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CHINA'S EXPANSION INTO AND U.S. WITHDRAWAL FROM ARGENTINA'S TELECOMMUNICATIONS AND SPACE INDUSTRIES AND THE IMPLICATIONS FOR U.S. NATIONAL SECURITY

Janie Hulse

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FOREWORD

The U.S. Government is waking up to China's growing presence in Latin America. For the last several years as U.S. policymakers' attention and resources, largely diverted from Latin America, have been focused on the Middle East, China has pursued a policy of economic engagement with the region. Sino-Latin American trade has sky-rocketed, and Chinese investment in the region is picking up. In this monograph, Ms. Janie Hulse, a Latin American specialist based in Buenos Aires, Argentina, argues that increased Chinese investment in regional telecommunications and space industries has implications for U.S. national security. She believes that globalization, advances in information technology and China's growing capacity and interest in information warfare make the United States particularly vulnerable. Ms. Hulse details China's expansion into and U.S. withdrawal from these intelligence-related industries in Argentina and highlights associated risks for the United States. The author calls for the U.S. Government to react to this current trend by increasing its engagement in regional strategic industries and bettering relationships with its southern neighbors.

DOUGLAS C. LOVELACE, JR.
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BIOGRAPHICAL SKETCH OF THE AUTHOR

JANIE HULSE is an independent contractor based in Buenos Aires, Argentina, who provides communications and research services to private and public sector organizations. Ms. Hulse has extensive professional experience dealing with the Latin American region. She began her career working as Latin American Public Sector Marketing Manager for KPMG Consulting (now BearingPoint), promoting the company's information technology services to Latin American governments. She was based in Buenos Aires during part of her tenure with the company. She later joined the National Defense University as a research associate for the Institute for National Strategic Studies (INSS) Western Hemisphere Department. At INSS, Ms. Hulse researched issues related to security in the Western Hemisphere, culminating in a chapter that she co-authored with John Cope in the book *Caribbean Security in the Age of Terror* (Ian Randle Publishers, 2004). In 2004, she was awarded a Rotary fellowship to continue her Latin American studies in Buenos Aires, during which time she worked in the Economic Section of the U.S. Embassy. Ms. Hulse holds a Bachelor's degree in Industrial and Labor Relations from Cornell University and a Master's degree in Politics of Development of Latin America from the London School of Economics.

SUMMARY

In April 2005 when the Western Hemisphere Subcommittee of the House International Relations Committee met to discuss Chinese involvement in Latin America, administration officials tended to downplay Chinese engagement in the region except in areas related to communications and intelligence. Indeed, globalization, new technologies, and growing Chinese information warfare capabilities make the United States particularly vulnerable to Chinese activity in these strategic areas. China's recent success in Argentina's telecommunications and space industries exemplifies China's increasing effectiveness in strategic developing markets and raises concerns regarding increasing U.S. reliance on international information networks.

Chinese companies are aggressively positioning themselves for success in Argentina's telecommunications industry. Relative to other developing markets in Latin America, Argentina has a robust telecommunications sector. In the 1990s, the sector was privatized leading to a period of growth and modernization that was briefly offset by a deep economic crisis in the country in 2002. Despite industry setbacks associated with the crisis, Chinese companies fought for a place in the market as many other international companies were fleeing. U.S. companies like AT&T and Bell South, that quickly set up operations after the 2000 privatization, for example, quickly exited Argentina at the first signs of economic instability. Conversely, the government-backed Chinese companies—Huawei and ZTE—doubled their efforts to gain a foothold in the floundering industry, only to receive dividends as the economy picked up a few years later. These companies

first offered technology apt for rural developing markets, then worked their way up the value chain to become suppliers to the country's two main monopolies that operate networks in urban centers. As these two Chinese telecommunications companies grow in Argentina and across the region, U.S. companies continue their retreat, preferring faster, safer returns in developed markets.

At a time when the United States is distracted from the Latin America region and is focusing less attention on cooperation with regional governments, Argentina, which has traditionally relied on U.S. space cooperation, is reaching out to China to modernize its space program. In the last few years, China has pushed to become a player in Argentina's space and satellite industry. During President Hu Jintao's visit to Argentina in November 2004, the countries signed a Framework Agreement on "Technology Cooperation in the Peaceful Use of Outer Space," whereby China expressed willingness to provide Argentina with commercial launch services, satellite components, and communication satellite platforms. The Argentine government—through its newly created state satellite company, ARSAT—is taking advantage of China's offer to launch a satellite in the commercially valuable 81 degrees longitude slot, which allows observation of all the Americas. Payment for services and equipment provided by the Chinese will be made through ARSAT stock, which would give the Chinese ownership stake and corresponding voting rights in the Argentine state satellite company. Moreover, the Chinese are interested in assisting Argentina with the development and fielding of low-orbiting, fixed observance satellites and have already provided the South American country with a third generation precision satellite laser ranger (SLR).

The implications for U.S. national security of increasing Chinese presence in Argentine and other regional telecommunications and space sectors will depend on the U.S. response to this trend. Potential threats exist as U.S. companies cede market dominance to Chinese and other foreign companies in strategically sensitive sectors. Telecommunications networks are no longer domestic, terrestrial, and circuit-switch operated. They are interdependent, diverse, and rest on terrestrial, satellite, and wireless technologies. These latter technologies are harder to control and more susceptible to tampering and attacks. Chinese capabilities in information technology and information warfare are increasing as its economic and political influence grow in Latin American countries. If unchecked, the United States leaves itself vulnerable to international information networks, which are of increasing operational importance to a modern military. Some of these international networks are now being operated by Huawei, a Chinese company with close ties to the People's Liberation Army (PLA).

Chinese presence in Western Hemisphere space creates particular vulnerabilities for the United States. Latin America's geographical proximity makes for convenient satellite observance of the United States. Access to space tracking facilities in the region also could give China the ability to attack U.S. satellites. Moreover, Chinese space cooperation with Latin American governments that have historically collaborated with the United States provides the Chinese an opportunity to study U.S. space technologies and practices up close. As is the case with the telecommunications industry, there is increasing competition in the international space markets. If the United States fails to maintain its preeminence in these markets, it will lose the ability to secure this extremely strategic industry.

While China is not currently building a significant military presence in Latin America, the human and commercial infrastructure that it is building in the region increasingly gives China a powerful lever for disrupting and distracting the United States in the Western Hemisphere, should Sino-U.S. relations turn sour. The United States should work to counter China's growing influence to mitigate future threats. To do so requires improving U.S. relations with Latin American countries and making U.S. companies more competitive in the region—especially in strategic markets where U.S. security is at stake. The most effective way for the United States to improve its standing and influence in Argentina and the Latin American region as a whole is to help these countries succeed economically through increased aid, trade, and investments. Aid should be expanded in a creative, cost-effective manner and should include middle-income countries in South America, which traditionally do not qualify for U.S. Agency for International Development (USAID) assistance. Free trade should continue to be promoted, but in a more generous way. The U.S. Government should promote investment by bolstering the U.S. Commercial Service and assisting U.S. companies in gaining a foothold in the strategic telecommunications and space industries. It also behooves the U.S. Government to increase assistance to and cooperation with Latin American militaries to maintain friendships throughout the region. It is not too late for the United States to take remedial action to increase its presence in Latin America's telecommunications and space sectors. Commercial and aid efforts should be complemented by a heavy dose of improved public diplomacy—especially in countries similar to Argentina where U.S. popularity is low and where China has made substantial inroads.

CHINA'S EXPANSION INTO AND U.S. WITHDRAWAL FROM ARGENTINA'S TELECOMMUNICATIONS AND SPACE INDUSTRIES AND THE IMPLICATIONS FOR U.S. NATIONAL SECURITY

Introduction.

Chinese involvement in the Latin American space and telecommunication industries has implications for U.S. National Security. Unlike other commercial activities geared toward supplying raw materials to China's 1.3 billion inhabitants, Chinese investment in space and telecommunications implies broader commercial and strategic interests that potentially put the Chinese into Western Hemisphere air and space. It is in the security interest of the U.S. Government to understand Chinese penetration into these intelligence-related industries in Latin America and to adjust diplomatic and defense policy accordingly in order to mitigate future threats. Argentina, one of China's "strategic partners" and the third largest market in Latin America, makes a good case study as China has already entered its space and telecommunications sectors.

On April 6, 2005, the Western Hemisphere Subcommittee of the House International Relations Committee held a hearing on Chinese involvement in Latin America. At the hearing, administration officials tended to downplay Chinese engagement in the region except in areas related to communications and intelligence. Deputy Assistant Secretary of Defense for Western Hemisphere Affairs Rogelio Pardo-Maurer testified that the United States needs "to be alert to rapidly advancing Chinese capabilities, particularly

in the field of intelligence, communications and cyber warfare, and their possible application in the region." He maintained that the United States "would encourage nations in the hemisphere to take a close look at how such activities could possibly be used against them or the United States."[1]

The Chinese are long-term strategists who have proven themselves competent in the area of information technology. They are not averse to espionage, and their current military doctrine emphasizes Information Warfare (IW) as a means of overcoming military power asymmetries. How they may use their growing presence in Latin America's space and telecommunications sectors remains unknown, but potential threats for the United States exist. It is in the United States' security interest to monitor the expansion of Chinese involvement in the information technology fields of space and telecommunications in the Western Hemisphere. This monograph is an early attempt to do just that. It explores China's growing presence in these strategic industries. It uses the case of Argentina to highlight China's aggressive approach to business in the region, its recent and rapid success and their implications for U.S. security.

As Chinese companies make inroads into Argentina's telecommunications and space industries, U.S. companies are retreating. Profit-seeking U.S. companies have less staying power in volatile developing markets than government-subsidized Chinese companies with incentives for long-term success. This has implications for U.S. security for a number of reasons. First, the United States loses market share in strategic industries and with it influence in Argentina. Secondly, the United States loses the opportunity to exert control over networks in Argentina and grows vulnerable

to the whims of local and foreign companies and the Argentine government. Third, the void left by the U.S. companies in these strategic industries is being filled by state companies of a strategic adversary—China.

Fortunately, Chinese penetration into Argentina's telecommunications and space sectors is in a nascent phase. There is still time to remedy this undesirable trend found in Argentina and other Latin American countries. Reenergizing U.S. telecommunications and space initiatives in Argentina and Latin America as a whole and improving U.S. standing and influence in the region are of primary importance. Failure to act will only tarnish the United States' image further and leave it vulnerable to foreign information systems in an era when they are of utmost importance to U.S. national security.

Argentina's Telecommunications Sector.

Chinese companies are aggressively positioning themselves for success in strategic industries of developing economies. Over the next 10 years, the International Monetary Fund (IMF) predicts the pace of growth from emerging economies to be double that of developed nations. Chinese companies doing business outside of China are mostly state-owned enterprises (SOEs) that are provided government incentives to penetrate strategic industries in the developing world. Unlike purely profit seeking U.S. companies, Chinese SOEs, cushioned by generous lines of credit, are not averse to entering into uneconomical deals. They tend to be driven less by market and profit considerations and more by their government's strategy to establish strategic footholds and lock up resources.[2]

The growing importance of developing economies is especially evident in today's telecommunications industry. Mobile phone markets are saturated in developed countries but growing strongly in developing nations. The British arm of Gartner Group, an international telecommunications research firm, recommended that mobile-handset manufacturers worldwide should be looking to emerging markets for the bulk of their sales in the near future. While there is concern that this will not translate directly into high profits, Gartner reported that mobile phone sales worldwide will reach 1 billion units by 2009.[3] Chinese companies are strategically focusing their foreign investments in these growing markets.

