketplace.

An example of this is secure sockets layer ("SSL"), an encryption technology invented in California by an Egyptian-American, Dr. Taher Elgamal. Dr. Elgamal was Chief Scientist at Netscape Communications Corporation in the early days of the Internet boom in Silicon Valley. Today SSL is used all around the world to secure electronic commerce. You see it every time you use an Internet browser – just look for a padlock icon in the corner of the screen. Netscape was a small company at the time. Dr. Elgamal invented SSL⁹ to resolve a key concern about the Internet: security. At the same time Microsoft, Visa, MasterCard, Enterprise Integration Technologies (EIT), and other companies were supporting others standards (e.g., PCT, SET, shttp). Dr. Elgamal worked with other technology companies, academics and customers and cooperated with the standards

⁴ Patent number 200521 filed 1877 by Thomas A. Edison of Menlo Park, NJ

⁵ Patent number 476,208 filed 1891 by Charles W. Lovell and Alfred Bredenber of Brooklyn, NY

⁶ Patent number 589,168 filed 1891 by Thomas A. Edison of Llewellyn Park, NJ

⁷ Patent numbers and 707,934 filed 1896 by Woodville Latham of New York, NY

⁸ Patent number 1,773,980 filed 1927 by Philo T. Farnsworth of Berkeley, CA

⁹ Dr. Elgamal and Kipp Hickman of Netscape are co-inventors of the two SSL patents. The Internet Engineering Task Force (IETF), a prominent standards body, chose SSL over other security protocols like Microsoft's Private Communications Technology (PCT) and Secure Electronic Transactions (SET) promoted by Visa, MasterCard, and other payment giants. TimeWarner is the owner of the SSL patents. In 1999 AOL purchased Netscape and TimeWarner is the parent company of AOL.

community to win acceptance for SSL among those key players that could implement it in the marketplace.

Increasingly, standards create economic benefit to our country through patents. Qualcomm uses patent licensing to generate royalty revenues from several countries including over \$2 billion from South Korea alone¹⁰. South Korea has deployed the most advanced wireless telecommunications infrastructure in the world; although the United States was not able to deploy as advanced an infrastructure, a United States company, Qualcomm, is still able to profit. As the handset manufacturing leadership continues to shift back and forth between countries, Qualcomm still stands to profit due to strong patent protections.

Manufacturing is a cutthroat thin margin business; if it weren't, manufacturing wouldn't go offshore. The lion's share of profits in overseas manufactured items such as chips, iPods, DVD players, cars, and computers flow to US patent holders and standards setters. When a Lenovo laptop comes into the United States, most of the profit goes to Microsoft and Intel. As more manufacturing moves outside the United States, strong patent laws are the main way to create a return on our ability to set standards through innovation.

The United States made a successful transition from a manufacturing economy to a knowledge economy. This has increased the value of intellectual property rights on standards, which are primarily patents. Increasingly, the ability to license patents non-exclusively, for example under FRAND¹¹ terms, is a way to leverage a standard globally and create incentives for R&D investment and cooperation¹².

Our Standards and Patent Based Economy Is the Envy of China

Economists in China have a point of view that is not frequently heard here in the United States. Rather than crowing over our trade deficits, the director of the National Bureau of Statistics talked about an enviable system that United States enjoys¹³:

1. The United States has not suffered from a serious economic depression although it reported a trade deficit of \$805 billion, up from \$39 billion in 1992. On the contrary US overall economic growth was 3.6% and unemployment was 5.1%, both better figures than in 1992.
2. The trade deficit failed to calculate profit returns of overseas-based US firms, and counted products shipped back to the US as imports.

¹⁰ According to Korean Ministry of Information and Communications data, Qualcomm collected 3.3 trillion won (\$2.63 billion) from 1995 to 2005, \$1.9 billion from 2001 to 2005.

¹¹ "Fair, reasonable, and non-discriminatory"

¹² Reflections on Intellectual Property and Standards, James V. DeLong, The Progress & Freedom Foundation <http://www.pff.org/issues-pubs/pops/pop12.14standards.pdf>

¹³ Li Deshui in an interview with Xinhua News, http://english.people.com.cn/200604/24/eng20060424_260590.html

3. UN statistics show that overseas US companies realized a combined sales volume of \$3.4 trillion in 2004, three times the exports of its domestic firms.
4. Service trade increases US foreign revenues also, such as financial consultancy, licensing and other revenues often not counted in the US.
5. The International Monetary Fund recorded the US deficit of the overall balance of payments at \$1.5 billion in 2003 and \$2.8 billion in 2004¹⁴.

