

**IN TRANSITU: MANAGING CHANGE FROM A  
KNOWLEDGE-BASED ECONOMY TO A CREATIVE ECONOMY**

Miss Caroline Wong

*Australian National University*

caroline.wong@anu.edu.au

Non-refereed section

Preference for Poster Presentation

## ABSTRACT

This paper presents Singapore as a country that has successfully transformed itself into a knowledge economy in a very short time and how it is managing change to become a creative and renaissance city of the 21<sup>st</sup> century. It is a paradigm shift for Singapore – from an image of conservative ideology and strict censorship to one that embodies a dynamic creative hub. The convergence of technology, knowledge and creativity raises issue of translating innovative competencies from an ICT and knowledge based economy to the creative economy. As a knowledge-based economy, it seemingly lacks a stimulating climate conducive to imagination, innovation and adventure that will attract and retain globally mobile talents needed for the creative industries. There is seemingly something missing in the transition.

Key Words: ICT, Knowledge-Based Economy, Developmental Model, Creative Industries

## INTRODUCTION

Singapore displays many characteristics typical of a knowledge-based economy, such that people, their ideas and capabilities are the key sources of wealth and opportunities (Chia, 2000). The many international accolades achieved in the last six years (Table 1) account for the dynamic business environment that has spawned a well established IT and telecommunications infrastructure serviced by over 6000 multinational companies (MNCs) and over 100,000 local enterprises comprising small and medium sized enterprises (SMEs) and large local corporations (EDB Singapore, 2003).

Year	Position	Title
2006	5 <sup>th</sup>	World Economic Forum Global Competitiveness Index rankings <i>Source: <a href="http://www.weforum.org/pdf/Global_Competitiveness_Reports/Reports/gcr_2006/gcr2006_rankings.pdf">http://www.weforum.org/pdf/Global_Competitiveness_Reports/Reports/gcr_2006/gcr2006_rankings.pdf</a></i>
2005	5 <sup>th</sup>	World Economic Forum Global Competitiveness Index rankings <i>Source: <a href="http://www.weforum.org/pdf/Global_Competitiveness_Reports/Reports/gcr_2006/gcr2006_rankings.pdf">http://www.weforum.org/pdf/Global_Competitiveness_Reports/Reports/gcr_2006/gcr2006_rankings.pdf</a></i>
2004-2005	1st	World Economic Forum's Networked Readiness Index <i>Source: World Economic Forum Global IT Report</i>
	2nd	Brown University Study of Global E-Government 2005 in the world <i>Source: Brown University, 2005</i>
2004	Best 1st in Asia 9th Globally	Business environment in Asia-Pacific <i>Source: EIU Country Forecast</i>
	2nd	Most networked ready country <i>Source: Global Information Technology Report, 2003-2004</i>
	5th	Most globalized nation <i>Source: AT Kearney, The 4th Annual Globalization Index, Foreign Policy, Mar-April 2004</i>
2003	2nd	World Competitiveness Report <i>Source: International Institute of Management Development</i>
	2nd	Most profitable place for investors <i>Source: BERI</i>

Table 1: Accolades Achieved by Singapore

The rapid development of information and communication technologies (ICT) in recent years has given rise to a new and different technological base whereby the location and the ability to combine and manipulate new knowledge has become increasingly important (Aslesen, 2003). The Singapore experience of the 21<sup>st</sup> century represents one of the few examples of how knowledge can become the driving force of economic growth and transformation. In the last decade, Singapore became one of the most ICT- (information and communication technology) specialized economies in the world having achieved one of the top 10 highest Knowledge Economy Index in the World Bank comparisons (Figure 1).

