

The Asian Megalopolis: Opportunities for Information Technology Growth

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Published after his death, Max Weber's famous essay titled *The City* first appeared in German in 1921. The essay represented a fundamental look at the history of the occidental city spanning from the establishment of craft guilds to the formation of a political system that involved early aspects of medieval Democracy. In his writing, Weber noted that city inhabitants who lived before industrialization earned their livelihood "primarily off trade and commerce rather than agriculture." The first markets began to form in medieval cities along with crude financial systems including banking. With specialization and

division of labor, the prototype Western European city was set to become a center of commerce and later the foundation of the industrial revolution.

In America, the Western European prototype of the city was the base for new urban areas created by the English and Dutch. Such cities as New York and Philadelphia became powerful economic forces in the new world as the confluence of trade and transportation spawned modern types of manufacturing along with the financial, advertising, media, and publishing businesses.

Given the dramatic impact the city has had on American and European society, the world economy is on the verge of an even greater development in urbanization. Exploring this trend, Muzhi Zhou of Tokyo Keizai University, Japan, and a visiting professor at MIT, has written a book titled *The Chinese Economy: Mechanism of its Rapid Growth*. Published in April 2007, the book is written in Japanese and has been distributed through-out Asia. Prof. Zhou is from a prominent literary

family in China and brings a unique perspective to his writing and research through having successful academic, governmental, and engineering careers in both Japan and China.

The premise of the book puts forth that advances in information technology and globalization of the supply chain have created three massive Megalopolises in China. These in turn will create altogether new opportunities for the information technology needed by public administrators and those in business who must run the city.

Already a best seller in Japan, a version of the book in Mandarin is currently underway and there are plans to publish in English for distribution in the United States. The book recently received a highly favorable review in Japan's most popular business daily, the Nikkei Shin Bun. Prof. Zhou is a visitor at the MIT Laboratory for Manufacturing and Productivity and I have had an opportunity to speak with him regarding his most recent research and ongoing plans for the future.

According to Prof. Zhou, during the past twenty-five years China has achieved an average annual GDP growth rate of over 9%, and has become a leading world economic power ranking third in trade value.

China's continued high-speed growth has been led by megalopolises that have begun to form in three regions: Pearl River Delta (including Hong Kong, Macau, and Guangdong province), Yangtze Delta (including Shanghai, Jiangsu, Zhejiang), and Beijing-Tianjin-Hebei region (Beijing, Tianjin, and Hebei province). In 2005, domestic share of the three major megalopolises accounted for 42.4% in GDP and 77% in export value.

Changes in Chinese urbanization policy now support the continued formation of the three megalopolises. This means that twenty to thirty years of economic growth will cause the Hong Kong, Shanghai, and Beijing areas to become population centers that could reach as many as 200 - 300 million people each. The current precedent for high population metropolitan areas is Tokyo with 30 million inhabitants

located in 23 districts. Given much greater land resources, metropolitan areas in the US seldom surpass 10 million people.

Beyond total metropolitan population, the projected densities that China will experience offer an additional perspective on emerging information technology opportunities. With massive population shifts occurring as nearly 20 million workers per year move from rural areas to megalopolises, the densities of the three major Chinese cities are rising rapidly. The population shift, unprecedented in world history, is the result of Chinese workers seeking higher paying manufacturing and construction jobs. At current growth rates, population densities double or triple of Tokyo exist in isolated locations and will likely be widespread in the Chinese Megalopolises of the future. This means up to 38,000 people might live per square kilometer of land.

Issues such as controlling land use, the application of information technology to operate the megalopolis, developing transport and other infrastructure, preserving water resources and energy, environment

conservation, and the role of agriculture outside of major population centers will play an important future role in the lives of Chinese people and the world economy. For this reason, megalopolis policies are an extremely important topic that presents a unique opportunity for multi-disciplinary research in addition to opportunities for businesses involved in information technology.

In summary, the two most important issues relating to the megalopolis are 1) the various constraints that could limit urban growth or actually be harmful to inhabitants, such as the prospect of hyper-epidemics involving highly contagious diseases like SARS and 2) existing and future computer and other technologies that will enable huge population centers to function efficiently.

Of all developed countries, Japan has the most experience in dealing with the megalopolis. However, with urban areas projected to reach several hundred million people in China, it is safe to assume that innovations must happen to avoid complete economic collapse that

often occurs during periods of rapid growth and population concentration.

For example, scholars have argued that New York City would have experienced a massive health crisis of unparalleled proportions in the late 19th century had not the innovation of the internal combustion engine occurred along with electric subway transportation. At that time, the primary means of transportation included both horse drawn carriages and trolleys, which moved slowly through muddy streets and pools of standing water. The manure from hundreds of thousands of horses caused outbreaks of many serious diseases and genuine concern among the city residents. The invention of the internal combustion engine and the automobile eliminated much of the public health problem, but also caused new problems in congestion and pollution. However, if the innovation of the internal combustion engine had not occurred, then there would have had to be some other innovation of equal magnitude for the survival of the city.

Projecting the implications resulting from China's rapid growth is a risky undertaking. Further, the market for computer software and hardware to support the Chinese megalopolis is still evolving. In the past, scholars and business leaders have made colossal failures in forecasting the impact governmental policies on economic growth and urbanization. Famous books such as *Urban Dynamics* (1969) and *Limits to Growth* (1972) overlooked fundamental aspects of a free market economy such as price movements for land and commodities that very much act as a catalyst for innovation. It is not clear that this same thinking applies in the case of the modern Chinese economy and the formation of the megalopolis.

In my next article, I will explore in detail the prospects of IT growth in Asia as related to the megalopolis.