At the 3rd Plenary Session of the 10th National Committee of the Chinese People's Political Consultative Conference (CPPCC)¹⁵, China's top political advisory body, several presenters also warned of the US dominance of strategic standards such as operating systems, networking, wireless, and even photography. In fact US patents on key standards have strongly diluted China's profitability. China's Minister of Science and Technology Xu Guanhua noted:

1. Chinese companies have lost more than \$1 billion since 2001 due to intellectual property disputes.
2. Since 99 percent of Chinese companies fail to file for patents, royalties are a high burden, including a 20 percent royalty stack on mobile phones, 30 percent on computers, and 40 percent on programmed numerical control machine tools paid to overseas patent holders. A Chinese exporter of a \$32 DVD player exporter makes one dollar in profit and pays \$20 to patent holders outside China.
3. 86% of the research investment and 90% of patents are in the hands of developed countries.

He also compared the health of knowledge-driven companies in the United States ecosystem to the Japanese economy, which only recently has pulled itself out of a nearly two decade long economic funk, having seen many of its top companies dominance in their manufacturing supply chains eroded by low-cost competitors.

Han Zhonghao, member of the CPPCC at the 3rd Plenary Session, noted that three quarters of invention patents granted in China are owned by foreigners, and that the number of patents registered in the past five years by the top ten Chinese IT companies was the same as the number registered by IBM in one year.

Remaining a low cost manufacturer puts a ceiling on China's economy. As their standard of living increases it will fail to scale to support the economy. Worse, it cedes control of their economy to the United States innovators, who can dictate the key standards of what is manufactured. More worrisome, a focus on manufacturing creates a brain drain. The most talented scientists and inventors will leave China for countries that provide better support for their ideas.

¹⁴ International Monetary Fund Committee on Balance of Payment Statistics Yearbook 2005 Parts 1 and 2, CD-ROM, <http://www.imf.org/external/pubs/ft/bop/news/pdf/1205.pdf>

¹⁵ <http://www.china.com.cn/english/chuangye/55437.htm> meeting of March 2005

China's leadership looks to the US system for guidance on how to become a world economic superpower – they borrow our best practices. Now a major goal is to move from manufacturing to the knowledge economy. It is no surprise, then, that China has put emphasis on their science and technology educational system, but it's perhaps lesser known that they also believe in strong patent rights as part of their nation's 11th Five Year Plan. Xu Gaunhua, Minister of Science and Technology, see this as imperative to achieving China's target of tripling their per capita GDP by 2020¹⁶.

US economist and Nobel Laureate Joseph Stiglitz commented, "The 11th Five Year plan makes an important step forward. It's a major change, that is, it seeks to establish a basis of what it calls independent innovation. In the past, China has been basically borrowing ideas, trying to close the gap. [...]it recognizes that enormous amount of the rents that exist in the world associate with knowledge rents, the returns to the control of knowledge. So if China's income is going to be raised, it has to create a basis of independent innovation."¹⁷

In contrast, China does not have the same strong internal incentive to support copyrights as it does for patents. It does not see copyrighted material as a strategic global export. Movies, books, and other media are not as strategic to China as technology standards, where they see the foundation of their country's global economy. In the long run, China sees itself as producing a large fraction of the ideas in the world, and thereby the profits.

China's Plans for Technology Leadership Depend Upon Strong Patent Laws

China's leadership is an intelligent central government with broad powers. These powers, however, are weakening due to internal politics, technology, and new social issues such as inequitable wealth distribution. They see patents as the combination of their interest in setting central policies with their interest in China becoming an economic superpower. This was George Washington's view on patent policy in his address to Congress on January 8, 1790¹⁸ and Alexander Hamilton's view of patents as part of global economic competitiveness largely implemented in the 1836 Patent Act¹⁹. Patent policy has a long history of being a tool for national security and economic interests²⁰.

Last month Chinese President Hu Jintao said that China would "embark on a new path of innovation with Chinese characteristics," and that innovation was "the core of the nation's competitiveness." Citing a need for increased infringement crack-downs, Hu said, "Only by doing so can China improve its

¹⁶ CCTV interview, March 10, 2006, 4th Session of the 10th National People's Congress.

¹⁷ Seminar: China Center for Economic Research of Peking University, 2006.

¹⁸ End of section 3.1

www.compilerpress.atfreeweb.com/Anno%20David%20Evolution%20of%20IP%20Institutions%201992.htm

¹⁹ <http://www.m-cam.com/~watsonj/usptohistory.html>

²⁰ Pat Choate, Hot Property.

innovation capability.”²¹ According to Ruth Taplin, Director of the Center for Japanese and East Asian Studies, “China has joined the ranks of nations promoting economic growth through innovation. To protect such innovation the patent regime is being reassessed and tightened.”²²

The State Intellectual Property Office of China (“SIPO”) points out that the national intellectual property strategy is not a development strategy of the intellectual property work itself, but an overall strategy of the whole nation. The IP strategy is correlated with the larger plans for the country.²³ Tian LiPu, the SIPO commissioner stated: “We are standing in front of the new scratch line full of responsibility. We will devote ourselves to following the route of the new industrialization and building up an innovative country, to fulfilling our nation’s revival and to creating a more splendid future of IP course.”²⁴

2005 was the last year in China’s 10th Five Year Plan. Entry to the WTO was a major driver of intellectual property policy. Last year the 5th Plenary Sessions of the 16th Central Committee of the Party set up the 11th Five Year Plan. The core to this plan is publicly promoting “independent innovation,” “self-owned IPR,” and “core technology.”