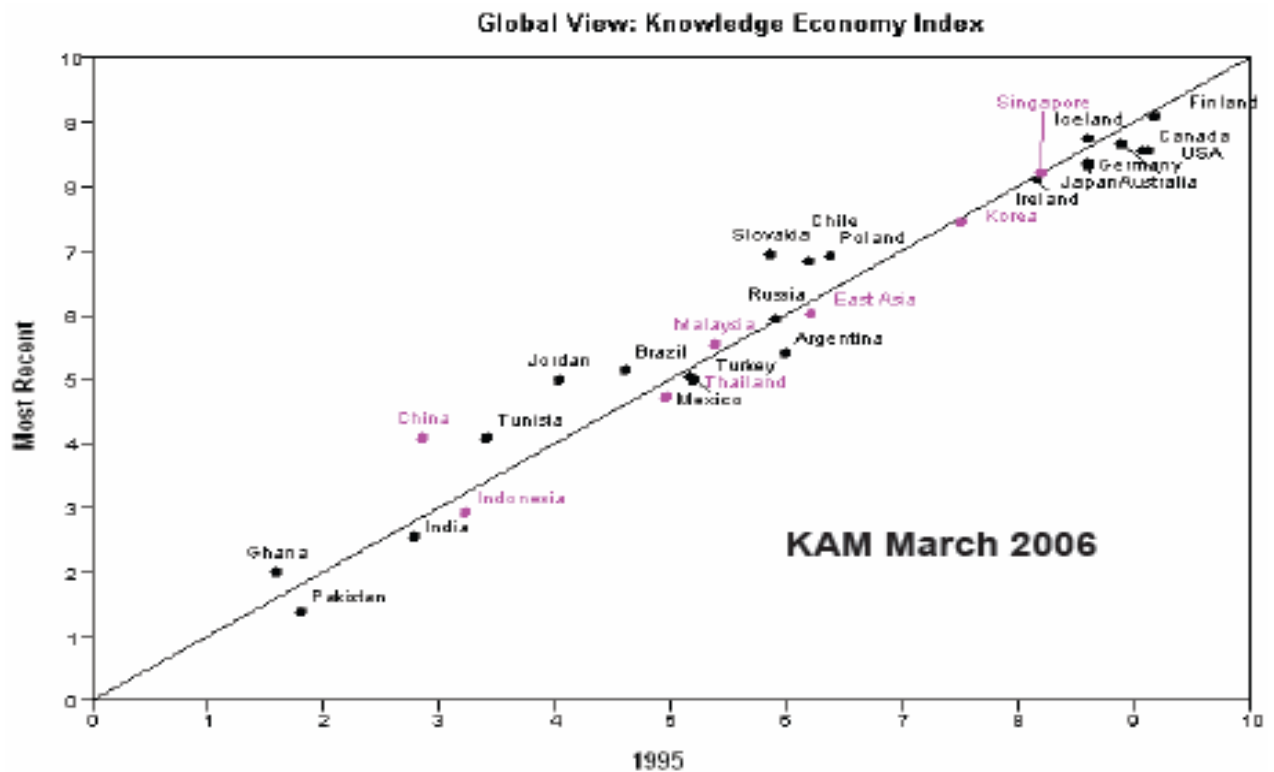


Figure 1 : Source: Knowledge for Development – World Bank Group Website : <http://info.worldbank.org/etools/kam/line45.asp>

Knowledge-related activities have become central to creating employment, national wealth and sustaining economic growth in the so-called ‘knowledge economy’, also variously known as ‘knowledge-based economy’ (KBE), ‘new networked economy’ or the ‘new economy’

(Ofori, 2003). The sustenance of these activities requires a constant renewal of human and organizational capacities and creating conducive environments for creativity, innovation, learning, and change to thrive (Knight, 1995: 226). There is considerable interest undertaken by policy makers within the Asia-Pacific including Singapore, Japan, Malaysia, Hong Kong and China (Hutton, 2004) to ride the wave of this so called new economy.

An economics survey carried out by Toh et al. (2002) revealed that Singapore's knowledge-based economy was comparable to that of the OECD countries especially in the areas of knowledge creation, acquisition, dissemination and application (Table 2).

