Globalization and China’s Quest for Advanced Urban Infrastructures

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SINCE China’s “opening” to global trade in 1978, the forces of globalization have worked to increase exports and create numerous joint ventures between Chinese and transnational corporations. This trend has led to explosive economic activity that has occurred mostly in urban areas and, as a result, has created a demand for more and better urban infrastructures. Before detailing those needs, let us first chart some of the joint ventures that have introduced China into the globalization that created the infrastructure demands.

Joint Ventures

Investment and Trade
In 1997, China’s total imports and exports reached $325.1 billion, making it the tenth largest trader in the world, and foreign-funded enterprises contributed to 46.9 percent of the total trade. Partially due to the presence of foreign business, China has maintained a high rate of economic growth, with an average annual rate of 9.8 percent since 1979. By May 2000, China had a total foreign investment of $320.6 billion. Over 180 countries and regions have established some 349,500 joint ventures with China. Since 1993, China has ranked first in attracting overseas investment among developing countries.
In 1999, 20 million Chinese possessed generally well-paying jobs in foreign-funded enterprises, accounting for 10 percent of China’s urban workforce. A growing number of urban dwellers have United States dollars in the bank, and the quality of their lives has improved with the introduction, through trade, of products ranging from toothbrushes to elevators to transport vehicles.

**Construction**
Foreign firms contributed to China’s construction boom in the 1980s and 1990s. At the beginning, shopping plazas, hotels, and luxury apartments mushroomed in major cities. With the demands of reconstruction and modernization, projects then moved from city business centers to suburban industrial parks.

Butler Manufacturing Company, an American firm headquartered in Kansas City, Missouri, with $962 million worldwide sales in 1998, leads in the design, fabrication, and supply of building systems in China. Butler has built industrial factories, large retail centers, distribution facilities, warehouses, and relevant components in China. About 80 percent of Butler’s customers are Chinese companies. Butler’s style and quality contrasts positively to existing Chinese construction projects, many of which are rather shoddy.

**Cars and Aircraft**
Car makers are another main force of foreign businesses in China. All brand-name makers have invested in China and are involved in joint ventures. They include General Motors Corporation, Ford Corporation, Japanese Isuzu Motors, Mitsubishi Corporation, Honda Motor Corporation, Nissan Motor Company, Nissan Diesel Motor, Mazda Motor Corporation, Toyota Motor Corporation, German Volkswagen AG/Audi AG, Mercedes-Benz AG, Sweden Volvo, and Korean Daewoo. With significant foreign technological and financial support, China’s auto industry now produces more than one million passenger cars and another million commercial vehicles a year.

In the aircraft industry, China has cooperated for nearly 20 years with the United States-based McDonnell Douglas Corporation in the production of MD-90 airliners. By the end of joint production in 2000, China mastered the know-how to build mainline aircraft. China’s other major partner has been the Boeing Company, which merged with McDonnell Douglas in 1997. In 1999, 331 of the 497 jet passenger aircraft manufactured in China were Boeing products.

**Information and Communications Technology**
As have auto makers, information and communications technology firms Motorola, Nokia, Ericsson, Microsoft, and Lucent Technolo-
gies have opened facilities in China. In fact, these companies have led China’s communications market in many ways. Motorola is the second largest U.S. investor in China after General Motors. With the technological assistance of Lucent, the world’s first optical fiber MPEG-2 digital television system was built in China’s Zhejiang Province. Lucent serves 40 percent of the optical transmission equipment market and plays a major role in developing the system in China.

**Health**

Advanced Western medical equipment and medicines have opened China’s market and are widely available to urban citizens. Western medical institutions also have trained and exchanged research information with Chinese medical professionals.

Since 1991, the number of China’s joint-venture hospitals has continued to increase with about 200 units across 19 provinces. Foreign initiatives in developing medical business in China finally led to the government’s open endorsement. In May 2000, a new policy was instituted permitting foreign medical entities to share as much as 70 percent in joint ventures with Chinese entities.