Relative to other developing markets in Latin America, Argentina has a robust telecommunications sector. It is second only to Chile in the region for cellular phone penetration and ranks in third place for fixed line penetration after Puerto Rico and Uruguay.[4] Argentina has a population of about 38 million, with more than 32 million cellular phones and nearly 9 million fixed telephone lines in service.[5] Internet is the fastest growing telecommunications technology in the country.[6] Data from 2006 reveal more than 13 million internet users in Argentina, which represents 34 percent of the population.[7] Argentina has the third largest population of internet users in Latin America and is one of the four main broadband leaders in the region along with Brazil, Chile, and Mexico. Projections from December 2005 estimate a 100 percent annual growth of broadband access.[8]

With increasing internet access, Argentina is quickly becoming more reliant upon Internet Protocol (IP) communications. Considered an early adaptor of new technologies, the Argentine communications market

will continue to experience significant IP expansion as more businesses harness the potential of IP networks. Even though it is still a nascent technology in the country, a recent survey by Prince and Cooke of the top 130 companies showed that the adoption of IP telephony had already reached 20 percent by mid-2005, from a mere 5 percent penetration in 2004. Argentina is the leader in the adoption of IP telephony in the region followed by Chile.[9] Moreover, Argentina is following the world trend of converging telecommunications services over one multiservice network. This will leave behind the outdated switching systems of the early 1990s.[10]

Argentina's telecommunications sector went through dramatic change in the 1990s as it was gradually privatized from an inefficient state-run sector. A period of growth and modernization in the sector started with the privatization of the state-owned telephone company ENTEL in 1990. Basic telecommunications services were privatized by splitting Entel in half and creating two monopolies—one in the north of the country owned by Telecom (French Telecom and a Telecom Italia Consortium) and one in the south owned by Spain's Telefónica. After 10 years of gradual change, the market was fully liberalized in November 2000. Deregulation has opened up the market and created fierce competition for new customers and new service niches. New market entrants struggle against the advantages of strong, already established players.[11]

The Argentine telecommunications sector has shown significant investments and growth since 2004 after a period of contraction that began with the country's recession and financial crisis of 2000-02. The sector grew 20 percent in 2005 and 19.5 percent in 2006. Total sector revenues, including equipment

and services, reached U.S. Dollars (USD) $5.1 billion in 2005 and USD $6.1 billion in 2006, surpassing pre-crisis levels. The market is expected to continue growing by 20 percent in 2007 and 19 percent in 2008.[12]

The Chinese Enter Argentine Telecommunications.

There is substantial international interest in Argentina's telecommunications industry owing largely to deregulation, increasingly modern infrastructure, and several years of solid growth. The Chinese have managed to compete in this burgeoning market despite economic setbacks and competition by larger, more established companies. When Argentina's financial crisis hit in 2002, China quickly seized the chance to increase its stake in the country as U.S. investment declined by nearly half. During this economically tumultuous period, the Chinese made inroads into Argentina's telecommunications sector. Two Chinese telecommunications companies, in particular Huawei and ZTE, quickly established a niche supplying high-tech telephony suitable for rural and lesser developed regions. These areas proved more penetrable as the two dominant telecommunications companies in Argentina—Telefónica and Telecom—operate mostly in populated urban areas. Five years after the crisis, Huawei and ZTE are established as important equipment suppliers in the Argentine market. It is likely that their presence in the market will grow, and that they will upgrade their service offerings to include networks as they have done in other South American countries. In August 2006, for example, Brazil's Vivo, the biggest mobile telecommunications operator in the southern hemisphere, chose Huawei as the key supplier of the largest new GSM network in Latin America.[13]

Huawei arrived to Argentine in 2001 in the midst of the economic crisis and by 2004 was bringing in revenues of USD $14 million. It has since replaced traditional equipment providers like Alcatel and Siemens in the Argentine market, thanks to its aggressive commercial approach and low prices. Recently, Huawei invested in a new plant in Buenos Aires Province aiming to produce 100,000-400,000 wireless handsets per year for sale throughout Latin America. Their Code Division Multiple Access (CDMA) 450 Mhz equipment is apt for long signal ranges in rural areas. As of September 2005, Huawei's telephone assembly takes place in a former barracks at a military base in City Bell near La Plata, the capital of Buenos Aires Province. Huawei supplies the funds and the technology, and local telecom cooperatives manufacture the equipment. The property was ceded to the local cooperatives by the Argentine Secretary of Communication. Part of the property is still used by the Army's Communication Battalion 601. Huawei invested USD $1 million to refurbish the military facilities for its use. Huawei's agreement with the local cooperatives allows it to keep 35 percent of the manufacturing facilities after 36 months.[14]

Chinese company ZTE, Huawei's direct competitor, has also successfully penetrated the Argentine telecommunications market. ZTE has been heavily involved with setting up a "wireless corridor" between El Calafate and Perito Moreno in Argentina's Patagonia region.[15] Working alongside a local cooperative, ZTE has provided the technology for the necessary installations free of charge.[16] According to press reports, ZTE has offered similar pro-bono work to several other local governments throughout Argentina including López Camelo, Villa Gesell, and Río Turbio. Huawei had also offered to donate equipment to the Calafate

project, but there was no need for the local cooperative to accept its offer as it already possessed equipment donated directly by the Chinese government.[17] During Argentine President Néstor Kirchner's 2004 visit to China, the Chinese government donated a network of fixed cellular rural telephony for Calafate, providing wireless connections within a 50 kilometer radius of a fixed station and reducing the cost of telephone service in rural areas.[18]

Huawei and ZTE are China's two largest telecommunications equipment and service suppliers. They are capable of providing end-to-end solutions to telecommunications carriers, and they have built broad product portfolios. Both companies are based in China's Shenzhen region, one of the country's "Special Economic Zones" that provide tax incentives for companies. Huawei and ZTE have both successfully competed against dominant multinational players in China's domestic market and are now expanding internationally by targeting underdeveloped, price-sensitive markets often skipped by major western brands. Norson Telecom Consulting analyst Dave Carini said that since ZTE and Huawei were little known in western countries, developing markets offered the best opportunity for overseas expansion. ZTE and Huawei equipment typically costs 30 to 40 percent less than similar gear sold by western suppliers, who are reluctant to see their margins eroded by price cuts. ZTE and Huawei are quickly gaining a reputation as world-class suppliers and are up-and-coming players in the international marketplace.

Huawei, a private company, was established in Shezhen in 1987 with registered capital of only USD $27,000. Now the company has total revenues of over USD $6 billion. Since its founding, Huawei has grown

quickly and now employs 30,000 people worldwide. It is expanding internationally at an accelerated rate with 65 percent of sales now emanating from overseas markets. Huawei's overseas sales increased from USD $50 million in 1999 to USD $5 billion in 2005, a hundred-fold growth within 6 years. Huawei has established over 85 overseas branches, research centers and factories, and has deployed wireless terminal technologies in over 100 countries, providing services for roughly 1 billion customers.[19]

In 2004, Huawei had revenues of 2 billion in Latin America alone, where it now has offices in 13 countries. As mentioned, VIVO, the largest mobile operator in the region, adopted Huawei's EnerG Group Special Mobile (GSM) solutions in 2006 to build South America's biggest mobile network along Brazil's developed coastal states, including Rio de Janeiro, Espírito Santo, Paraná, Rio Grande do Sul, and Santa Caterina.[20] In mid-2006, Huawei was also awarded a Next Generation Network (NGN) transformation contract worth more than USD $50 million with CANTV, the leading provider of telecommunications services in Venezuela.[21] Less than half a year later, in an effort to nationalize the strategic industry, the Venezuelan government bought New York-based Verizon's 28.5 percent stake in CANTV for USD $572 million.[22] Venezuela is opening up its telecommunications market to China as it shuts U.S. companies out.

Much of Huawei's overseas success is attributed to the company penetrating rural, developing world markets. Huawei is the number one producer of CDMA 450 Mgz rural telephony and holds 67 percent of the world market share of the technology. According to Li Cheng, Visiting Fellow at the John L. Thornton China Center of the Brookings Institution in Washington, DC,

Huawei's leadership has been inspired by Mao's ideas of "occupying the country-side first in order to encircle the cities."[23] Indeed, Huawei got its start in China by targeting markets in small cities and towns in remote provinces, areas to which multinational companies did not even bother to seek access.[24] The company has moved up the value-chain in its product and service provision in China and is now following the same successful formula overseas.

Huawei's success is also attributed to support it receives from the Chinese government, particularly the People's Liberation Army (PLA). Huawei's chief executive and one of the seven founders, Ren Zhengfie, spent 10 years in the PLA, and Huawei is reported to have installed switches and other telecommunications equipment linking military bases across China in 2000. The company plays down the role of the government and the military in its contracts, yet Huawei receives state support in the form of tax privileges and state-sponsored credit because it has been designated a "national champion" of new technology. For example, the company was awarded a massive financing agreement from the state-controlled China Development Bank in December 2004. The agreement establishes a USD $10 billion credit facility for Huawei and its customers, acting as a government-backed guarantee on international expansion.[25]

An unclassified Canadian intelligence report[26] labels Huawei a civilian defense enterprise that grew over the years through PLA tutelage. In the 1980s, in order to increase funds for the military, the Chinese army was allowed to enter into profit-making businesses under favorable tax and investment rules. By the mid-1990s, the so-called PLA Inc. included over 20,000 companies in areas such as agribusiness, electronics, tourism, and

telecommunications. In 1998, government leadership ordered the PLA to divest itself of its profit-oriented businesses because of concerns about corruption. The PLA has not, however, completely withdrawn from the economy nor have the divested firms completely severed ties with the PLA. According to the report, Huawei is one of many private companies involved in defense production.

The same Canadian intelligence report claims that Huawei has offices in rogue states like Cuba and Iran and accuses the Chinese company of having aided the Taliban and Saddam Hussein's regime. In 2001, its Indian subsidiary was blamed for tailoring a commercial order for the Taliban in Afghanistan. Also in 2001, Huawei allegedly supplied Iraq with fiber optics to link its radar and anti-aircraft systems.[27] Huawei denied these accusations and explained that its equipment was found in Iraq because it had won a tender under the United Nations (UN) Oil-for Food Program to build a GSM network, but gave up on the project.[28]

The Indian government has been evaluating the risks of exposing strategic telecommunications networks to Huawei for fear that China could attack India's communications networks should relations between the countries deteriorate. The license in dispute would allow Huawei's India subsidiary, Huawei Technologies India, to bid for installation and maintenance work, among other types of telecommunications projects.[29] According to a *Times of India* article in August 2005, the dilemma facing the government involved a choice "between cheap Chinese equipment and national security." The Indian defense ministry stated, "In view of China's focus on cyber warfare, there is a risk of exposing our strategic telecom network to

the Chinese." India's security agency expressed "reservations regarding the company's links with the Chinese military and intelligence establishment, their clandestine operations in Iraq and Taliban-ruled Afghanistan, and their close ties with the Pakistan army."[30]

Another more provocative press article in September 2006 warned India against "sleeping with the enemy." It highlights the PLA's recent modernization efforts, which have included "the wholesale shift to digital, secure communications via fiber optic cable, satellite, microwave, and encrypted high frequency radio." This military shift was made possible by what Rand calls the "digital triangle," an alliance among China's booming IT companies, state research and development corporations, and the military. Under the triangle, Chinese companies are called "national champions." They are allowed generous lines of credit from state banks and funding and staff from the military and state research institutions. The PLA is the most favored customer for the high technology made by the "national champions" like Huawei.[31]

ZTE, a publicly listed company, was founded in 1985 in Shenzhen by a handful of state-owned companies affiliated with the Chinese Ministry of Aerospace Industry. ZTE became a publicly listed company in 1997 and has gained credit from analysts and customers alike for being more transparent than the privately held Huawei. Nonetheless, despite its listing, the Chinese government still owns a big portion of ZTE's shares.[32]

ZTE is already China's second-biggest telecommunications equipment vendor, after rival Huawei, and China's largest listed telecommunications solutions provider. The company has grown along with China's

big phone companies, which are ZTE's top customers. ZTE's revenue reached USD $2.68 billion in 2005. More than 25 percent of ZTE's business comes from international markets, and the company is actively focused on expanding overseas sales. ZTE expects that more than 50 percent of its revenue will come from the international market by 2008.