	OECD	Singapore	US	Japan	Korea
Knowledge Creation Index	1.00	1.03	1.69	1.96	0.98
Knowledge Acquisition Index	1.00	1.49	0.86	0.65	0.98
Knowledge Dissemination Index	1.00	1.05	1.24	1.35	0.77
Knowledge Application Index	1.00	0.93	1.52	0.96	0.90

Table 2: Composite Knowledge Indices for Selected Countries, 2000

Source: APEC Economic Committee Report, (2003), "The Drivers of New Economy in APEC: Innovation and Organizational Practices". Available (16 March 2005) <http://www.apec.org>.

Three distinct and essential proxy indicators have been chosen to map each of the four KBE capabilities listed in table 2 (Table 3).

<b>Knowledge Creation</b>	<b>Knowledge Acquisition</b>
GERD- Gross expenditure on research and development (% of GDP)	Technology of BOP- Balance of payments- imports (% of imports)
Researchers per capita	FDI- Foreign direct investments - (% of GDP)
US patents per capita	VA – value add - of business services (% of GDP)
<b>Knowledge Dissemination</b>	<b>Knowledge Application</b>
ICT expenditure (% of GDP)	Percentage of workforce with university education
Affordability of internet access	Percentage of knowledge workers in workforce
Percentage of workforce with at least secondary education	World Competitiveness Yearbook ranking of entrepreneurship

Table 3: List of Indicators Used to Benchmark KBE Competitiveness

Source: APEC Economic Committee Report, (2003), "The Drivers of New Economy in APEC: Innovation and Organizational Practices".

However, to achieve that, Singapore has continuously relied primarily on knowledge transfers through multinational corporations and foreign talents (Toh et al., 2002). Investment by global companies is promoted and leveraged to generate direct and multiplier economic growth (Wong, 2004). This involved heavy investment in public infrastructure, manpower development and relevant incentives to support the development of industries and establishing government-controlled companies (also known as government-linked corporations) to operate in strategic sectors ear-marked by the government, such as information and communication services, tourism and bio-technology industries (Wong, 2004). This high dependence on foreign firms contributed to the lack of a critical mass of indigenous entrepreneurial firms for the global economy (Wong, 2004). Although knowledge transfer has provided a significant share of the innovation activities and knowledge spill overs in Singapore, the challenge lies in the creation, ownership and exploitation of new knowledge by the local entrepreneurs. Hence it is necessary to look at both knowledge creation and acquisition capabilities to measure the extent of the knowledge base in Singapore.

This is significant because the government has deemed creativity to be an important competitive advantage in the knowledge economy. This has resulted in the development of the Creative Industries Development Strategy in 2002 to enable Singapore to compete globally (ERC Report, September 2002) with a focus on expanding local creativity besides attracting global creative personnel and retaining entrepreneurs (Goh, 2002).

Singapore displays many characteristics typical of a knowledge-based economy yet it seemingly lacks a stimulating climate conducive to imagination, innovation and adventure that will continue to attract and retain globally mobile talent (Tan, 2003:403). In other words, there is the lack of cultural and environmental institutions, which can determine the quality of life and buzz of the city-state. Researchers in city and urban planning such as Florida (2002), Mendieta

(2001), Hall (1998) and Saxenian *et al.* (2002) have emphasized the importance of quality of a place, location or city in attracting talented knowledge workers.

This paper seeks to analyze the seemingly missing connection in the transition from knowledge to creative hub, which might have implications for Singapore's effort towards establishing itself as a cultural industries metropolis, a renaissance city using culture to re-position its international image as a global city for the arts. The challenges to the city-state were outlined in the end together with some recommendations.

## **CONVERGENCE OF TECHNOLOGY, CULTURE & PLACE**

The OECD (1996) defines a knowledge-based economy (KBE) as one in which the production, distribution and use of knowledge are the main drivers of employment, growth and wealth-creation. Knowledge intensive business services (KIBS) form an integral part of the KBE and they include legal services, management consulting, IT services, market research, engineering services, architectural, quantity surveying, building and appraisal services (Wong *et al.*, 2005). These services are often seen as a driving force in the spread of new knowledge through information and communication technologies (Aslesen, 2003). In that regard, many authors identify ICT and globalization as key drivers of the knowledge-based economy (Economic and Social Council, 2000). In recent years, ICT has also been deployed as a key instrument of urban transformation and modernization with both substantive effects (like higher productivity and value-added production) and 'symbolic' outcomes (like re-imaging of local/regional societies and economies) (Hutton, 2004). Like Vancouver, Singapore exercises an explicit strategy that fosters developmental synergies between technology (especially ICT), culture (in the form of creative and design service industries) and place (the hub of Asia) (Hutton, 2004). Such a convergence between technology, culture and place has been highlighted by Florida (2002) who illustrated the importance of well-developed creative industries and a large pool of creative people in attracting the world's major multinational enterprises to cities. It is no