The Ministry of Science and Technology echoes this: “Firstly, give prominence to indigenous innovation. The Talent, Patents, and Technical Standards Strategies shall be carried out further to promote the strategic transformation in S&T development. In terms of paths to development, we will make a shift from primarily following and keeping track of the latest S&T development around the world to strengthening indigenous innovation.”

The Chinese plan includes:

1. Strong educational initiatives. China graduates four to ten times the number of technical students than does the United States. During the 10th Five Year Plan (2001-2005) China increased their Science and Technology sector personnel by 70% to 3.2 million employees.²⁵ The Chinese Science Academy was reformed in 1998 to promote innovation through their Knowledge Innovation Program; Vice Minister of Education Zhou Qiping announced this year more support for colleges and universities to innovate. In 2004 China published 111,000 papers in

²¹ Speech at the Political Bureau of the Central Committee of the Communist Party of China, Beijing, May 27, 2006.

²² Thompson Scientific KnowledgeLink newsletter, “Innovation and Intellectual Property in China,” May 2006.

²³ See, for example: *Strategy of Developing the Country by Relying on Science and Education, the Sustainable Development Strategy, and the Strategy of Reinvigorating China through Human Resource Development*. Some observers argue that the current IP strategy stems from Deng Xiaoping’s Four Modernizations and from Jiang Zemin’s Three Representatives. For example China’s National High-tech R&D Program (the 863 Program) was personally approved by Deng Xiaoping in 1986.

²⁴ Commissioner’s Message, SIPO web site, http://www.sipo.gov.cn/sipo_English/default.htm

²⁵ Source: Ministry of Science and Technology data, http://www.most.gov.cn/eng/pressroom/t20060310_29458.htm

- science indexed journals²⁶, 6.3% of the total and a 19.3% annual increase, placing it after the US, Japan, UK and Germany. In some areas, such as Materials Science and Physics, China published more than 10% of the papers worldwide²⁷.
2. Greater R&D spending and infrastructure. China's R&D spending as percentage of GDP tripled to 1.4% in last 10 years²⁸ and is targeted to 2.5% in the next ten years²⁹. The Science and Technology budget will grow over 19% from 2005 to 2006. Zhang Xiaoqiang, Vice Chairman, National Development and Reform Commission, announced as part of the 11th Five Year Plan twelve new Science and Technology infrastructure projects such as the Shanghai Synchrotron Radiation Facility, 100 state laboratories, 50 national engineering technology research centers, and 16 strategic technology R&D projects.
 3. Incentives for innovators to innovate in China. The Ministry of Science and Technology (MOST) runs the 973 (National Basic Research Program³⁰) and 863 (National Hi-Tech R&D Program³¹) programs, and the Innovation Fund for Small and Medium-sized Technology-based Firms. These programs also are used to attract foreign ethnic Chinese to return to China and have raised the rate of returnees to 13% annually.
 4. Incentives for companies to innovate in China. The Technology Innovation Pilot Project and the Innovation-oriented Enterprise Pilot Programs³² provide advice and funds for standards work and patent filings. For larger companies Zhang Shauchun, assistant Minister of Finance announced this year a 150% R&D tax credit to offset company income taxes. Chinese Vice-Premier Wu Yi frames IPR protection as a matter of social responsibility for domestic firms. Vice-Premier Wu has publicly stated that without IPR protection there can be no independent creation.
 5. Programs specifically designed to create domestic and international standards. An interesting example is the Study of Important Technical Standards, passed last February that involved 4000 R&D personnel from 400 enterprises, 300 institutions and 70 universities and resulted in over 400 patent applications. According to a MOST document, "With the

²⁶ Science Citation Index, Engineering Index, and Index to Scientific and Technical Proceedings.

²⁷ Thompson Scientific Newsletter, "Innovation trends in China" May 2006.

²⁸ OECD Main Science and Technology Indicators (MSTI) 2005, *OECD Science, Technology and R&D Statistics*, available from <http://www.sourceoecd.org/>

²⁹ US equivalent is 2.6% and has remained flat for about 40 years.

³⁰ National Basic Research Program: "The strategic objectives of the 973 Program are to strengthen the original innovations and to address the important scientific issues concerning the national economic and social development at a deeper level and in a wider scope, so as to improve China's capabilities of independent innovations and to provide scientific support for the future development of the country." <http://www.973.gov.cn/English/Index.aspx>

³¹ <http://www.863.org.cn/english/index.html>

³² Launched by Ministry of Science and Technology, State-owned Assets Supervision and Administration Commission of the State Council and All China Federation of the Trade Unions in 2006.

implementation of our Technical Standards Strategy, top domestic enterprises have been vigorously involved in the development of national standards, which has ensured an effective integration of the development of important technical standards with advances in relevant industries. So far, over 1,000 national standards have been developed, plus over 30 international ones, [thereby] putting an end to the days when China could only follow the international rules set by others.”³³ This has been embodied in over 60 “Major Technical Standard Studies” established this year alone in far ranging topics such as automotive control, health databases, RFID³⁴ and wireless data.