ZTE has been successful in the Asian and African markets and is now making inroads into Latin America where its revenues reached USD $400 million in 2005.[33] In May 2004, ZTE signed a USD $100 million contract to supply CDMA handsets to Vivo in Brazil. The Chinese company, like its rival Huawei, has focused energies on rural areas in the Latin American market where big multinationals dominate the populous urban areas. ZTE's Chief Executive officer (CEO), Yin Yimin, says the company is able to prevail over bigger competitors in developing markets because its home base in China gives it a better understanding of how to operate in developing countries. According to *Business Week Online*, Yimin is one of a new breed of bosses within China's state-owned enterprises. "He is keenly aware of how competitive the industry is, doesn't take state support for granted, and thinks about business as a constant battle."[34]

Both Huawei and ZTE are making their mark in the world's telecommunications industry, with the former raising alarm bells for its connection with the PLA. Both companies benefit from China's increasing supply of highly skilled, cheap labor and the world's—especially the developing world's—hunger for reasonably priced high-quality technology. The companies are also able to leverage their experience in China's expansive developing world market in other emerging markets. Andrew Chetham, an analyst

with Gartner Inc. in Hong Kong, believes Huawei and ZTE could potentially change the structure of the telecommunications industry. He said, "In 5 years' time, western companies [won't be able to] keep up with their research and development spending because of their low-cost advantage."[35] In fact, some analysts believe that the recent merger and acquisition deals between Ericsson and Marconi, Alcatel and Lucent, and Nokia and Siemens were at least partly designed to fight off competition from Huawei and ZTE.[36]

Part of Huawei and ZTE's successful international expansion is owed to their aggressive approach to business. In Argentina, their style has been described as ruthless. They are known to bribe and "trap" clients. They frequently offer Argentine clients and prospective clients full-paid trips to China. Upon arrival, it is alleged that they are presented with an envelope containing a significant amount of cash. Industry analyst Carlos Blanco disclosed one known case where, after a day of sightseeing, the Chinese left photos of their guests taken while touring in their hotel rooms. According to Blanco, such behavior is frowned upon by Argentine businessmen and is seen as a form of extortion.[37] Blanco views Huawei as the more ruthless of the two companies. He explains that Huawei is known for its cunning tactics of roping in clients. It often lends its equipment for trial periods, but if the prospective client does not wish to make a purchase after the trial, the Chinese company backtracks, claiming that it must charge for the use of the equipment. Uruguay's state telephone operator ANTEL purportedly fell into this trap. Huawei had offered ANTEL a 1-year trial of third generation telephone radios. After the trial period, ANTEL dragged its feet about purchasing the expensive, high-tech equipment, but Huawei insisted.

ANTEL bought the equipment even though the marketplace did not warrant it.[38]

While they are the dominant players, Huawei and ZTE are not the only Chinese companies in Argentina's telecommunications sector. Hutchison Whampoa Limited, a Hong-Kong based holding company rumored to have ties to Chinese leadership and the PLA, also has a stake in the market. Hutchinson's diverse array of holdings include, but are not limited to, the world's biggest port operators, retailers, property development and infrastructure companies, and telecommunications operators. Hutchinson operates telecommunications businesses in Europe, Hong Kong, and various emerging markets. The conglomerate has been particularly successful in India where it owns 67 percent of the mobile phone business.[39] In Argentina, Hutchinson operates a telecommunications network called "Port-hable" in the western part of Buenos Aires Province. It is a fixed line service but acts as a mobile service as customers can receive the signal outside of their homes. Hutchinson has about 70,000 users in Argentina. It wants a license to expand into the mobile market, but the Argentine Communications Secretariat denied its petition in January 2006. The government favored a local Argentine cooperative for the space.[40] Hutchinson, which has raised concern among U.S. politicians for its operation of strategic ports at each end of the Panama Canal, also runs a state-of-the-art container terminal in the Port of Buenos Aires.[41]

The two big telecommunications monopolies in Argentina—Telefónica and Telecom—are contributing to the rise of Chinese telecommunications companies. Both companies buy equipment from Huawei and ZTE, and both have other deepening ties with China. In July 2005, Telefónica International broke into China's

state-run telecommunications sector by agreeing to pay USD $290 million for 2.99 percent stake in China Netcom, China's second-largest fixed-line operator. In September 2005, the company bought another 2.01 percent for USD $242 million, lifting its stake to the maximum 5 percent and qualifying for a seat on the board.[42] While the transaction was carried out by Telefónica Spain, according to a journalist at Xinhau news agency in Buenos Aires, the investment funds were provided by Telefónica Argentina. Netcom and Telefónica are expected to cooperate on equipment purchasing, research and development, marketing, and business strategies.[43] According to industry analyst Carlos Blanco, it was the Chinese company who sought out the partnership with Telefónica. China Netcom is interested in extending its geographical operations of fixed and mobile services.[44] Also, it is rumored that Telefónica is strategically aligning itself with the Chinese so as to beat out potential competition. Telecom Argentina also has developed close ties with the Chinese. The Werthein family, which together with Telecom Italia owns over 50 percent of Telecom Argentina, was one of the first in Argentina to do business with the Chinese beginning in the 1970s. Since then, they have maintained good relations with the Chinese. In fact, the patriarch of the family, Julio Werthein, is the current President of the Argentine-China Chamber of Commerce.[45]

Now deregulated, Argentina's telecommunications sector is undergoing continuous change associated with increased competition, mergers, acquisitions, and shifting strategic alliances. New entrants like Chinese companies Huawei and ZTE have faired well and are even beating out more experienced competitors for market share. They have also garnered the support of the

market's dominant players—Telefónica and Telecom—which now buy their equipment. Beyond Huawei and ZTE, Telefónica and Telecom continue to strengthen ties with the Chinese. Positive market conditions and good relationships are helping the Chinese succeed as equipment suppliers and increasingly as network providers in Argentina and elsewhere in Latin America. While viewed as competent and successful, these largely state-owned companies' past dealings, motivations, and business practices are increasingly called into question.

China Enters Argentine Space Operations.

China has been pushing for increased international space cooperation and is looking to expand its share of the international market for satellite launches and other space services. Jin Zhuanglong, Deputy Director of the Commission of Science, Technology, and Industry for National Defense, speaking at an international conference on the space industry in Beijing in August 2006, mentioned that China will strengthen cooperation in the international space community with the aim of achieving "the peaceful development of outer space." China has already signed 16 agreements with 13 governments and organizations, and established space industry cooperation with more than 40 countries and international bodies. Specifically, China is looking to further cooperation with European and South American countries.[46]

Argentina and most other Latin American countries have historically relied on cooperation with the United States to support their space programs. Argentina opened the door to increased space cooperation in 1991 when it created the Argentine National Commission on

Space Activities (CONAE). Its first cooperative efforts were with the U.S. National Aeronautics and Space Administration (NASA). The same year CONAE was created, it signed an agreement with NASA for the promotion of civilian space research and cooperation. (An agreement extending the 1991 agreement was signed in 1996.) Since then, cooperative activities have included scientific exchanges, the launching by NASA of Argentine scientific satellites, and a 1997 U.S.-Argentine space conference hosted by CONAE and NASA. In addition, the U.S. and Argentina have worked closely on the Gemini and Auger projects, two multinational space programs.[47]

In 2000, the United States assisted Argentina in launching its first Earth orbiting SAC-C satellite. The project was a collaborative effort between Argentina, the United States, Brazil, Denmark, France, and Italy. The satellite was launched from Vandenberg Air Force Base in California.[48] Moreover, CONAE and NASA are currently collaborating on the SAC-D/*Aquarius* satellite, under construction by the Argentine high-tech firm INVAP, which is scheduled for launch in 2008.[49] U.S. private companies have also played a role in the development of Argentina's satellite program. For example, General Electric Capital Corporation (GE), later to be acquired by SES Global and become SES Americom, was one of the early investors, with 28 percent of shares in Nahuelsat, a private company created to operate satellite communications systems in orbital positions assigned to Argentina.

In the last few years, China has pushed to become a player in Argentina's space and satellite industry as well. During President Hu Jintao's visit to Argentina in November 2004, the countries signed a Framework Agreement on "Technology Cooperation in the Peaceful

Use of Outer Space." According to the agreement, the Chinese government is willing to provide the Argentine government with commercial launch services, satellite components, and communication satellite platforms. The Argentine government is taking advantage of this offer so as to launch a satellite in the commercially valuable 81 degrees longitude slot, which allows for observation of all the Americas.

The 81 degrees slot was allotted to the Argentine government by the International Telecommunications Union (ITU) in 1998. It occupies a strategic orbital position 36,000 kilometers above the equator, with a reach to North America, including all of the United States and the southern part of Canada. To date, the government has been unable to launch a satellite into the slot. The Argentine government had originally commissioned the work to Nahuelsat, but financial issues impeded its success in filling the 81 degrees slot. There is pressure mounting for the Argentine government to fill the slot, and it has already asked for extensions to the original deadline of October 2003 and the extended deadline of October 2005 imposed by the ITU. At present, the government is enjoying a de-facto 2-year grace period until the World Telecommunications Conference in October 2007, after which the ITU will decide on its case.

In 2004, the Argentine government promoted the creation of ARSAT, a national satellite company, to be responsible for placing a satellite into Argentina's 81 degrees slot and repairing its older satellite, *Nahuel 1*, now occupying position 72 West. The ARSAT program was approved by the Argentine Senate in September 2004 and was signed into existence by the Congress in March 2006. The company was assigned an initial 50 million pesos (roughly USD $16.6 million)

from the government, with the rest of the needed capital to be generated by stock sales. Large and small telecommunications companies in Argentina had promised the government that they would buy capacity once the satellite was up and running. In December 2005, Nahuelsat was reorganized due to the withdrawal of SES Americom, and it was decided that the company will be absorbed into ARSAT, leaving only one satellite operator in Argentina.

INVAP, a space satellite manufacturing company run by the Argentine Province Rio Negro, will be responsible for creating and launching the satellite for ARSAT. In 2004, during his visit to Latin America, Chinese President Hu Jintao visited the INVAP facility in Rio Negro.[50] In May 2005, the Chinese government signed an agreement with the Argentine government to provide technical support and equipment to INVAP for the development of the satellite. According to industry experts, INVAP does not have the capability to build a communications satellite on its own. Chinese experience and expertise will complement INVAP's capabilities. The Chinese also have offered Argentina a full launching system for the satellite at a 30 percent discount from international market prices. Payment for services and equipment provided by the Chinese will be paid through ARSAT stock, which would give the Chinese ownership stake and corresponding voting rights in the Argentine state satellite company.[51] According to one press report, there are conversations going on between the Argentine and Venezuelan governments about the possibility of Venezuela joining the ARSAT project.[52]

Chinese space assistance to Argentina goes beyond the high-profile slot 81. Indeed, according to industry analyst Carlos Blanco, China is largely interested in

low orbiting, fixed observance satellites in Argentina. Argentina already has two in place, and China is interested in helping Argentina develop and field more. Moreover, in early 2006, China provided Argentina with a third generation precision satellite laser ranger (SLR). According to press reports, the astronomical instrument was installed in San Juan University of Argentina, and will be launched jointly by China National Astronomical Observatories (NAOC) and Argentine San Juan University. The primary function of the SLR is the measurement of precise distances between laser telescopes and reflectors on passing satellites. SLR is mainly used in monitoring earth rotation and polar motion, modeling the temporal and spatial variation of the earth's gravity field, and the determination of ocean and earth tides.[53]

China's space cooperation in South America extends beyond Argentina. For example, China has signed a contract to manufacture and launch satellites for Venezuela, and has cooperated with Brazil on the development and launch of four satellites under the China-Brazil Earth Research Satellite (CBERS) program. The CBERS program involves, among other things, Brazilian digital imaging technology that may help the Chinese to augment their over-the-horizon military targeting capability.[54] Brazilian space cooperation with China is more advanced than Argentina-China cooperation. According to Stephen Johnson, Deputy Assistant Secretary of Defense for Western Hemisphere Affairs who works for the Undersecretary of Defense for Policy, the Chinese began collaborating with Brazil on spy satellite technology in 1999, providing rocket launch expertise in exchange for digital optical technology that would permit high resolution, real-time imaging.[55]

The United States has a good track record of space cooperation with Argentina dating back to the early 1990s. However, the 2005 withdrawal of SES-Americom from Nahuelsat means that the United States will not participate in the operation of Argentina's two orbital slots allotted to it by the ITU. Argentina's state-run company ARSAT will now be the sole operator of the slots. Moreover, China will be providing ARSAT's satellite manufacturer INVAP, another state company, the technical assistance needed to create the satellite that will eventually fill the 81 degrees position.