coincidence therefore that the ranking of the top ten US 'Bohemian' cities also turned out to be the major high-technology areas such as Seattle, Boston, San Francisco, Washington D.C., Los Angeles and New York (Florida, 2002). This finding promulgates the need to analyze labor and human capital in a more dynamic way (Yeung, 2002; Coe, 2000) as migration of capital and attractiveness of cities are now linked to locations of multinational corporations.

## **SINGAPORE & THE DEVELOPMENTAL MODEL**

Over the years, Singapore has enjoyed one of the highest per capita incomes in the world – US\$26, 833 in 2005 (Singapore Department of Statistics, 2005). Like some of the largest Asian economies such as Japan, Korean and Taiwan, Singapore 's outstanding economic and business success has been accrued to the role of government in intervening in the free market (Amsden, 1989; Wade 1990). Singapore's economic strategy proved to be a success as the economy grew at an average annual rate of over 8.5% from 1965 to 1997 (Chia, 2000). Singapore's economy is very much a product of inter-linkages between the development vision, its institutional setup and the business environment (Loo et al., 2003). The development model has taken Singapore from an industrialization strategy in the 1970s to a higher, sophisticated manufacturing one, which included computer peripherals and software packages (Loo et al., 2003). The 1980s saw a strategic shift towards the technology intensive sectors and from the early 1990s it was focused on high knowledge intensive companies (Loo et al., 2003). By the late 1990s, the state was fully aware of the growing trend of globalization and competition. The ability to acquire, process and apply knowledge and information would be considered key competitive advantages (Sunday Times, 1998). The Government acknowledged the need to forge an environment that is conducive to innovation, new discoveries and the creation of new knowledge and one that harnesses intangibles such as ideas, knowledge and expertise to add value and create new value in the knowledge economy (Ministry of the Arts and Information, Renaissance City Report, 2000). It is

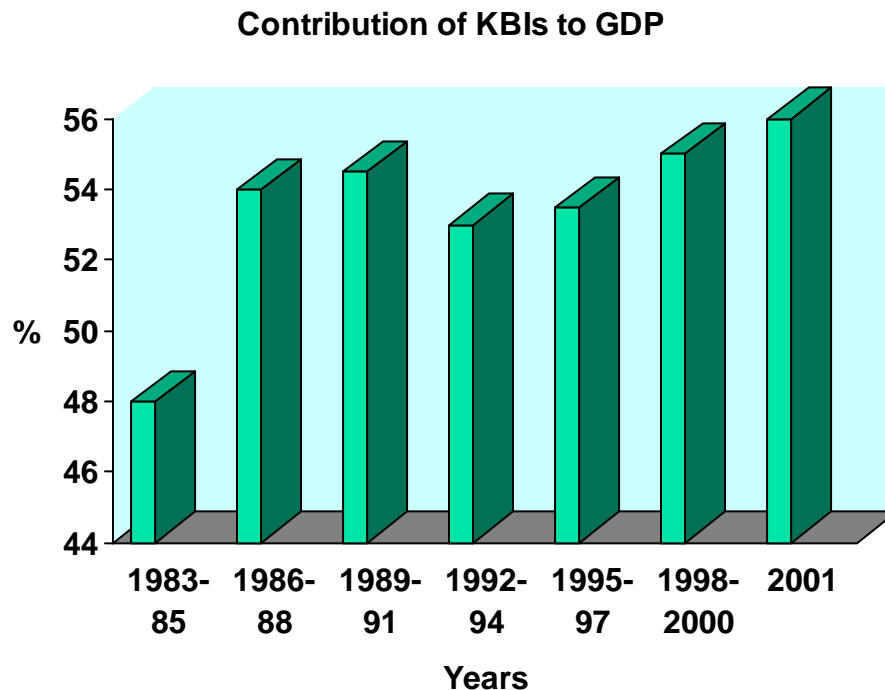
therefore not surprising that the concept of the knowledge-based economy has generated increased discussion and recognition in the late 1990s. Substantial efforts have also been made in the educational and industry sectors (especially R&D) in the last few years to link learning to knowledge creation and business creativity. The educational and cultural economic policies are tailored according to global economic restructuring and reflect the state's ideology of pragmatism and developmentalism (Kong, 2000).