6. Increasing the strength of administrative enforcement through new pro-patent policies. Several revisions to the China Supreme People’s Court and Supreme People’s Prosecutor General regulations include broadening to civil measures³⁵. Article 61 of the Chinese Patent Law authorizes preliminary injunctions and now stipulates that courts must make a ruling within 48 hours and they are immediately enforceable. Permanent injunctions happen as a matter of law after a finding of infringement.
7. Increasing the quality of administrative enforcement through judicial and government official education and guidelines. SIPO built a second building for IP training with over 35 training courses per year for 14,000 participants including 2,500 county directors from 31 provinces. China has also set up a Training Course for Patent Administrative Enforcement Officers in Yichang, Hubei, and fifty courts nationwide to hear infringement cases³⁶.
8. Promoting public awareness of the importance of innovation. The Law of the People’s Republic of China on Popularization of Science and Technology was issued and entered into force earlier this year. Previous programs included extension courses with the national university IP system through the Ministry of Education; public TV invention programs such as *Knowledge Fortune*; 26 IP lectures in 20 provinces; and a *Strengthening IP Work in Universities* program.
9. Consistently tracked performance metrics and benchmarks.

Do these development plans really work? In some ways they certainly seem to. Last year China broke into the top ten countries for patent applications. Comparing the statistics from the 9th Five Year Plan (ending in 2000) and the 10th

³³ Ministry of Science and Technology “Scientific and Technological Progress in China” March 2006.

³⁴ http://www.most.gov.cn/eng/pressroom/t20060322_29858.htm

³⁵ “China Action Plan of IPR Protection 2006”, published by the National IPR Protection Working Group Office.

³⁶ By law only cases where damage claims are under \$12 million; larger claims must go to the Higher People’s Court.

Five Year Plan (ending in 2005):

<i>Metric</i>	<i>2005 vs. 2000</i>
R&D Funds	2.7x
Professional scientists and engineers	1.5x
Total science and technology financial allocation	2.1x
Invention patent applications	3.0x
Invention patents granted	5.6x
Dollar exports of high tech products	5.5x
Value of high tech industry in China	2.8x

China is now in fourth position in the world in applications for protecting new agricultural plant varieties and has taken 460 violation cases to courts out of 800 reports.³⁷

On the enforcement side, China is certainly in transition. Nobody debates that China still has rampant patent infringement. Yet China appears to be trying to curb such infringements to protect their nascent domestic innovations. To put this into perspective, in the United States about 100 patent suits have gone to trial each year in the last five years and this number has been flat for the last decade.³⁸ In China it has risen from 26 cases litigated in 2000 to 546 litigated in 2004³⁹. This is a large burden on the Chinese court system, but a burden in which they seem willing to invest. For example, SIPO's 2005 annual report describes an expansion of the court system to deal with IP issues in a way that authorizes certain courts to hear IP issues.⁴⁰ Indeed, special patent courts at the trial level is an idea that the EU and the US Congress are considering.⁴¹

³⁷ China's domestic regulations in this area took effect in 1999 when they also joined the International Convention for the Protection of new Varieties of Plants and became the 39th member of the International Union for the Protection of New Varieties of Plants. Today 40% of the applications are filed by individuals or companies with commercial interests resulting in an estimated financial benefit of \$237 million. See China Daily, January 24, 2005.

³⁸ In fact, patent lawsuits per 10,000 active patents (versus simply all granted patents) are lower today than a decade ago.

³⁹ 1999-2004 SIPO Annual Reports.

⁴⁰ See Section IX of SIPO's 2005 annual report:

http://www.sipo.gov.cn/sipo_English/ndbg/bps/200605/t20060509_99488.htm

⁴¹ US Representative Darrell Issa (CA-49) introduced H.R.5418 on May 18, 2006, to establish a pilot program in certain United States district courts to encourage enhancement of expertise in patent cases among district judges. The European Commission has recently expressed some openness to the proposal for a patent court. IP judges have been promoting the idea through the draft European Patent Litigation Agreement (EPLA), a proposal that has been evolving since 1999.

Our China Policy Should Center on Encouraging China to Adopt Our Culture of Intellectual Property

When a country adopts an effective system of economically valuable intellectual property they become more market driven, capitalist, transparent and democratic.

“The theory of the Communists may be summed up in the single sentence: Abolition of private property.” – Karl Marx

“The entire society should make joint efforts to bring China’s work regarding intellectual property rights to a new level.” – Hu Jintao, China’s President⁴²

China’s apparent disregard for foreign intellectual property rights is only a side effect of being a developing nation. It is a phase the Japan and the United States also went through. That does not excuse the behavior, but we must keep the right perspective: they fundamentally believe in IP rights and do so in spite of the commonly held view of communist dogma.