Argentina's historic reliance on U.S. space cooperation is waning as China offers alternative assistance. This is part of a larger pattern best described by Latin America scholar Peter Hakim as U.S. disinterest post-September 11, 2001 (9/11), and resulting in sporadic and narrowly targeted policies toward the region since then. As a result, Latin American leaders' support for Washington's policies has diminished. According to Hakim, few Latin Americans today, in or out of government, consider the United States to be a dependable partner.[56] It is not surprising, then, that they are reaching out to other willing partners like China in areas such as space operations.

Implications for U.S. Security.

The implications for U.S. national security of increasing Chinese presence in Argentine and other regional space and telecommunications sectors will depend on the U.S. response to this trend. Potential threats exist as U.S. companies cede market dominance to Chinese and other foreign companies in strategically sensitive sectors. Telecommunications networks are no longer domestic, terrestrial, and circuit-switch

operated. They are interdependent, diverse, and rest on terrestrial, satellite, and wireless technologies. These latter technologies are harder to control and more susceptible to tampering and attacks. Chinese capabilities in information technology and IW are increasing as its economic and political influence grows in Latin American countries. If Chinese influence is left unchecked, the United States will leave itself vulnerable to international information networks, which are of increasing operational importance to a modern military.

Ceding Commercial Dominance.

According to a report written by Robert Fonow in 2006 for the Center for Technology and National Security Policy,[57] it is expected that within 5 to 10 years, the United States will be only one of several regional telecommunications centers, and not necessarily the most powerful and influential. U.S. leadership in telecommunications has experienced a relative decline, with countries like China well positioned to challenge current U.S. dominance in the industry. Rather than a global integrated system, the international telecommunications system, including the Internet, email, and other applications, relies on a physical set of private networks owned by businesses and governments within sovereign states.

The United States used to be the undisputed leader in international telecommunications operations and innovations with more influence internationally, but U.S. telecommunications companies have retreated from the ownership of fundamental international network assets. U.S. leadership is particularly threatened in the telecommunications technologies that make up the

underlying routing and protocol fabric of the Internet. Countries capable of challenging the United States have invested heavily in networks. China in particular has a network infrastructure that is as good in its critical cores as the current U.S. telecommunication system and shows every possibility of surpassing it in the coming years.[58]

Fonow explains that U.S. companies' retreat from active ownership of international telecommunications networks is not simply a matter of ceding commercial dominance; it has implications for modern U.S. military operations as well. In periods of high traffic, which often accompany a crisis, it is estimated that up to 90 percent of Department of Defense (DOD) traffic is carried on networks owned and maintained by entities in other countries.[59] As a result, Fonow believes these countries have the capacity to inhibit or disrupt U.S. telecommunications outside U.S. borders at any time.[60] He laments that U.S. citizens tend to think the United States drives events, yet U.S. Government perceptions and actions have been largely irrelevant to China's takeover of the international telecommunications industry.[61]

The perception that the United States is still the global telecommunications leader is dangerous insofar as U.S. defense planners fail to accurately assess China's future military capabilities. With the ability to collect and share information a vital part of any modern military, China's capacity to improve the PLA in this area must be considered. China and other countries are in the process of taking the lead in several technologies that are critical to telecommunications-based warfare. Fonow states:

> In telecommunications-based warfare, where the battle-space includes the international telecommunications network, traditional military tactics become dependent on the switches, routers, and software algorithms that provide direction and intelligence. When the technology and software algorithms belong to China, the rules of the game change. This obvious fact is not understood very well, or perhaps is just not acknowledged. The emerging reliance on international networks in military operations should thus be considered very carefully. The United States no longer has control of the international telecommunications system in any essential or meaningful way, especially outside the continental United States. The United States only has the use of the international telecommunications network for military purposes in any country at the pleasure of the host government. Most Department of Defense (DOD) traffic crosses other national networks, including those of every potential adversary. Foreign nationals control U.S. military information once it leaves the United States.[62]

Chinese companies are now formidable competitors in the world's telecommunications markets. They are making impressive gains in developing world markets where their low price technologies beat out the competition. Moreover, the developing world governments often prefer to deal with the Chinese. China can bargain on the spot without a lot of caveats. Its transactions are based on simple exchanges. Its leaders have broad authority to negotiate foreign deals without worrying about legislative oversight, the rule of law, or altruistic objectives. Unlike western company executives, Chinese leaders represent state monopolies that mesh well with Latin American government management of the telecommunications industry. Moreover, authoritarian leaders and corrupt oligarchies control a number of governments. For them, signing purchase agreements with the Chinese is much easier than dealing with the array of private corporations

from more democratic countries.[63] Moreover, Chinese companies enter these developing markets for the long term. Buffered by generous government credit lines, they do not feel the same urgency to make a profit.

As Chinese companies gain strategic footholds in the developing world, U.S. firms are withdrawing from these places, preferring quick returns in more developed markets. Fernando Guerrero, Vice President of Nextel Argentina, believes that this is the case for U.S. firms in Argentina. He explained that U.S. telecommunications companies tend to be so driven by quarterly results and resulting stock fluctuations that they give up on markets that do not provide quick returns. In Argentina, for example, U.S. companies that lined up to enter the market just prior to deregulation of the telecommunications industry in 2000 have already bailed, unable or unwilling to weather the storm of Argentina's economic downturn in 2001-02. AT&T and Bell South set up operations in Argentina prior to deregulation in 2000, and both companies have left already. Telmex acquired AT&T Latin America, including AT&T Argentina, and Telefónica bought Bell South Latin America's assets, significantly strengthening its position in the region.

Nextel is now the only U.S. telecommunications company with robust operations in Argentina. Yet Nextel does not work within the consumer market, rather it is a niche player offering radio-operator technology to businesses and government agencies. When the crisis hit Argentina, Nextel already had an investment of USD $600 million at stake in the country. It kept operating through the dark days of economic turmoil, and today it has investments totaling about 1 billion dollars.[64]

Besides Nextel, there is virtually no U.S. stake in the Argentine telecommunications industry. This

leaves it an open playing field for other national and international players and creates vulnerabilities for U.S. security. As the U.S. withdraws from the market, it loses an opportunity to participate in securing the industry. The U.S. Government and U.S. companies rely on local networks for overseas operations. If there are no U.S. service providers and network operators, the United States is fully dependent on foreigners for its communication. In the case of conflict, the United States would have little recourse to protect vital lines of communication.

Newer Technologies Create Vulnerabilities.

According to the U.S. National Security Telecommunications Advisory Committee,[65] the impact of today's technological environment is profound. New technologies and the increasingly competitive marketplace combine to bring both new opportunities and new vulnerabilities to the information infrastructure. Thirty years ago, communications services were provided by a communications infrastructure based on a domestic, terrestrial, circuit-switched voice network, supported primarily by manual controls. Today's communications network is composed of interdependent, diverse, circuit and packet switched networks using terrestrial, satellite, and wireless transmissions systems to provide voice, data, image, and video communications, supported primarily by software-based controls.

Globalization introduces another element of diversity and interdependence as domestic service providers establish joint ventures or merge with foreign service providers. Communications networks and information systems have inextricably converged

into an information infrastructure in which neither communications nor information processing can fully function without the other. This growth and convergence have offered capabilities and applications that have profoundly changed how both the public and private sectors conduct business, increasing their dependence on the technologies comprising the information infrastructure. While it is critical to the U.S. Government, the information infrastructure in the United States is owned and operated by the private sector. This is not entirely true in China where, despite major privatization over the last decade, the Chinese government maintains strong control over the industry. The Chinese, for example, do not allow foreign companies to operate information networks in China.

In today's interconnected and increasingly networked world, societies and their governments are vulnerable to a wide variety of threats, including deliberate attacks on critical information infrastructure. The United States is especially at risk as it relies heavily on computer and networked systems. Further, as an open society where critical infrastructures are controlled by independent nongovernmental entities and where some critical military systems depend on independently operated critical infrastructure, the potential vulnerability of the United States to cyber attack is huge.[66]

The Internet and related technologies are being used to facilitate acts that could adversely impact national security. Evidence suggests that attacks on critical communication infrastructure are growing. Cyber threats now are growing at a pace that exceeds governments' ability to address them. Safety and security on the Internet is a national security issue. The

Internet is a major component of the U.S. economy and a communications tool for both government and military messages.[67] According to an August 2005 computer security report by IBM, more than 237 million overall security attacks were reported globally during the first half of 2005. Government agencies were targeted the most, reporting more than 54 million attacks. The most frequent targets for these attacks were government agencies and industries in the United States. U.S. DOD officials acknowledged that hackers, apparently based in China, have been successfully penetrating U.S. military networks since 2001, and perhaps earlier. Although the hackers are suspected to be based in China, DOD and security officials remain divided over whether the ongoing attacks are coordinated or sponsored by the Chinese government.[68]

A 2004 survey by Counterpane Internet Security, covering 450 networks in 35 countries, shows that hacking has now become a profitable criminal pursuit. Hackers now sell unknown computer vulnerabilities on the black market to criminals who use them for fraud.[69] A February 2005 report by the President's Information Technology Committee stated that the information technology infrastructure of the United States, which is vital for communication, commerce, and control of the physical infrastructure, is highly vulnerable to terrorist and criminal attacks. A May 2005 report by the U.S. Government Accountability Office (GAO) stated that because of the growing sophistication of malicious code on the Internet, the federal government may be increasingly limited in its ability to respond to cyber threats.[70]

The trend toward wireless technologies in the telecommunications industry makes the industry increasing vulnerable to tapping and manipulations.

Wireless interception devices pick up waves easier than having to physically tap a cable line. Again, if U.S. companies can exert some control over wireless networks, there are better chances of safeguarding official U.S. communication. When these networks are controlled by foreign nations or companies, U.S. communications can never be 100 percent secure.

Telecommunications systems rest on fragile infrastructure that can be crashed by anyone with a serious intention to do so. National governments can deny their networks to U.S. use, and vulnerable network points could be easily located and destroyed by any organization or state adversary with its own telecommunications infrastructure.[71] John Lowry, an information security specialist, claims that all countries need to be careful of anyone operating their telecommunications infrastructure. Governments should make sure that the companies' interests match the governments' interests. Countries should be aware of the source of equipment, software, and other products that they purchase and understand who could potentially tamper with them. According to Lowry, it has to be tempting for any country to include a control button or some sort of devise in the equipment they sell that provides shut-down capabilities. Lowry explains that there is particular distrust of Chinese telecommunications companies owing to the PLA's role in the industry.[72]

China's Growing Information Warfare Capabilities.