## **SINGAPORE & THE KNOWLEDGE BASED ECONOMY**

It is noted that successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products (Nonaka, 1991). The Economic Development Board of Singapore recognised the need for Singapore to compete in the global economy with a broader knowledge based economy. The 1998 Report of the Committee on Singapore's Competitiveness and the Economic Development Board's Industry 21 Master Plan sets the vision for Singapore to become a globally competitive knowledge based economy. The key objectives are to encourage MNCs to locate more of their key knowledge-intensive activities in Singapore and for local companies to embrace more knowledge-intensive activities and become world-class players (EDB Annual Report, 1999). This means that Singapore's economy will be powered by knowledge intensive and high value added manufacturing and services (like ICT, media, logistics and supply chain management, education and health care). Investment in skills, knowledge and creativity are necessary to ensure that Singapore's workforce has capabilities for a KBE. The success of the KBE will require entrepreneurship and research to create new products, services, markets and opportunities.



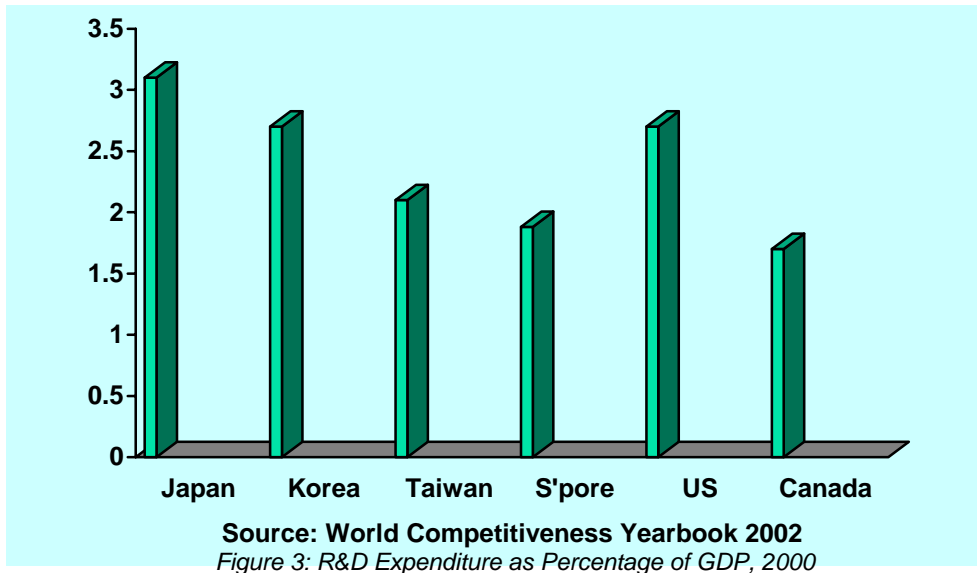
The size of Singapore's KBE can be estimated by looking at the value added of the knowledge-based industries (KBIs). The detailed breakdown of KBIs is shown in the graph below (Figure 2). Within a span of 15 years, the contributions of KBIs to GDP have increased from 48% in 1985 to 56% in 2001 (APEC Economic Committee Report, 2003).



