

TECHNOLOGY IN ASIA

Technology Drivers in Asia-Pacific

The technology revolution is creating a powerful tsunami that is dramatically rolling across Asia-Pacific. Consider these facts:

- The internet is being adopted with phenomenal speed: New Zealand, Singapore and Australia have each achieved penetration rates of around 30%. Total internet users number over 30 million: Japan leads with over 16 million. (AC Nielsen/eRatings.com)
- Total online retail revenue in Asia-Pacific grew a staggering 200% to \$2.8 billion in 1999 and is expected to rise to over \$7 billion in 2000. In comparison, the 1999 figures for Europe and the United States are \$3.5 billion and \$36.6 billion, respectively. (Boston Consulting Group)
- Total online advertising revenue in Asia-Pacific (excluding Japan) is forecast to grow at a 76% compound annual growth rate, from \$67 million in 1999 to \$1.15 billion in 2004. (IDC)
- Business-to-business (B2B) e-commerce worldwide is expected to grow to \$7 trillion in the next four years, with the Asian market accounting for 14% and growing at an estimated rate of 150% through 2004. (Intel)

The explosion of internet usage and e-commerce promises to change the physical, economic and social landscape of Asia-Pacific; practically every country is determined to stay at the cutting edge of the new economy. Government support such

as national technology growth strategy, human resource and infrastructure development, financial assistance and tax incentives all play a greater role than in the West. However, private-sector entrepreneurship, including availability of venture capital, is the driving force in the Asia-Pacific cities that are attracting the most large foreign tech companies and incubating more tech start-ups.

A few cities are clearly at the forefront. Singapore's government is beginning construction of a core broadband network infrastructure that will connect to a local-access network serving 98% of Singapore homes and, potentially, to overseas networks for broadband access to the rest of the world. Australia's government is at varying stages of executing its "information economy action plan," and the enterprising private sectors in Hong Kong, Tokyo and Taipei are driving those countries' tech infrastructure upgrading. India, arguably the world's largest producer of tech graduates each year, has given top priority to the creation of a fiberoptic network in most of its states.

New Zealand, owing to a lack of political support, is presently unable to grow its tech industry despite having a highly internet-savvy population. South Korea and particularly Indonesia and Thailand, having been badly hit by the Asian financial crisis, are still focusing their national efforts toward resolving their non-performing loan problems. However, given South Korea's significant economic progress, its tech industry is rapidly catching up with the leading countries. For Malaysia, although government championing of the tech industry is aggressive, the country's current shortage of knowledge workers is a key obstacle. Weak intellectual property laws are the main hindrance to tech growth in the Philippines and China, although China's accession to the World Trade Organization may improve the situation and is a huge lure for foreign tech companies to establish bases in the world's most populated country.

Comparative Advantage

The enormous potential that Asia-Pacific brings is causing flocks of largely U.S. tech companies, such as Microsoft, Lucent, Oracle and Yahoo!, to secure a physical presence in the region. Site selection is heavily influenced by generous incentive packages. Without economic unification, Asia-Pacific countries are inevitably competing to attract these companies as well as incubate their own for the resulting socioeconomic gains. Whether their actions are demand driven or planned, many cities are capitalizing on their comparative advantages to develop niche tech sectors. For example, the Indian cities and Beijing are specializing in software research and development, Shanghai in hardware development, Singapore in information communications and potentially biotechnology, Hong Kong potentially in media and entertainment, the Philippines in data and call centers.

On a micro level, tech companies are typically avoiding core Central Business District (CBD) locations, except for their marketing units. Instead they are agglomerating at the fringe or in campuslike tech parks and science parks in suburbs. “Location” appears critical in site selection: convenient access to a subway station (Hong Kong, Tokyo); available large tech populations and universities (Bangalore, Beijing, Sydney); building architecture with “character” (Singapore); trendy amenities and ambience (Tokyo, Auckland); and established critical mass of tech companies (Sydney, Singapore, Seoul, Hong Kong, Taipei, Kuala Lumpur). However, the criteria are imminently changing to “location, bandwidth, location,” as access to broadband connections becomes more and more important.

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Internet Penetration

High-Tech Hotbeds

COUNTRY	(Jul 98-Jun 99)	Size ('000)	CITY	Existing	Emerging
LEADING Strong government support and active private sector					
Singapore	32%	950	Singapore	"Shophouses"; Suntec City Singapore Science Park, Technpark@Chai Chee	International Business Park Changi Business Park
Australia	29%	4,380	Sydney	North Ryde (North Sydney)	Pymont (Suburban Sydney)
Hong Kong	16%	1,051	Hong Kong	Hong Kong East, "Silicon Alley" (back of Central and CBD-fringe)	Kwun Tong (Kowloon), Cyberport
Japan	14%	16,000	Tokyo	Shinjuku	Shibuya
Taiwan	14%	2,100	Taipei	Sing Zhu	--
India	N/A		Bangalore	ITPL; Koramangala; Electronics City; Jayanagar	--
			Chennai	Elnet Software City; Nungambakkam	Old Mahabalipuram Road
			Mumbai	Millennium Business Park; International Infotech Park	Bandra-Kurla Complex
EMERGING Active private sector but weak government support, or strong government support but diverse private interests					
New Zealand	34%	980	Auckland	CBD-fringe	Viaduct Basin
Malaysia: Peninsular Malaysia	8%	860	Kuala Lumpur	Cyberjaya (Multimedia Super Corridor)	--
Philippines: Metro Manila	8%	550	Various	Eastwood City Cyber Park (Libis, Quezon City)	Silicon Alley (Taguig, Metro Manila); Northgate Cyberzone (Alabang); Philippine Cyber City (Pampanga)
China: -Beijing, Shanghai, Guangzhou	7%	1,180	Beijing	CBD Class A bldgs; Chao Yang (Eastern Beijing)	Zhong Guan Cun (Western Beijing)
-30 cities	6%	2,630	Shanghai	Downtown Class A bldgs; Chao He Jiang High-Tech Park (Puxi)	Zhang Jiang High-Tech Park (Pudong)
South Korea	N/A	Seoul		Teheran-ro, Kangnam	Areas surrounding Teheran-ro
LAGGING Weak government support and diverse public and private interests					
Indonesia: Jakarta + 10 cities	3%	790	Jakarta	CBD Class A bldgs (foreign tech companies)	--
Thailand	2%	830	Bangkok	CBD Class A bldgs (foreign tech companies)	--

Source: AC Nielsen/eRatings.com, Jones Lang LaSalle, LaSalle Investment Management