In 1999, two senior colonels of the PLA, Qiao Liang and Wang Xiangsui, wrote a book on military strategy entitled in English "Unrestricted Warfare." In it, they discuss innovative forms of warfare where new concept

weapons take center stage and there is nothing in the world that cannot be used as a weapon. They encourage China to overcome traditional military asymmetries with powers like the United States by placing new emphasis on IW methods such as attacking enemy financial markets, civilian electricity networks, and telecommunications networks.[73]

A report written in 2001 by Dr. Toshi Yoshihara,[74] professor in the Strategy and Policy Department at the U.S. Naval War College, confirms China's interest in IW. Having reviewed Chinese literature and debates, Yoshihara concludes that the Chinese have demonstrated an intense fascination with IW. Yoshihara uncovered a definition of IW provided by Major General Wang Pufeng, widely recognized as the founder of Chinese IW. According to the General,

> Information war is a product of the information age which to a great extent utilizes information technology and information ordnance in battle. It constitutes a "networkization" (*wangluohua*)of the battlefield, and a new model for a complete contest of time and space. At its center is the fight to control the information battlefield, and thereby to influence or decide victory or defeat.[75]

One way to succeed in IW, according to Yoshihara, is by implementing a *Computer Network Attack* (CNA). CNA is the use of computers and telecommunications equipment to disrupt, deny, degrade, and destroy enemy computers, computer networks, and the information being transmitted. One Chinese article reviewed by Yoshihara noted that the information technology revolution is the core and foundation of this military revolution, because "information and knowledge have changed the previous practice of measuring military strength by simply counting the

number of armored divisions, air force wings, and aircraft carrier battle groups. Nowadays, one must take into account some invisible forces, such as computing capabilities, communications capacity, and system reliability."[76]

China is expanding cyber related military training and is already incorporating cyber warfare into military exercises. An article published in 2000 in the *Liberation Army Daily*, the official newspaper of the Chinese PLA, discusses Chinese preparations to carry out high-technology warfare over the Internet and advocates the creation of a fourth branch of the armed services within the PLA devoted to IW.[77] Moreover, a Chinese presidential decree in year 2000 established a military university whose mission includes training soldiers in IW, among other communications-related fields.[78] Cyber warfare is an extreme example, but one cannot discount it as a potential threat to U.S. national security.

Growing out of a need to control the free flow of information domestically, China has developed impressive capabilities with the Internet. The Chinese "Internet Policy," officially known as the Ministry of Public Security's Internet and Security Supervision Bureau, is reportedly more than 300,000 people strong. Its Beijing branch proudly claimed that, in 2002 it participated in a multiagency exercise to rid the Internet of "harmful content" within 48 hours of the onset of an emergency. They surpassed expectations by removing the harmful content in 19 hours.[79] Information security specialist John Lowry agrees that China has good practice in controlling the Internet, but its strength has yet been tested as Internet penetration in China remains limited; the Chinese may not have similar successes as the scale of Internet use increases, which

it surely will.[80] Nonetheless, China appears to maintain a tight grip on Internet content and its number of users as of April 2006 stood at 200 million, higher than the 154 million U.S. users.[81]

Chinese in Western Hemisphere Space.

As the Chinese gain a foothold in the international telecommunications industry, they are simultaneously working to enter international space programs. The United States already has reason to be wary of how the Chinese may use their increased presence in Western Hemisphere space against it. According to former U.S. Ambassador to Beijing James Lilly, "[T]he facts are that [the Chinese] run massive intelligence operations against us, they make open statements against us, their high-level documents show that they are not friendly to us." Chinese military white papers promote power projection and describe U.S. policies as "hegemonism and power politics."[82]

China has already been caught spying on the United States. In 1999, through collaboration with Fidel Castro, China was reportedly intercepting satellite signals from facilities in eastern Cuba. In 2000, it obtained access to a base outside of Havana to intercept U.S. telephony. In 2001, Russia announced that it would abandon its extensive electronic espionage center at Lourdes, Cuba. Chinese personnel reportedly now occupy it. A February 2004 agreement cloaks such operations under the pretext of technical communications cooperation. In fact, Radio China International signals originate from Cuba, as does interference with U.S. East Coast radio communications and air traffic control, according to Federal Communications Commission complaints.[83] According to Deputy Assistant Secretary of Defense

Stephen Johnson, China has an eye trained on the United States. U.S. intelligence agencies are aware of this, but Washington's penchant for focusing on one threat at a time, such as the war on terrorism, could leave the United States vulnerable to Chinese industrial and military espionage.[84]

China's space capabilities are on the rise as evidenced by its recent antisatellite missile test. In January 2007, China successfully destroyed one of its own orbiting satellites with a ballistic missile. The test of an antisatellite weapon was perceived by Asia specialists as China's most provocative military action since it test fired missiles off the coast of Taiwan more than a decade ago. The test spurred controversy with analysts questioning China's peaceful rise. "This is the other face of China, the hard-power side, that they usually keep well hidden," said Chong-Pin Lin, an expert in Taiwan on China's military. "They talk more about peace and diplomacy, but the push to develop lethal, high-tech capabilities has not slowed down at all."[85] The test makes China the third power to shoot down an object in space, after the United States and the former Soviet Union. Having a weapon that can disable or destroy satellites is considered a component of China's unofficial doctrine of asymmetrical warfare. China's army strategists have written that in the event of armed conflict with the United States, over Taiwan for example, the Chinese military intends to rely on relatively inexpensive but highly disruptive technology to impede the better-equipped and better-trained U.S. forces.

Chinese presence in Western Hemisphere space creates particular vulnerabilities for the United States. Latin America's geographical proximity makes for convenient satellite observance of the United States.

Access to space tracking facilities in the region also could give China the ability to attack U.S. satellites.[86] Moreover, Chinese space cooperation with Latin American governments that have historically collaborated with the United States provides the Chinese an opportunity to study U.S. space technologies and practices up close. As is the case with the telecommunications industry, there is increasing competition in the international space markets. If the United States fails to maintain its preeminence in these markets, it will lose the ability to secure this extremely strategic industry.

China's Influence Grows as U.S. Influence Wanes.

China's growing influence in Latin America is owed largely to increased Sino-Latin American economic ties dominated largely by trade. However, it is also attributed to increasing political and military cooperation between China and Latin American countries. As U.S. influence in the region—especially in South America—is waning, China's influence grows. When considering security vulnerabilities in areas like telecommunications and space, good relations with host governments become critical. U.S. decreasing influence in the region, therefore, creates new security vulnerabilities.

For the last several years as U.S. policymakers' attention and resources focused on the Middle East and largely diverted from Latin America, China has broken with past precedent and pursued a policy of economic engagement with the region. Sino-Latin American trade reached USD $50 billion in 2005, with China emerging as the region's third largest trading partner. Latin American exports to China are growing at 47 percent

a year, with Mercosur's original member countries—Argentina, Brazil, Uruguay and Paraguay—accounting for 85 percent of the total.[87] Two-way China-Latin America trade is expected to reach USD $100 billion by 2010. For purposes of comparison, U.S.-Latin America trade currently stands at USD $183 billion.[88]

Trade is the principle source of increased Sino-Latin American ties, but economic investment and cooperation also contribute to growing relations. During his well-publicized trip to the region in November 2004, Chinese President Hu Jintao signed about 400 agreements and business deals[89] with Latin American countries and pledged that China would invest more than USD $100 billion in the region over the next decade. In the case of Argentina, USD $20 billion was promised for investment in the country's railways, oil and gas exploration, construction, and communications satellites. Moreover, five agreements were signed increasing Argentine-Chinese bilateral cooperation in the fields of space technology, education, tourism, railways, and trade. Both the cooperative agreements and investment promises are part of a larger "strategic partnership" that has prompted increased collaboration in commercial as well as noncommercial areas.

The U.S. Government is now alert to China's growing presence in the region. In April 2006, U.S. Assistant Secretary of State for Western Hemisphere Affairs Thomas Shannon traveled to Beijing to talk to Chinese government officials about their dealings with the region. This was an unprecedented meeting, highlighting China's growing presence in the region. According to Dr. Evan Ellis, a specialist in Latin American and U.S. security issues, the trip can be interpreted as a symbolic gesture recognizing China's "seat at the table."[90] According to the press, Army

General Bantz J. Craddock, who at the time oversaw U.S. Southern Command, prompted the high-level discussions when he told a Senate Armed Services Committee that "more and more Chinese nonlethal equipment" was showing up in the region, and that growing numbers of Latin American military officers were going to China for training. During Assistant Secretary Shannon's visit, Chinese analysts explained that their nation's expanded military relations with Latin America are part of its growing political, economic, diplomatic, and military ties around the world.[91]

U.S. policy has inadvertently strengthened China's role in military cooperation with the region with its American Service Member's Protection Act (ASPA). This law, introduced in August 2002, limits U.S. military aid and economic assistance to member countries of the International Criminal Court (ICC) in The Hague. Exemptions are granted to countries that sign Article 98 agreements, promising not to send U.S. citizens to the ICC without U.S. agreement. Exemptions to ASPA are granted to NATO and non-NATO allies, but Argentina is the only country in Latin America to enjoy that status.

The intention of the law was to protect U.S. citizens, but the unintended consequence is to limit U.S. security cooperation with the region. A dozen Latin American countries lost some U.S. military and economic assistance due to this act.[92] In some cases, China and Venezuela have moved to fill the void left by U.S. assistance.[93] The U.S. Government, concerned by Washington's waning influence in Latin America as well as the current shift to leftist governments in many of the region's capitals, signed a waiver on October 2, 2006, that delinked International Military

Education and Training (IMET) from ICC and Article 98 status. Nonetheless, restrictions to certain military and economic assistance still apply.

China's increased involvement in Latin America is part of its long-term grand strategy. This grand strategy focuses on "comprehensive national power" necessary to achieve the status of a "global great power that is second to none" by 2049.[94] It seeks energy security and access to natural resources, raw materials, and overseas markets to sustain its economic expansion. It pursues military power and aims to build a network of Beijing's friends and allies through China's "soft power" and diplomatic charm offensive, trade, and economic dependencies via closer economic integration and mutual security pacts, intelligence cooperation, and arms sales.[95]

According to Sergio Cesarin, a well-known Argentine China scholar, when looking at China's role in Latin America, one should consider China's aspiration to increase its influence in the international system through the construction of political, economic, and military power. The Chinese have a tradition of long-term vision. They are working on a gradual and progressive insertion in the region, which is a reflection of their slow, unfolding potential in the world. Their approach is subtle, and they generally keep a low profile in the region. (Chinese President Hu Jintao's 2004 tour was an exception.) China is seen as an opportunity for Latin America to break the existing North-South asymmetry.[96]

Forging friendships with other developing countries is an important aspect of China's efforts to become a great power. According to Professor Jiang Shixue of the Chinese Academy of Social Sciences, China, as a developing country, always considers

its relations with other developing countries as the foundation of its foreign policies. Shixue explains that as a promoter and supporter of cooperation among developing countries, China adheres to the principle of pursuing equality, mutual benefits, effectiveness, and common development. Moreover, China's current stance toward international relations is based on four principles that sit well with other developing countries: autonomy, full equality, mutual respect, and mutual noninterference.[97]

Latin American countries, like China, are developing nations that also covet the principle of nonintervention and believe in the protection of sovereignty. China embraces a "strong" or "black box" conception of state sovereignty, which holds that a state's internal affairs and domestic political order are only rarely and in limited ways a legitimate concern of the international community, and almost never warrant military action by foreign powers. This emphasis on sovereignty has long been a central theme of China's foreign relations.[98] Latin American countries also covet sovereignty and have historically promoted the principle of nonintervention, which they regard as protection from foreign interference. Indeed, the Doctrine of Non-Intervention continues to be one of the most fundamental pillars of the Inter-American system. Article 19 of the Organization of American States (OAS) Charter states:

> No state or group of states has the right to intervene, directly or indirectly, for any reason whatever, in the internal or external affairs of any other state. The foregoing principle prohibits not only armed force but also any other form of interference or attempted threat against the personality of the state or against its political, economic, and cultural elements.[99]

Beijing's customary denials notwithstanding, "the successful Chinese model" of "development minus democracy" or "development before democracy" is being sold to the developing world as an alternative model for ending poverty. Dr. Evan Ellis believes that for Latin America, China provides a compelling illustration that an underdeveloped country can achieve rapid economic growth and prosperity without liberalizing its political system. The sheer magnitude of the Chinese success story, coupled with Chinese economic and diplomatic overtures to Latin America, provides a compelling argument to those in the region who wish to resist the U.S. agenda of democracy, free trade, and economic reform. This influence, even more than actual Chinese investment and political and military support, may "tip the scales" in helping to strengthen anti-U.S., anti-democratic, and an anti-free market leaders in the region.[100]

Over the years, China has been pursuing increased political cooperation with the Latin American region. China has participated in political dialogues with the Rio Group since 1990,[101] and in June 1994, China became the first Asian country to be an observer of the Latin American Integration Association.[102] China was admitted into the Caribbean Development Bank in 1997, and in March 2007 China signed a memorandum of understanding with the Inter-American Development Bank that provides a framework for its possible admission as a member of the Bank. China also has participated in official talks with Mercosur.[103]

Rivalry with Taiwan and an interest in strengthening its vote in the UN also have inspired China's wooing of Latin American countries. Out of the 26 nations that still have "diplomatic relations" with Taiwan, 12 of them are found in Central America and the Caribbean.