This may sound shocking. The Chinese leadership is in the midst of redefining Communism in the face of the market-driven reality of the international community, and standards and patents are a central means. For example, China’s Science and Technology Minister Xu Guanhua publicly states that losing IP disputes has been a “devastating blow” to parts of the economy. Rather than try to dilute patent rights Minister Xu’s response is to compete with foreign patent owners by inventing locally and using foreign innovations where there is no other choice. Of course, there would be problems if China were to favor a domestic vendor over a foreign vendor or use procurement or regulatory requirements to skew standards so that domestic products win (e.g., WiFi vs. WAPI). Cao Shumin, Vice-Director of the Telecommunications Institution under the Chinese Ministry of Information has publicly stated that IPR is the most important “weapon in worldwide competition and business wars, especially in the global process of standardization.”⁴³

In addition to competition China seems intent on punishing officials for lax enforcement of IPR protection. Many countries are eager to learn more about the details of China’s domestic enforcement activities. Some would like to use this information as political leverage that can support WTO sanctions. But before we condemn China, we need to closely and candidly examine conduct at home.

We must implement policies that encourage and accelerate this pro-invention, pro-patent behavior. Otherwise we will forgo a global marketplace for patents and licensing revenue. We cannot assume that China will remain a mixture of

⁴² “Chinese President Gives Speech on Intellectual Property Rights,” 2006-05-27, BBC Monitoring Asia Pacific (Text of report entitled: “At the 31st collective study of the CCP Central Committee’s Political Bureau, Hu Jintao stresses the need to strengthen the establishment of China’s intellectual property rights system,” carried by official Chinese news agency Xinhua (New China News Agency).

⁴³ Source Xin hua. People’s Daily Online, May 21, 2006. “Reforming 3G Patent Fee An Inevitable Trend in China”

some licensing revenue for patents backed by large companies with lawyers and political influence coupled with rampant piracy. That situation does not scale for China.

We Must Retain our Leadership in Standards and Innovation Policy

The previous two sections sound very alarming. Will China replace the United States as the global leader in innovation? Should we be encouraging them to do so?

In the last few decades, prophets of doom have predicted the demise of the United States economy at the hands of the Japanese, the Asian Tigers, the European Union, and now China, while those countries continue to point to the United States as an economic system they wish to emulate.

We should not fear competitive innovation from China. We should bear in mind that there are several fundamental innovation advantages the United States possesses. But since we cannot remain complacent it is important to ensure that these advantages remain⁴⁴:

1. Level patent protection – The United States is unique in its level protection of the small inventor even against a large entrenched company. This is why disruptive change happens more often in the United States than any other country, a key factor in our success in setting most of the valuable technology standards of the 20th Century from electricity to telephones to computers. Alexander Bell defended himself in 600 lawsuits and prevailed in each one, many against powerful and well-funded companies. In China this is not the case. Li Shufu, CEO of Geely Automobile, was asked what kind of support the non state-owned enterprises most need for independent innovation, he replied: “Fairness.”
2. Flexible investment capital – No other country has the numbers of private equity investors willing to take risks on disruptive changes and new standards that the United States has. In most other countries this risk is taken by central governments, which are not as able to manage the rapid changing risks of innovation. China lacks such systems. Guo Lihong, director of the Technological and Economic Research Department of the Development Research Center of the State Council, said that well over half the risk investments are from overseas. China lacks even basic investment infrastructure such as the notion of a limited liability company (LLC), which is essential to investment funds. Domestic Venture Capital in China is paradoxically risk-adverse and not merit-based⁴⁵.
3. Diverse population and immigration – The United States history is built on immigration and diversity to an extent found nowhere else on Earth. From

⁴⁴ China quotes from China.org.cn by Xu Lin, November 15, 2005, <http://www.china.org.cn/english/2005/Nov/148834.htm>

⁴⁵ Keynoted speech at the 8th China Venture Capital Forum in Shenzhen, “A New Chapter in the Nation’s Self-Innovation Strategy,” April 7, 2006.

the steel industry to the atom bomb to Google, we have profited by attracting innovators from around the world, to a system that is based on fairness. Asia in general has some of the strictest immigration policies in the world and does not have access to this advantage.

4. Judicious Regulation Using Market Forces Rather than Central Authority – In the United States careful regulation and a reliance on market forces have resulted in a balanced system of incentives. As an example, the Bayh-Dole Act allows market forces to access academic innovations. The innovation economy of the United States takes over from there, creating new standards and products from academic research. China has yet to achieve this, despite large incentives to productize academic research, mostly due to centralized authority. According to Liang Gui, director of the China Torch Program of the Ministry of Science and Technology⁴⁶, the transfer process from scientific research to practical application in China is irrational. The innovation chains of many industries – from academic institutions to product companies – in China are not well linked, said Wei Huacheng, chairman of the Beijing Pharmaceutical Group.