**Education**

Hundreds of small, private education companies today manage all sorts of schools in China. Elite primary, secondary, and business training schools are the most popular. Although they are mostly Chinese-owned, Western educational institutions also have left their imprint on the reform and diversification of China’s education structure.

Informatics East China, Inc. of the United States, for instance, is among the earliest foreign technical schools to offer Chinese students four-year bachelor’s degrees recognized at the provincial level in China. The company had two universities in place in 1999. The freshmen study English intensively, 35 hours a week for 11 months. The following year they choose one of four majors and pursue a bachelor’s degree in a business or computer-related field. Informatics East China has as its goal establishing schools in each city of eastern China, making a total of 20-30 units.

**Effects of the Joint Ventures**

China’s involvement in joint ventures with foreign companies has effected the way business is conducted by helping to establish ethical norms and codes of conduct in China. Many of these practices have been adopted by domestic Chinese enterprises which typically fail to
achieve international standards of worker health and safety and environmental protection.

American companies, among others, have tried to help build the rule of law in China. In the 1990s, AT&T funded initiatives to introduce to Chinese firms the importance of intellectual property rights protection. Another effort by the law firm, Paul, Weiss, Rifkind, Wharton & Garrison had Chinese officials studying the law-drafting process, while another American law firm, Baker & McKenzie, contributed more than $150,000 to the All-China Lawyers Association and other law institutes.

In addition to introducing Western style legal norms in China, Western companies have introduced compensation and benefit packages to Chinese employees that are more generous than those of Chinese companies. Motorola, E.I. du Pont de Nemours & Company, and General Electric Company set up profit-sharing plans or voluntary savings plans, in which the companies match their employee contributions. Procter & Gamble Co. provided medical facilities and free or subsidized medical care on site for employees. On average, the salary of Chinese employees in U.S. companies is at least 20 percent higher than the local standard.

American and other companies also apply their own environmental measures in China. Amoco Corporation voluntarily established facilities for wastewater management offshore and for air emissions and groundwater protection on shore. Edison Mission Energy Company’s coal-fired plant incorporated higher air quality controls than the standard required by China.

Critical to China’s continuing economic development, some American companies have established collaborative programs to foster research and development in the fields of their businesses. These projects contributed to the growth of China’s next generation of skilled managers, engineers, and employees. Amgen Inc. sponsored an award for junior nephrologists to treat disorders of the kidney in three Chinese cities. General Motors Corporation established institutes at Qinghua University and Jiaotong University to focus on automotive research and development. IBM Corporation built an information technology center and research laboratory to study computer recognition of spoken Chinese. Honeywell, Inc. funded projects at Beijing Energy Efficiency to enhance efficient use of energy.

Drivers for Infrastructure Development

China’s infrastructure development has progressed by fits and starts. In the last two decades there have been significant advances, and
modern infrastructures have been created and have, in turn, bolstered economic activity and development. However, there have been forces working against infrastructure development. China lacks a sound financial system to support development; corruption plagues many projects; and inefficient and low-quality workmanship limits the efficiency and life span of projects. Yet despite these obstacles, infrastructures are being built, mainly as the result of the demand for them created in urban centers.

**Transportation**

The Chinese urban public, and especially the emerging middle class who are well educated, involved in modern businesses, and have high incomes, directly drive the need of passenger aircraft and airport construction. The number of passengers was 57.8 million in 1998 and will quadruple by the year 2018. The number of miles flown by air travelers will increase to 415.9 billion km (258 billion miles) a year by 2018. China’s growth rate in air passengers is rising 8.6 percent faster than the world average. It had 800 passenger aircraft in 1998. To meet the higher demand, China will maintain 1,772 aircraft by the year 2018, of which 1,219 or 75 percent will be medium to large jets. To reach the goal, China will buy 1,474 new aircraft to add to or replace the current planes.