Luring these 12 countries toward the "one China" policy remains a key objective of Beijing's foreign policy. Most South American countries, including Argentina, do not have official diplomatic relations with Taiwan. Taiwan's Buenos Aires Embassy closed when Argentina recognized the People's Republic of China (PRC) in 1972. Since then, its interests have been represented through a commercial office. Beyond the Taiwan question, the Chinese also believe that their relations with Latin American states will lead to similar positions towards other international issues. In a UN system where one country enjoys one vote, China could win the support from Latin American countries on some key issues.[104]

The U.S. Tarnished Image.

U.S. influence is damaged by a tarnished image throughout the Latin American region. Nowhere in the region is U.S. popularity as low as it is in Argentina. The United States and its Washington Consensus policies of the 1990s have been largely blamed by the media and subsequent government administrations for the 2001-02 economic melt-down in the country.

As a result, Argentina has worked to obstruct the U.S. policy agenda for the region. Along with fellow Mercosur countries, Argentina helped derail the U.S.-led Free Trade Area of the Americas (FTAA) talks at the Summit of the Americas it hosted in November 2005. During the official summit, the Argentine government supported an anti-U.S and anti-free trade countersummit dominated by the "anti-imperialist" diatribes of Venezuelan President Hugo Chavez. Recently, in March 2007, the Argentine government also permitted an anti-Bush rally led by Hugo Chavez

in Buenos Aires as President George Bush visited neighboring Uruguay as part of a multicountry Latin American tour. The IMF, with its practice of "tough love" during Argentina's economic crisis, bore the brunt of Argentina's frustration with U.S.-led policies. In early 2006, Argentina—following Brazil—paid off its debt to the IMF using Venezuelan money, freeing itself from loan conditions that it considered violations of its national sovereignty.

The Argentine government's anti-American stance reflects its electorates' sentiments. According to the 2005 report of *Latinobarómetro*, an annual public opinion survey for Latin America, Argentina is the Latin American country which has the "least positive" image of the United States. While between 70 and 87 percent of Central Americans, for example, have a "rather good" opinion of the United States, only 32 percent of Argentines are reported to have a good opinion of the country.

While the United States is associated with failed economic policies of the 1990s, China is praised for contributing to several years of export-led growth in Argentina and other South American countries. Not surprisingly then, Argentina views China as an alternative to U.S. hegemony. As it disassociates from the United States, Argentina pushes for increased ties to China and other growing global economies. It prefers China's seemingly less intrusive approach to business and politics. The United States insists on meddling in issues of human rights, free-trade, and democracy in Argentina and other Latin American countries, while China to date eschews interference in domestic political concerns. Argentina and other Latin American countries, valuing the principle of sovereignty above all else, have reacted favorably to China's hands-off approach.

China has received positive reviews from Argentines and Latin American citizens as a whole in recent opinion polls. According to a February 2006 *Opinion Analysis Report* of the U.S. State Department, a December 2005 poll reveals that 57 percent of Argentines hold a favorable image of China (even though the same poll shows that Argentines are not very informed about China[105]). According to the State Department report, Argentine opinion toward China is part of a broader regional phenomenon as Latin American citizens consider the Asian power an alternative to the U.S. and European markets.[106]

The Argentines are embracing China's rise in the cultural and academic realms as well. The University of Buenos Aires in Argentina, for example, started a Chinese-language department in 2004 after Hu Jintao's visit. Instead of the 20 students expected, more than 600 signed up for classes. Now there are more than 1,000 students studying Chinese at the university in nearly 70 classes.[107] There also has been an increase in academic and educational exchanges between the two countries, with some universities creating programs for Chinese students to study Spanish and other courses in Argentina. The rector of a private Jesuit university in Buenos Aires has visited China frequently in 2006 to establish an exchange program for the Chinese revolving around the study of Jorge Luis Borges, the famous Argentine writer. According to a source close to the rector, the Chinese are crazy for Borges. Moreover, in an unprecedented academic seminar on September 11, 2006, Chinese and Argentine scholars participated in a forum discussing issues related to their "shared" economic development experiences. At the day-long event organized by the Chinese Academy of Social Sciences (CASS) and the Latin American Council

of Social Sciences (known by its Spanish acronym CLACSO), a Cooperation Framework Agreement was signed between the two organizations promising future collaboration.

Policy Recommendations and Conclusion.

The United States has a series of factors working against it in Latin America that make it especially vulnerable in the telecommunications and space sectors. First, U.S. companies no longer dominate foreign telecommunications and space industries. There is increased competition internationally—especially from China, which is now targeting developing markets for both economic and strategic reasons. Chinese telecommunications companies like Huawei and ZTE enjoy generous government credits, buffering them from short-term loss in these less profitable markets. Moreover, the Chinese government is offering the Argentine government satellite services way below international market prices. Second, China is actively seeking superiority in information technology capabilities. Its increasing pool of talented cheap labor in this industry is likely to perpetuate China's success in this area. More disconcertingly, Chinese military strategy emphasizes the use of IW as a means to overcome asymmetric warfare with the United States. The Chinese are long-term strategists, and one should not discount the possibility that they are working to gain a strategic foothold in telecommunications industries around the world for strategic and military interests as much economic ones. Third, Chinese influence is rising in the Latin American region as a whole, which could eventually give it more sway over local governments that ultimately control in-country information systems

and networks. U.S. popularity is low in the region, and China's is growing. Argentina now feels more comfortable allying itself with Venezuela and doing business with the Chinese than cooperating with the United States.

While China is not currently building a significant military presence in Latin America, the human and commercial infrastructure that it is building increasingly gives China a powerful lever for disrupting and distracting the United States in the Western Hemisphere should Sino-U.S. relations turn sour in the future.[108] The United States should work to counter China's growing influence in the region in order to mitigate future threats. To do so requires improving U.S. relations with Latin American countries and making U.S. companies more competitive in the region—especially in strategic markets where U.S. security is at stake.

The most effective way for the United States to improve its standing and influence in Argentina, and the Latin American region as a whole, is to help these countries succeed economically through increased aid, trade, and investments. The United States has neglected the region as it pursues other foreign policy objectives in the Middle East. Besides Plan Colombia and counternarcotics and terrorism programs in the Central American and Andean subregions, other economic and humanitarian assistance programs have been reduced over the last several years due to budget constraints largely associated with the war in Iraq. The United States has left a void in the region. Venezuela, rich with petro-dollars, and China, rich in foreign exchange after decades of unprecedented economic growth, are trying to fill it. So far, they have been succeeding.

Peter DeShazo, Director of the Americas Program at the Center for Strategic and International Studies

(CSIS), testified before the Congress House Arms Service Committee about the need to assist the region with what he termed "second generation structural reforms" to help with job creation and poverty reduction by providing more economic assistance and flexibility to policymakers in the region. DeShazo emphasized, "We have to be seen as a country really concerned about poverty to help people in the hemisphere to improve their lives." We need to greatly improve public diplomacy in the hemisphere. Cuts in assistance to the region put us at a disadvantage."[109]

One of the issues for Southern Cone countries is that they fall in the middle-income bracket, which means they do not qualify for U.S. economic assistance through U.S. Agency for International Development (USAID) programs. Measuring U.S. assistance based on per capita income, however, is a mistake, and leaves many deserving friendly nations without U.S. assistance. Per capita income does not take into consideration pervasive income inequalities that affect the region. Argentina, according to 2005 World Bank figures, has a Gross National Income (GNI) per capita of USD $4,470 which qualifies it as a middle-income economy. Yet 34 percent of its population lives under the poverty line, with 12 percent living in extreme poverty. The poverty figure reached 57 percent in 2002 during the country's Depression-level economic crisis.[110] The United States did not offer any economic assistance then to Argentina and does not offer any now. Failure to assist Argentina during its devastating economic crisis in 2002 damaged bilateral relations and tarnished the U.S. image. Argentina has since allied itself closely with Venezuela and increased bilateral engagement with China.

The United States should look to provide economic assistance regardless of qualification requirements

devised in a by-gone era. Jay Cope, Director of the Western Hemisphere Program at the Institute for National Strategic Studies (INSS) at the National Defense University in Washington, DC, argues that many aid qualification requirements were developed in the Cold War era when the regional strategic environment was different and when, in some countries, poverty levels were lower. Cope explains that we are in a different era and a new environment, and the U.S. Government should adapt its policies to the new security realities. He believes that now, more than ever before, we need to be clever in our endeavors to help Latin American countries succeed. U.S. popularity is low, and regional governments are particularly sensitive to any actions or behaviors that can be interpreted as paternalistic and arrogant. The United States does not—nor can it—play Santa Claus in Latin America. Nor do the countries in the region need it to play this role. Many regional governments are sophisticated and have much to contribute, and they also have more partnership options. They no longer depend solely on assistance from the United States. According to Cope, the United States can best assist these countries by supporting their development efforts. He concludes, "Let them take the lead, and we will support them."[111]

The U.S. Government should also expand creative, cost-effective forms of development assistance. In a time of war, this may be the only means up ramping up our aid efforts. One cost-effective way to improve bilateral relations through development assistance is to strengthen technical cooperation programs. These programs can be catered to the strategic telecommunications and space industries. When done well, they foment knowledge-sharing, economic development, and mutual understanding. Argentina

participates in scientific-technological cooperation with Germany and France and more project-oriented technical cooperation with Japan, Germany, Italy, and Spain.[112] The United States does not participate in technical cooperation programs with Argentina, as they tend to be run through USAID which does not have a presence in Argentina for reasons stated above.

The U.S. Government could boost technical cooperation in Argentina and other middle-income countries that do not qualify for USAID assistance by supporting the programs of the U.S. Trade Development Agency (USTDA). USTDA's mission is to advance economic development and U.S. commercial interests in developing and middle-income countries. To this end, the agency funds various forms of technical assistance, investment analysis, training, orientation visits, and business workshops that support the development of a modern infrastructure and a fair and open trading environment.[113] The agency could focus its efforts more on the strategic sectors like telecommunications and space in Argentina and other countries where it behooves the United States to have a presence for reasons related to national security. In February 2007, USTDA held a conference in San Francisco, California, with African officials to discuss communications and technology needs in Africa. More than USD $2 billion in business and procurement opportunities was presented at the event.[114] It could be advantageous to hold a similar event for Latin American countries to promote U.S. investment in the region.