I want to reiterate that we should not impair or destroy these fundamental advantages if we wish to remain competitive in setting the standards of the future. Technological progress does not stop, and we need to remain vigilant to assure that innovators in the United States will have opportunities to continue to set the world's standards in the future. Our real challenge is not resolving IP piracy in China; the real battle is the day when American patent owners will have to compete vigorously against Chinese inventions for technology adoption.

Our system of innovation, standards, and patents has worked exceedingly well in the last century. China is still evolving through many of the issues we already went through. As an example, to save costs and increase patent counts China is not rigorously examining most patents, similar to a problem we faced in the early days of our patent system⁴⁷. Although domestic companies in China file most of the patents, many of these are design or utility patents and not key inventive technology patents. Those patents are still dominated by foreign companies. We have the most successful system in the world and should be careful in changing it in a way that would make us less competitive.

Meanwhile, countries like China will use central control in an attempt to create a competitive edge, as did Japan in the 1960's for consumer products and Europe did with Airbus. An example of this in action is Huawei, China's leading networking company.

1. Huawei was slapped in the United States for infringing Cisco patents. They agreed to withdraw from the United States market.

⁴⁶ <http://www.chinatorch.gov.cn/eng/ejym/Park.htm>

⁴⁷ See Temple of Invention: History of a National Landmark, Charles J. Robertson (Scala Publishers Ltd., 2006).

2. Huawei then patented very aggressively. They are the leading IT patent holder in China.
3. Huawei now is a leading vendor of wireless network equipment outside the United States, competing largely on cost.
4. China is delaying 3G license awards (most recently on May 29). The belief is that this is to allow time to have their competing domestic standard (TD-SCDMA) to become commercially viable, and to give their local vendors development and deployment experience.

The end result of this strategy is to enable China to use its own domestic innovation and market to create an important global standard in wireless communications. This would allow them to retain the 20-30% innovation royalties they currently pay back to the United States.

This kind of strategy is what our domestic innovators have to compete against. Cisco itself acquires most of its innovations from small companies, relying on an innovation economy to fuel their growth. We should not hamper the ability and incentives for innovators to create the best next-generation standards and innovations.

We must also set a good example for the rest of the world. We must all recognize that this debate, these proceedings and the reform proposals, themselves, are being closely observed, monitored and examined by foreign governments, policymakers, and civil society groups (including anti-IP activists). Indeed, we must be sure that the type of IP message we are crafting in our country is a positive one, and that it will appear as such to the emerging 'BRIC economies - Brazil, Russia, India and China - whose IP regimes desperately need to be strengthened. We must also consider whether our actions and deeds could reasonably be interpreted as hypocritical. For example, we must ask ourselves how the US position on IP would be perceived if, while we demand that such nations protect our IP and invest in their own IP, we simultaneously take measures domestically that weaken long established and highly-successful American IP protections.

If America is going to invest in law enforcement, diplomacy and education aimed at improving the protection of US IP rights abroad it must continue to provide the best possible example at home. Once we have effective patent enforcement at home and abroad, including strong injunctive relief, we will then be able to deal with international patent squatters and opportunists/pirates appropriately. In other words, I believe that we must be consistent to be global leaders.

America's insistence on strong IP protection abroad, and its maintenance of strong IP protections at home, has produced positive results. It should be noted for the record that, during the past few years, several emerging and developing countries (e.g., China, India, Jordan, Singapore, Chile, Mexico, and Morocco) have taken positive steps toward enacting and implementing stronger national patent laws, and that such actions have helped them to promote indigenous scientific and technological invention and innovation in their life sciences and ICT

sectors. These countries have also reaped other benefits. They include greater foreign direct investment flows, bilateral government-to-government science and technology cooperation, increased import and export financing, new technology transfers and knowledge spillovers. And still other countries, such as Korea and Indonesia, have acknowledged that they need to do the same.

A well functioning patent system, in non-market economies and non-democracies, serves as a refuge that provides individual citizens with the opportunity to enjoy the rights in and benefits from (i.e., the rewards of) that which they risked, in time, energy and money to create. I find it both interesting and encouraging that the people of Mongolia, a country celebrating its 800th birthday this coming July, regard private property rights, including patents, as important enough to be placed within the human rights section of their national constitution.

It is very important to remember that the legal roots of IP run just as deep as the roots of physical property like land and buildings, and have always been accorded the same respect. The right to exclude others from exploiting one's patent is the only time the word "right" is used in the Constitution of the United States. IP alone represents over half of all US exports⁴⁸. Yet, today, legislative efforts are underway to diminish the rights of American intellectual property owners.

Large, entrenched, and anti-patent companies in the United States are mobilizing to demolish the means by which independent inventors, research organizations, and universities had to effectively reward inventions. This would put us, ironically, into the situation that China is trying to get out of.