As a result, China will need to expand and increase airport construction. It had 143 airports in 1998, and some 50 more airports will be needed by 2018. The first privately funded airport in China was built in 2000 in the suburb of Suifenhe of Heilongjiang Province, facilitating trade between Suifenhe and the Russian city, Vladivostok.

In other transportation areas, China has increased the speed of its trains, opened new trunk lines of railroads across the country, and added investments in freeway construction. Modern businesses and the new life styles associated with them, all require more convenient and reliable means of transportation.

**Information Technologies**

Because of the size of its population, China has the potential to become the largest mover of information. However, the country is not now on the cutting edge of technology development. According to official surveys, China’s information capacity *is only 8.6 percent of that of the United States. This is partially due to government regulations that intervene in the information market. But as with transportation, there is a growing critical mass in China’s urban centers creating a “pull” for information infrastructures, especially those supporting e-commerce. 

*Capacity refers to the ability to develop and utilize information resources, the number of IT professionals, the information capability of the total population, and state support of IT.*
In 1999, 3.5 million computers were connected to the Internet and there were 8.9 million Internet subscribers in China. Some 52 percent of Internet users had bachelor’s or higher degrees. Only 0.3 percent users were farmers. Students (21 percent), computer industry employees (12.9 percent), employees in foreign-funded enterprises (8.7 percent), other professional technicians (8.6 percent), and commercial trade workers (7.4 percent) were the main users. They used the Internet to acquire information (57.97 percent), learn new technologies (12.10 percent), provide recreation and entertainment (9.75 percent), work (6.75 percent), and for other purposes.

Chinese participants in e-commerce are mainly well educated, young, urban residents and among them, residents in Shanghai, Beijing, and Guangzhou are most willing to practice e-commerce. The largest commercial Web site, 8848.net, was founded by Wang Juntao in Fuzhou, Fujian Province in 1999. He also developed China’s first e-commerce Web page in 1997. The site, 8848.net, sometimes called “China’s Amazon.com,” offers more than 140,000 items, including software items, books, periodicals, audio-video products, and electronic, office, and consumer goods. In early 2000, Wang’s company and Sinotrans-UPS Overseas Express Delivery signed an accord by which UPS makes overseas deliveries of goods sold on the Web site.

By early 2000, China’s e-commerce took its initial shape. The latest e-commerce was described by CCIDnet as follows:

**Types of E-Commerce Services.** By the end of March 2000, there were 1,100 Web sites engaged in consumer-related e-commerce. Eight hundred of them were online shopping sites, 100 were auction sites, 180 were remote educational sites, and 20 were remote medical sites.

**Overall Level of E-commerce Web Sites.** Most Chinese Web sites were not e-commerce sites as operated in the advanced countries. Most Chinese shoppers ordered online, but paid offline. The sites did not offer 24 hours/7 days a week service. Some could confirm orders only on business days. And the prices were not highly competitive; some were even higher than those in retail stores.

**Online Sales in 1999.** Excluding consumer-to-consumer sales, online sales reached $6.6 million, accounting for 0.018 percent of China’s retail sales. In the same year, the United States online sales reached $33.1 billion, or 1.4 percent of that country’s retail sales.
E-Commerce Participants. Participants were primarily young males with advanced education. Some 28.6 percent of Internet users participated in e-commerce activities. In developed countries, 40 percent of Internet users have shopped online. Residents of Shanghai, Beijing, and Guangzhou were close to the level of developed countries.

E-commerce began in and mostly still remains confined to urban areas. Shanghai Huateng Software Systems Co. Ltd (SCUBEL) launched online Nanjing Road, China’s first cybermall in late 1999. Shoppers may purchase items with any credit or debit cards issued by the country’s financial institutions. Acceptance of debit cards is a big improvement because most people hold debit cards rather than credit cards. Over 100 stores from Shanghai’s Nanjing Road have established a virtual shop at the new site <www.sh-nanjingroad.com>.