According to Deputy Assistant Secretary of Defense Stephen Johnson, China does not currently pose a direct military threat in Latin America and has steadily embraced market concepts, but it represents serious competition that could dilute U.S. influence in the

region. This could have serious security implications for the United States in the medium to long term. The Chinese are long-term planners, and their presence in less profitable, strategic sectors should serve as a warning to the U.S. Government. The time to act is now while China's presence is still at a nascent phase. The United States should begin to encourage U.S. company presence in strategic industries like telecommunications and space. The current lack of involvement in the telecommunications sector in Argentina is leaving the United States vulnerable. More importantly, Argentina is just one of many countries where U.S. companies have withdrawn from this strategic sector.

China's state-sponsored companies have an advantage in developing world countries. With cheaper products, generous lines of credit and mandates to stick it out for the long term, they will eventually beat out more profit-driven U.S. companies. The U.S. Government must step up its promotion of doing business in developing countries, especially in strategic industries. This requires increased funding for the U.S. Commercial Service to ensure they have the resources and personnel necessary for detailed market research, targeted communications of business opportunities to U.S. companies, and promotion of U.S. companies abroad. The U.S. Government also needs to step in and provide incentives to U.S. companies to maintain a presence in developing countries' telecommunications and space sectors despite low-profit margins in the short term. The U.S. Government could devise a cost-sharing scheme where it funds a portion of U.S. companies' investment in less-profitable yet highly strategic industries. Essentially it would help cushion these companies from economic instability and short-term loss as they establish themselves in the more volatile developing economies.

The U.S. Government should continue to push for free trade throughout the region, but it should do so in a more generous way. Free trade agreements have been the hallmark of U.S. policy toward Latin America since the 1990s and are an effective mechanism for increased cooperation and economic development. In order to succeed in the creation of the FTAA, the United States should drop its agricultural and steel subsidies that dissuade potential South American partners and cost taxpayers money. Improved U.S. trade relations will open market access for both U.S. and South American enterprises and provide an outlet for industrial growth.[115] Failure to reach a trade agreement will further alienate friendly nations in South America—namely Brazil and Argentina. These countries will then most likely continue to strengthen ties with alternative trading partners like China.

The United States Government should also work toward maintaining good relations with regional militaries. On the whole, the United States remains popular amongst Latin American military leaders. Many grew up with U.S. military doctrine and were groomed through U.S. military training and exercises. Regional militaries suffer from diminished budgets and have grown to rely on U.S. military assistance for training and the purchasing of equipment. ASPA has stifled the free flow of U.S. assistance to friendly militaries, and, as a result, they have looked for alternative assistance from others, including China. It is imperative that the United States lift military assistance restrictions before good relations turn sour.

The United States would also benefit from strengthening other forms of cooperation with regional militaries. Bilateral working groups including crisis simulation exercises organized by the Office of the

Secretary of Defense (OSD) have been successful in the past in Argentina and are worth repeating. They provide an opportunity for U.S. Government officials to get to know Argentine officials. They also provide an opportunity for relationship building among estranged Argentine civilian and military leaders. Forums for dialogue between the U.S. and Argentine military leadership revolving around Argentina's current efforts with modernization reform could also serve to increase friendship. Moreover, continuing with international educational exchanges is critical for knowledge-sharing and friendship building. It is in the U.S. security interest that regional militaries feel like they can count on it for support and guidance when requested.

The United States is now in competition in the Latin American region. It cannot take for granted that regional governments, militaries, or publics will automatically approve of the United States or want to work with it. The United States has to sell itself in the region.[116] To do so, it needs to work harder to assist regional governments to succeed through aid, trade, and investment. The United States also needs to refine its public diplomacy, toning down residual arrogance from a by-gone era. The Latin American countries now have alternatives and have formed new partnerships. U.S. business, assistance, and friendship are proving less imperative for their success in today's global economy.

Consecutive years of double-digit economic growth and huge dollar reserves are facilitating China's current wave of international expansion. The Chinese are strategically beginning their expansion efforts in the developing world where competition is leaner, its cheaper products are in highest demand, and where

its status as a developing country creates synergies. As the Argentine case highlights, China's growing presence in strategic sectors in the developing world is a concern for U.S. national security.

China achieved quick success in the Argentine telecommunications market. The Chinese companies, Huawei and ZTE, entered through the backdoor, starting in rural markets with less competition and working their way to the urban centers. In just a few short years, both companies are making a profit in the Argentine market and are supplying the country's key monopolies. And these large international monopolies are now aligning themselves with the Chinese in the marketplace.

As all of this transpires, U.S. companies are withdrawing from Argentine—and other international—markets. They are forgoing opportunities in growing developing markets to make a more secure profit at home and in developed foreign economies. This could have serious consequences for the United States as international information systems become more vulnerable and as they play a larger role in security, defense, and warfare. China is a strategic rival of the United States, and it is building its capabilities in information technologies and IW. Its growing presence in Western Hemisphere air and space should be considered a warning. Just as India feared Huawei's involvement in its information networks, the United States should be wary of China's increased involvement in Latin America's information networks. With today's interdependent information systems, the United States becomes more dependent on networks in foreign countries controlled by foreign governments.

It is not too late for the U.S. Government to take remedial action to increase its presence in Latin

American telecommunications and space sectors. Commercial efforts should be complemented by a heavy dose of improved public diplomacy—especially in countries similar to Argentina where U.S. popularity is low and where China has made substantial inroads. China's expansion into and U.S. withdrawal from Latin America's strategic telecommunications and space sectors require further examination and long-term strategic planning in order to protect U.S. national security.

ENDNOTES

1. "China's Growing Interest in Latin America," CRS *Report for Congress*, April 20, 2005, p. 6, at *fpc.state.gov/documents/organization/45464.pdf*.

2. "China's Growing Involvement in Latin America," *Power and Interest News Report*, June 12, 2006.

3. "Emerging Markets Pushing Cell-Phone Growth," Copyright 2005 by United Press International, at *www.physorg.com/news5335.html*.

4. Statistics shared by Carlos Blanco, Market Research Director, Signals Consulting, interview by author, Buenos Aires, Argentina, February 23, 2007.

5. Data from the Comisión Nacional de Comunicaciones (National Communications Commission), at *www.cnc.gov.ar/indicadores/estadisticas/*.

6. Silvia Yaber, "Argentina: Increasing Demand for Broadband Access and Wireless Services-2006," U.S. Commercial Service, Department of Commerce, July 2006, p. 1.

7. Internet World Stats, *Usage and Populations Statistics*, at *www.internetworldstats.com/sa/ar.htm*.

8. "Wi-Fi Market in Argentina," ISA, U.S. Commercial Service Market Research, June 2005.

9. Silvia Yaber, "IP Telephony Market Overview 2005," U.S. Commercial Service, Department of Commerce, September 2005.

10. Silvia Yaber, *Commercial Report*, U.S. Commercial Services, Department of Commerce, March 2003.

11. *Ibid.*

12. "Telecommunications Equipment and Services-Market Research," U.S. Commercial Service website, at *www.comerciousa.org/argentina_editable/-syaber/telecommunications/Market_Research.asp*.

13. "Huawei Secures Major Brazilian Deal," *China.com*, November 23, 2006, at *english.china.com/zh_cn/business/telecom/11024502/20061123/13762965.html*.

14. Sylvia Cadena, "Huawei To Invest a Million Dollars in Telephone Cooperatives in Argentina," July 11, 2005, at *www.regulateonline.org/content/view/474/76/*.

15. Information obtained by the American Embassy in Buenos Aires, Argentina, in 2005 and confirmed by local sources.

16. "Avanzada tecnológica china en Santa Cruz" (Advanced Chinese Technology in Santa Cruz), June 25, 2005, at *weblogs.cfired.org.ar/blog/archives/001587.php*.

17. "Primeros proyectos en CDMA 450" (First CDMA 450 Projects), at *weblogs.cfired.org.ar/blog/archives/001605.php*, June 29, 2005.

18. Information obtained by the American Embassy in Buenos Aires, Argentina in 2005 and confirmed by local sources.

19. Li Cheng, "China's Telecom Industry on the Move: Domestic Competition, Global Ambition, and Leadership Transition," *China Leadership Monitor*, Vol. 19, 2006.

20. China News, Global Executive Forum, at *www.globalexecutiveforum.net/China.htm*; *a*nd "Huawei Secures Major Brazilian Deal," *China.com*, November 23, 2006, at *english.china.com/zh_cn/business/telecom/11024502/20061123/13762965.html*.

21. "Huawei Clinches US$50M NGN Deal with Venezuela's CANTV," *India PR Wire*, September 26, 2006, at *www.indiaprwire.com/pressrelease/telecommunications/20060926636.htm*.

22. Natalia Obiko Pearson, "Venezuela To Buy Telecom, Energy Stakes," *BusinessWeek.com*, February 13, 2007, at *www.businessweek.com/ap/financialnews/D8N95P6O2.htm*.

23. Li Cheng, "China's Telecommunications Industry on the Move: Domestic Competition, Global Ambition, and Leadership Transition," *China Leadership Monitor*, No. 19, Fall 2006, p. 7.

24. *Ibid.*

25. "Chinese Take-out, ZTE, Huawei Expanding Rapidly," *Xchange Online*, July 1, 2005, at *www.xchangemag.com/articles/506/506_571strategy1.html*.

26. "Weapons Proliferation and the Military-Industrial Complex of the PRC," Canadian Security Intelligence Service, Summer 2003.

27. *Ibid.*

28. "Blowing in the Wind," Special Report China, *The Observer, Guardian Unlimited*, August 14, 2005.

29. John Ribeiro, "Report: Indian Government Cites Security Concerns," August 17, 2005, at *www.worldaffairsboard.com*.

30. Navika Kumar, "Chinese Firm Gets Raw Deal," *Times of India*, August 16, 2005, at *www1.timesofindia.indiatimes.com/NEWS/India/Chinese_firm_gets_a_RAW_deal/articleshow/msid-1201359,curpg-1.cms*.

31. "Sleeping With the Enemy" News Insight, *The Public Affairs Magazine*, September 29, 2006, at *www.indiareacts.com/archivedebates/nat2.asp?recno=1490*.

32. Bruce Einhorn, "Good Telecom Calls In China," *Business Week Online*, July 11, 2005, at *www.businessweek.com/magazine/content/05_28/b3942417.htm*.

33. "ZTE Takes Growing Interest in LatAm Market," *Telecommunications Insight*, July 2006, at *www.telecomsinsight.com/file/36961/zte-takes-growing-interest-in-latam-market.html*.

34. Bruce Einhorn, "Good Telecom Calls In China," *Business Week Online*, July 11, 2005, at *www.businessweek.com/magazine/content/05_28/b3942417.htm*.

35. Bruce Einhorn and Andy Reinhardt, "A Global Telecom Titan Called . . . ZTE?," *Business WeekOnline*, March 7, 2005, at *www.businessweek.com/magazine/content/05_10/b3923071.htm*.

36. Li Cheng.

37. Blanco, interview by author.

38. *Ibid.*

39. Heather Timmons, "Buyers Circle Hutchison Whampoa's Indian Cellphone Business," *International Herald Tribune-Business*, December 21, 2006, at *www.iht.com/articles/2006/12/21/business/Hutch.php*.

40. *Ibid.*

41. See *www.hutchisonwhampoa.com/eng/ports/international/the_americas.htm#Argentina*.

42. Telefónica, Informe Financiero 2005 (*Financial Report* 2005), at *www.telefonica.es/informeanual/esp/pdf/Informe_financiero_2005ESP_completo.pdf*.