In fact, seven of the largest technology companies⁴⁹ in the US, have recently formed the "Coalition for Patent Fairness" with the aim to dilute the rights of the patent owner. This new group duplicates the efforts of trade associations such as the Business Software Alliance (BSA) and the Information Technology Industry Council (ITI). It is more than ironic that the BSA, a group founded to sue copyright infringers at home and abroad, is part of an effort that says defending one's patent rights is bad for America's competitiveness and innovation. Many of the companies involved in this lobbying affair simply do not want to pay royalties for patents that their products infringe. They'd rather ignore the protests of patent owners or wear them down in court. Now they have calculated that the expense of changing the law to suit their business model is cheaper than paying royalties or damages. They may think this is in the best interest of their profits but it is not in the best interest of America. If American patent owners cannot expect the fair payment of royalties from other Americans, why should we expect the Chinese to pay royalties? Also, changing the law in favor of a few technology companies that dominate their respective markets and enjoy competitive advantages in standards and margins forecloses the global market from small

⁴⁸ Alan Greenspan, National Innovation Initiative Final Report, "Innovate America: Thriving in a World of Challenge and Change."

⁴⁹ Cisco, Intel, Micron, Oracle, Apple, HP, and Dell are known to be members and financiers of the Coalition for Patent Fairness.

businesses, universities and independent inventors – a group that represents more than 40% of patents and historically the group that sets most of the innovative standards and does not outsource as aggressively as do large multinationals.

The second source of attack is from countries that do not provide standards as effectively as the United States. Such countries have every reason to dilute the economic value of standards. They want a free ride. As such, international standards groups are increasingly calling for standards with no royalties. At the same time, developing countries are freely infringing upon standards, using their low manufacturing costs to copy products without the cost of education and R&D.

This is no surprise, as the United States itself went through this period in the 18th century; kick starting its own economy by infringing on the manufacturing processes and books of other countries, while establishing a strong domestic policy for IP to encourage its own inventors to out-invent other countries. Now we are on the other side of that coin. China is trying similar policies to make itself into a global power and to transform into a knowledge economy.

While it is important to defend our knowledge assets and standards in China, it would be foolish to do this at the peril of our ability to continue to create technology standards in the future. One thing I do know is that progress marches on relentlessly, and the most important standards of tomorrow have yet to be invented. While it is important to protect our current assets it is just as important to continue to create new ones.

Conclusion

Let me end with a story of a visit to Beijing in early 2004.

I had spent previous months in the United States talking to professors, inventors, licensing organizations, companies and venture capitalists about the state of innovation in the United States. Even in early 2004 the issues that we discuss today in the guise of IP Policy Reform were very much active. I found myself very much on the defensive against a strong, powerful, and vocal minority of interests that wanted to reduce the property rights of inventors. Perhaps because they were not looking at the larger context of global competitiveness, they were inadvertently working to “throw the baby out with the bath water.”

I then went to speak with a select group of the top scientists of the China Academy of Sciences about invention and innovation. Afterwards I was mobbed by smart motivated people full of dreams and ideas -- just like the people who came to the United States in the 1960's and 1970's and helped our country innovate -- with the ability and support to develop these ideas in China. They loved the idea of strong IP protections, profit generation, and even injunctions. They exhorted me to help them succeed and to learn from the examples of success in the United States.

On the plane trip back, I was writing up a summary of what had happened in China. And that's when I was hit with the sobering irony, that in the United

States – the paragon of economic opportunity that China was desperately trying emulate – I find myself defending the very policies that enabled the life saving and life improving inventions of today ... and yet in China they were rapidly implementing the very system many here want to throw away.

Here in the United States large, entrenched, and powerful technology companies are mobilizing to demolish the very intellectual property system that created them, thereby removing the last lever that independent inventors, research organizations, and universities have to effectively reward inventions and become the next global standards setting company. These powerful patent detractors want such ideas to be forced to be shared equally, under government rather than free market rule, and without strong property protection. And this would put us into the very situation that China is trying to get out of.

And then the true irony hit me: China is the *communist* country.

As long as the best inventions continue to stream out of the US protected by strong patents, we can continue to expect to receive our fair value from the global economy at the top of the food chain in return for our investments in entrepreneurship, diversity, risk capital and free markets. Threatening this situation to favor a set of companies who themselves add little to the innovation incentives of our brightest and best inventors, and who paradoxically have the fat profit margins and dominant market positions that can well-afford to reward the inventors from whom they steal property, is at best, unfair, and at worst, ceding our long term future to competitive countries.