China’s e-commerce has gone beyond shopping and reached industries such as transportation. In May 2000, the Web site of China Transportation was launched to pair trucking companies and customers. It had more than 90 agencies in more than 80 cities. The agencies had more than 15,000 member drivers and covered major highways and its transportation hub cities. In the same month, the China Ocean Shipping Network Company announced the launch of a global e-commerce transportation, distribution, and communications network with an initial investment of $20 million.

In the medical field, the 999.com Health Net site planned to buy out all of health and medicine Web sites in China in the year 2000. The online company also signed contracts with more than 1,300 hospitals and almost 20,000 doctors in order to ensure the quality of its remote medical care.

The development of e-commerce in China still faces numerous obstacles. First, China’s current financial system needs key reforms to make online transactions secure and payments less problematical. Next, transportation bottlenecks retard the delivery of ordered merchandise. Finally, government actions and regulations, while sometimes seemingly designed to encourage e-commerce, frequently discourage and complicate online business activity.

The World Trade Organization

China’s imminent entrance into the World Trade Organization (WTO) will increase the need for, and might promote the development of, urban infrastructures. Above all, current rules and regulations that retard development might also be discarded. One illustrative example of this process can be seen in China's acceptance of aviation stan-
dards, critical to safety and efficiency, set by the International Civil Aviation Organization (ICAO). In 1980, China desired to develop its own air transport manufacturing infrastructure, but yielded to a joint venture with the McDonnell-Douglas Co. Further, China learned that the U.S. Federal Aviation Administration (FAA) insisted that as part of that venture, a safety supervision authority had to be established to oversee production in China. This was a business concept that challenged China’s traditional sovereignty. Yet, China promptly adopted the ICAO rules. By 1996, China even started to write its own air carrier oversight regulations based on ICAO standards. In 1998, China implemented China Civil Aviation Regulation Part No. 121, which provides operational safety standards for its commercial air carriers. As a result, China’s aircraft production and aviation safety have improved. This experience suggests that after it joins WTO, China will observe international regimes in order to benefit itself although it may take more time in some industries than others.

The WTO might also be a catalyst in the development of China’s information infrastructure among other industries. As of now, China has no cutting-edge IT industry. Some describe the Zhongguancun Silicon Valley in Beijing as a “farm market” because it sells computer parts from all countries. China has no indigenous cutting-edge firms such as Microsoft or Intel, so if China is to acquire an advanced IT infrastructure, it will have to do so by establishing joint ventures with foreign firms willing to make large investments. And the WTO will offer that opportunity.

**Conclusion**

Cities in China have the potential of becoming significant competitors in the New Economy. For that to happen, new urban infrastructures have to be created and governmental rules and regulations have to be changed. First, the Chinese government must loosen its heavy hand on many key industrial sectors, e.g., energy, transportation, information, finance, insurance, and securities. Although it has sometimes played a positive role in developing new economies, central control has prevented the growth of a real market in China. It will be critical that within the next decade private sectors develop independently. Scientists, engineers, lawyers, entrepreneurs, and other experts and professionals must lead and manage the infrastructure development in all sectors. The growth of the middle class and modern industries cannot be separated.
Second, China must invest increasingly and persistently in science, technology, education, research, and development—the fundamental infrastructure for other infrastructures. At present, China is at a low level of research, innovation, and management. If this does not change, China and its cities will not be able to compete successfully in the new global economy.
Bibliography


China Internet Network Information Center, “Report on China's Internet” (January 2000).


“China’s Transportation Web Site,” Sina.com (May 23, 2000) <www.sina.com>


“SCUBE Launches Top E-Commerce Site,” ChinaOnline (October 8, 1999) <www.chinaonline.com>


Zhong Wei, “Correcting the Arguments Against WTO Membership,” China National Conditions and Strength (March 2000) 41-44.