43. "Telefónica To Buy China Netcom Stake for $290m," *Financial Times Online*, July 7, 2005, *at www.ft.com/cms/s/b3965468-ef1a-11d9-8b10-00000e2511c8,dwp_uuid=d4f2ab60-c98e-11d7-81c6-0820abe49a01.html*.

44. Blanco, interview by author.

45. *Ibid.*

46. "China Asks Closer Space Industry Cooperation," Xinhua News Agency, August 29, 2006, *at www.china.org.cn/english/2006/Aug/179444.htm*.

47. U.S. Embassy Buenos Aires, Environment, Science and Technology Section, at *buenosaires.usembassy.gov/science.html*.

48. "EO-1/SAC-C Space Craft Successfully Launched," NASA News Agency Archive, November 1, 2000, at *earthobservatory.nasa.gov/Newsroom/NasaNews/2000/200011214247.html*.

49. U.S. Embassy Buenos Aires, Environment, Science and Technology Section, at *buenosaires.usembassy.gov/science.html*.

50. "President Hu Jintao of the People´s Republic of China visits INVAP," November 18, 2004, at *www.invap.net/news/novedades-e.php?id=20041118185407*.

51. "Firman Argentina y China acuerdo sobre asesoría en satellites" (Argentina and China Sign Satellite Consulting Agreement), Oficina del Consejero Comercio-Economico de la Embajada de la Republic Popular China en la Republica de Argentina (Economic Commercial Advisory Office of the People's Republic of China in Argentina), May 23, 2005, at *ar2.mofcom.gov.cn/aarticle/bilateralvisits/200505/20050500096729.html*.

52. "New Trends To Make Up a New Satellite Market in Latin America" Convergencia Latina, December 1, 2006, at *www.*

convergencialatina.com/en//mapanota.php?id=60326&PHPSESSID=d3ce2d0c621897f6620769876903ae1c.

53. "China, Argentina Cooperate in Astronomical Research," *People's Daily Online*, September 9, 2005.

54. R. Evan Ellis, Associate Booz Allen Hamilton, "The Military-Strategic Dimensions of Chinese Initiatives in Latin America," China-Latin America Task Force, Center for Hemispheric Policy, University of Miami, March-June, 2006, p. 5.

55. Stephen Johnson, "Balancing China's Growing Influence in Latin America," Heritage Foundation Backgrounder, October 24, 2005.

56. Peter Hakim, "Is Washington Losing Latin America?" *Foreign Affairs*, January/February 2006, at *www.foreignaffairs.org/20060101faessay85105/peter-hakim/is-washington-losing-latin-america.html*.

57. Robert Fonow, "The New Reality of International Telecommunications Strategy," Washington, DC: Center for Technology and National Security Policy, January, 2006.

58. *Ibid*, p. 2.

59. Lawrence Greenberg, "Danger.com: National Security in a Wired World," Patrick J. DeSouza, ed., *Economic Strategy and National Security: A Next Generation Approach*, Boulder, CO: Westview Press, 2000; Robert Fonow, "The New Reality of International Telecommunications Strategy," Washington, DC: Center for Technology and National Security Policy, January, 2006, p. 4.

60. Fonow, "The New Reality of International Telecommunications Strategy," p. 4.

61. *Ibid,* p. 4.

62. *Ibid,* p. 32.

63. Stephen Johnson, "Balancing China's Growing Influence in Latin America," *Heritage Foundation Backgrounder*, October 24, 2005.

64. Fernando Guerrero, Vice President, Nextel, interview by author, Buenos Aires, Argentina, February 16, 2007.

65. At *www.ncs.gov/intac/nstac.html*.

66. John Lowry, "Technical Considerations in Cyber Conflict," *Journal of Cyber Conflict Studies*, Vol. 1, No. 1, Arlington, VA: Cyber Conflict Studies Association, November 2005.

67. Michael Tanji, "Buccaneer.com," *Journal of Cyber Conflict Studies*, Vol. 1, No. 1, Arlington, VA: Cyber Conflict Studies Association, November 2005.

68. *Ibid.*

69. Clay Wilson, "Emerging Terrorist Capabilities for Cyber Conflict Against the U.S. Homeland," *Journal of Cyber Conflict Studies*, Vol. 1, No. 1, Arlington, VA: Cyber Conflict Studies Association, November 2005.

70. *Ibid.*

71. *Ibid.*

72. John Lowry, a principal scientist at Internet service provider BBN Technologies, telephone interview by author, November 11, 2006.

73. Lian Qiao, and Wang Xiangsui, *Unrestricted Warfare*, Beijing: PLA Literature and Arts Publishing House, February 1999, *Foreign Broadcast Information Service* (FBIS) translation.

74. Toshi Yoshihara, "Chinese Information Warfare: A Phantom Menace or an Emerging Threat?" Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, November 2001.

75. John Arquilla and Solomon M. Karmel, "Welcome to the Revolution . . . in Chinese Military Affairs," *Defense Analysis*, Vol. 13, No. 3, December 1997, p. 259, as quoted in Toshi Yoshihara, "Chinese Information Warfare: A Phantom Menace or an Emerging Threat?" Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, November 2001, p. 11.

76. Hai Lung and Chang Feng, "Chinese Military Studies Information Warfare, *Kuang Chiao Ching*, January 16, 1996, in *FBIS-CHI*, February 21, 1996, pp. 33-34, as quoted in Toshi Yoshihara, "Chinese Information Warfare: A Phantom Menace or an Emerging Threat?" Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, November 2001, p.11.

77. "Cyber attack: The National Protection Plan and its Privacy Implications," Testimony of Frank J. Cilluffo, Deputy Director, Organized Crime Project Director, Task Force on Information Warfare & Information Assurance, Washington, DC: Center for

Strategic & International Studies, before the Subcommittee on Technology, Terrorism, and Government Information Committee on the Judiciary, February 1, 2000.

78. John Gannon, Assistant Director of Intelligence for Analysis and Production, Address to the National Security Telecommunications and Information Security Committee, April 3, 2001, at *www.fas.org/irp/cia/product/adci_040301.html*.

79. Minxin Pei, "The Dark Side of China's Rise," *Foreign Policy*, March/April 2006.

80. Lowry, telephone interview by author.

81. Natalie Pace, "China Surpasses the United States in Internet Use," *Forbes.com*, April 3, 2006, at *www.forbes.com/columnists/2006/03/31/china-internet-usage-cx_nwp_0403china.html?partner=rss*.

82. Jane Bussey, and Glenn Garvin, "China Exerting Regional Influence, Analysts Warn of Political, Strategic Challenges to U.S. in Latin America," *The Miami Herald*, April 15, 2001, p. A1, at *www.latinamericanstudies.org/cuba/china-influence.htm*, October 13, 2005, in Johnson, "Balancing China's Growing Influence in Latin America."

83. Albert Santoli, "China's Strategic Reach into Latin America," testimony before the U.S.–China Economic and Security Review Commission, Washington, DC, July 21, 2005, at *www.uscc.gov/hearings/2005hearings/written_testimonies/05_07_21_22wrts/santoli_albert_wrts.htm* September 18, 2005, in Johnson, "Balancing China's Growing Influence in Latin America."

84. Johnson, "Balancing China's Growing Influence in Latin America."

85. Joseph Kahn, "U.S. Dominance in Space Challenged by China's Test," *New York Times,* January 19, 2007.

86. Johnson, "Balancing China's Growing Influence in Latin America."

87. Inter-American Development Bank figures cited in "China's Growing Involvement in Latin America."

88. Evan Ellis, "Chinese Interests in Latin America: Overview and Implications for Regional Security Issues," Presentation for the Latin America Orientation Course (LAOC) Hulburt Field, FL: U.S. Air Force Special Operations School (USAFSOS), March 1, 2007.

89. Chairman Dan Burton's Opening Statement, "China's Influence in the Western Hemisphere," Subcommittee on the Western Hemisphere Committee on International Relations, April 6, 2005.

90. Ellis, "Chinese Interests in Latin America: Overview and Implications for Regional Security Issues," p. 70.

91. "U.S. Is Watching China's Latin American Moves," Mark Magnier, Times Staff Writer, April 15, 2006.

92. "Article 98 Agreements and the International Criminal Court," Washington, DC: Center for International Policy On Line, May 2006, at *www.ciponline.org/facts/art98.htm*.

93. "The Impact on Latin America of the Servicemembers' Protection Act," Hearing before the Committee on Foreign Relations, U.S. Senate, 109th Congress, 2nd Sess., March 8, 2006.

94. Power and Interest, "China's Growing Involvement in Latin America," June 12, 2006.

95. *Ibid.*

96. Sergio Cesarin, "La relación sino-latinoamericana, entre la práctica política y la investigación académica" ("Sino-Latin American Relations, Between Political Practice and Academic Research") in *El Desafío Chino*, Nueva Sociedad, No. 203, May/ June 2006.

97. Jiang Shixue, "South-South Cooperation in the Age of Globalization: Recent Development of Sino-Latin American Relations and Its Implications," Beijing: Institute for Latin American Studies and Chinese Academy of Social Sciences, October 2005.

98. Jacques deLisle, "Into Africa: China's Quest for Resources and Influence," Philadelphia, PA: Foreign Policy Research Institute, February 19, 2007.

99. Charter of the Organization of American States, at *www.oas.org/juridico/English/charter.html#ch2*.

100. R. Evan Ellis, Associate Booz Allen Hamilton, "The Military-Strategic Dimensions of Chinese Initiatives in Latin America," China-Latin America Task Force, Coral Gables, FL: Center for Hemispheric Policy, University of Miami, March-June, 2006.

101. The Rio Group, established in 1986, is an association of 19 Latin American countries asking a common foreign policy on a variety of issues.

102. The Latin American Integration Association (LAIA), is an organization formed in 1980 by Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela, which took over the duties of the Latin American Free Trade Association (LAFTA) established in 1960.

103. Mercosur is a regional trading bloc founded in 1991. Its original members include Argentina, Brazil, Paraguay, and Uruguay. Venezuela joined Mercosur in December 2005. Chile, Bolivia, Perú, Ecuador, and Colombia are associate members.

104. Jiang Shixue, "South-South Cooperation in the Age of Globalization: Recent Development of Sino-Latin American Relations and Its Implications," Beijing: Institute for Latin American Studies and Chinese Academy of Social Sciences, October 2005.

105. While six-in-ten have a positive view of China and its prospects as a trade partner, only about two-in-ten Argentines know much about the country, as is also the case in Brazil and Chile.

106. "Argentines Positive about China, Though Most Not Familiar with It," *Opinion Anaysis*, Washington, DC: Office of Research, U.S. Department of State, February 7, 2006.

107. Juan Forero, "Across Latin America, Mandarin Is in the Air," *Washington Post Foreign Service*, Friday, September 22, 2006, p. A01.

108. Ellis, "The Military-Strategic Dimensions of Chinese Initiatives in Latin America."

109. Peter DeShazo, Director of the Americas Program at the Center for Strategic and International Studies (CSIS), testimony before the Senate Foreign Relations Subcommittee on Western Hemisphere, Peace Corps and Narcotics Affairs, Wednesday, March 8, 2006.

110. International Monetary Fund, Public Information Notice No. 06/03, "IMF Executive Board Concludes 2006 Article IV Consultation with Argentina," July 28 2006.

111. Jay Cope, Director of the Western Hemisphere Program at the Institute for National Strategic Studies (INSS), Washington,

DC: National Defense University, telephone interview with author, March 8, 2007.

112. See *www.cancilleria.gov.ar/portal/index.html*.

113. See *www.ustda.gov*.

114. U.S. Trade and Development Agency, Media Advisory, February 22, 2007, at *www.ustda.gov/USTDA/Press%20Release%20Archive/Press%20Releases/*2007/SubSaharanAfrica/SSAICTConfPromo_022207.pdf.

115. Johnson, "Balancing China's Growing Influence in Latin America."

116. Cope, telephone interview with author.