Appendix

Patents Issued to Edward Jung:

1	6,950,827	Methods, apparatus and data structures for providing a uniform representation of various types of information
2	6,778,971	Methods and apparatus for analyzing computer-based tasks to build task models
3	6,606,613	Methods and apparatus for using task models to help computer users complete tasks
4	6,557,046	Method and system for providing an event system infrastructure
5	6,539,374	Methods, apparatus and data structures for providing a uniform representation of various types of information
6	6,519,764	Method and system for naming and binding objects
7	6,412,020	Method and system for aggregating objects
8	6,330,554	Methods and apparatus using task models for targeting marketing information to computer users based on a task being performed
9	6,263,379	Method and system for referring to and binding to objects using identifier objects
10	6,243,764	Method and system for aggregating objects
11	6,240,465	Method and system for aggregating objects
12	6,230,212	Method and system for the link tracking of objects
13	6,055,443	Transparent call progress
14	5,999,986	Method and system for providing an event system infrastructure
15	5,842,018	Method and system for referring to and binding to objects using identifier objects
16	5,805,885	Method and system for aggregating objects
17	5,802,367	Method and system for transparently executing code using a surrogate process
18	5,787,364	Transparent call progress
19	5,745,764	Method and system for aggregating objects
20	5,740,439	Method and system for referring to and binding to objects using identifier objects

21	5,724,588	Method and system for network marshalling of interface pointers for remote procedure calls
22	5,721,919	Method and system for the link tracking of objects
23	5,710,925	Method and system for aggregating objects
24	5,699,518	System for selectively setting a server node, evaluating to determine server node for executing server code, and downloading server code prior to executing if necessary
25	5,689,703	Method and system for referring to and binding to objects using identifier objects
26	5,682,536	Method and system for referring to and binding to objects using identifier objects
27	5,581,760	Method and system for referring to and binding to objects using identifier objects
28	5,511,197	Method and system for network marshalling of interface pointers for remote procedure calls

Patent Applications filed by Edward Jung:

1	20060095211	System and method for modulating a cell mediated immune response
2	20060090132	Enhanced user assistance
3	20060090038	Auto purge of serial use devices
4	20060090037	Preserving content of serial use devices in view of purge
5	20060088227	Time-lapsing data methods and systems
6	20060086781	Enhanced contextual user assistance
7	20060081695	Enhanced user assistance
8	20060080188	Supply-chain side assistance
9	20060079285	Transmission of mote-associated index data
10	20060076398	Obtaining user assistance
11	20060075344	Providing assistance
12	20060072798	Medical overlay mirror
13	20060064402	Using federated mote-associated indexes
14	20060062252	Mote appropriate network power reduction techniques
15	20060055809	Multi-angle mirror

16	20060047439	System and method for improving a humoral immune response
17	20060047437	System and method for heightening an immune response
18	20060047436	System and method for magnifying an immune response
19	20060047435	System and method related to augmenting an immune system
20	20060047434	System and method related to improving an immune system
21	20060047433	System and method related to enhancing an immune system
22	20060046711	Discovery of occurrence-data
23	20060046707	Context-aware filter for participants in persistent communication
24	20060031252	Personalized prototyping
25	20060031044	Identification of interior design features
26	20060028452	Cosmetic enhancement mirror
27	20060026626	Cue-aware privacy filter for participants in persistent communications
28	20060026255	Themes indicative of participants in persistent communication
29	20060026164	Data storage for distributed sensor networks
30	20060026132	Using mote-associated indexes
31	20060026118	Aggregation and retrieval of network sensor data
32	20060022938	Time-lapsing mirror
33	20060012081	Custom prototyping
34	20060004888	Using mote-associated logs
35	20060004476	System for making custom prototypes
36	20050289275	Frequency reuse techniques in mote-appropriate networks
37	20050289122	Using federated mote-associated logs
38	20050281057	Holdover circuit for a power converter using a bi-directional switching regulator
39	20050267960	Mote-associated log creation
40	20050265388	Aggregating mote-associated log data
41	20050256667	Federating mote-associated log data
42	20050255841	Transmission of mote-associated log data

- 43 20050254520 Transmission of aggregated mote-associated log data
- 44 20050228796 Methods, apparatus and data structures for providing a uniform representation of various types of information
- 45 20050227736 Mote-associated index creation
- 46 20050227686 Federating mote-associated index data
- 47 20050220146 Transmission of aggregated mote-associated index data
- 48 20050220142 Aggregating mote-associated index data
- 49 20050206500 Embedded identifiers
- 50 20050167572 Photo-detector array
- 51 20050144319 Accelerated reception of spatial-to-temporal translated data
- 52 20050132415 Spatial-to-temporal data translation and transmission
- 53 20050132149 Spatial-to-temporal data translation and scheduling and control
- 54 20050131863 Reception of spatial-to-temporal translated data
- 55 20030225924 Logical routing system
- 56 20030200504 Method and system for naming and binding objects
- 57 20030126151 Methods, apparatus and data structures for providing a uniform representation of various types of information
- 58 20030014421 METHODS, APPARATUS AND DATA STRUCTURES FOR PROVIDING A UNIFORM REPRESENTATION OF VARIOUS TYPES OF INFORMATION
- 59 20020083012 Method and system for account management
- 60 20020040410 Document object print interface