*Figure 2: Contribution of Knowledge Based Industries to Singapore's GDP.  
Source: Department of Statistics, Singapore.*

Singapore has long depended heavily on foreign MNCs introducing advanced and sophisticated technology and know how through the FDI process (foreign direct investment). It has now reached a developmental state where it must also develop its own science, technology and innovation capabilities. This was when the National Science and Technology was set up in 1991 to develop public technology infrastructure, support the growth of private R&D, and nurture R&D manpower. This board was subsequently known as A\*STAR (Agency for Science, Technology and Research). Singapore has made good progress towards creating a stronger base for knowledge creation over the last 10 years. The level of R&D and numbers of researchers have

reached the level existing in developed KBE economies, but there is still a big gap between Singapore's R&D outputs and the more advanced KBEs (Figure 3).



According to the Composite Knowledge Indices for Selected Countries, 2000 given in Table 2 earlier, Singapore's index of 1.03 in knowledge creation seems on par with the OECD average although US and Japan have stronger showing for their innovative ability. There is a great tendency to rely on knowledge acquisition, as the figure of 1.49 is the highest among the capabilities for Singapore. It is evident that there is a lot that Singapore has to catch up in the area of knowledge application (with a figure of 0.93) as entrepreneurship and tertiary education are found to be the weakest links (APEC, 2003). Statistics released by the 2004 GEM report shows that Singapore lacks behind the OECD and East Asian countries in starting a business as a career choice - 49.1% versus 59.5% (Wong et al., 2004).

The weak entrepreneurial spirit is accrued to a prevailing culture that seems to discourage creativity, risk taking and failure. As such, over the last few years the educational system was re-structured in order to foster greater creativity and instill higher-order (i.e., analytical, creative, and

systems) thinking skills amongst its school children. There is now a substantial reduction in curriculum content and student assessment in favor of team learning, problem-solving and process skills acquisition (Loh, 1998). The idea is to create a future intelligent workforce (i.e., today's school children) that is capable of advanced, continuous learning, un-learning, and re-learning (Koh, 2000). For this to be successful, the educational restructuring has to pervade the entire school system from elementary school right through to university level.

Singapore's research institutes are working at the forefront of technology to deliver better value for industry. In 2001, the Swiss-based Institute for Management Development ranked Singapore 3rd in R&D in its Global Location Attractiveness Rankings. The Agency for Science, Technology and Research (A\*STAR) ensures that Singapore's R&D efforts are world-class. A\*STAR is building a diverse community of local and foreign researchers, and has already attracted some of the best and brightest minds from the US, Europe, Australia and Asia. Concerted efforts are being made to strengthen R&D collaboration between research institutes, universities and industry. The strong links and fluid exchanges between industry and academia make Singapore attractive to international companies as a key location in their global R&D network (EDB Media Release, June 2003).

It is a laudable effort on the part of Singapore government in enhancing the base of Singapore's knowledge economy through its national innovation system, entrepreneurship and educational capability (Toh et al., 2002). There is a need however, to go beyond this and to address the issue of how to attract or embed mobile professionals who make up the knowledge workforce in Singapore and to turn the city-state into a quality place rich in physical and cultural amenities, generating a spontaneous combustion of ideas and creativity. This is where culture and place have to be expressed in the innovative milieu of the inner city (Hutton, 2004: 55).

## **SINGAPORE & THE CULTURE HUB**

In the 'new economy', culture is increasingly being supplied in the form of goods and services (Scott, 2005: 1) and increasingly consumed more for their aesthetic and sign value (Scott, 2004) such as status, luxury, power, or style that make a product desirable to the consumer (Baudrillard, 1988). These intangible, invisible externalities enhance the image and prestige of the local area and indirectly add to the quality of life in places where such products or services are consumed (Scott, 2004; p. 477). Such considerations have become crucial factors for multinational enterprises in their location decision. For example, a large number of MNCs have concentrated their headquarters in very large, global cities like London, Tokyo and New York which serve as cultural capitals for music, art and theatre besides giving access to regional, national and international markets including a highly skilled labour force and a range of sophisticated, specialist services (Nakagawa, 2002). There is hence a growing trend towards the identity and construction of places as centres of consumption rather than as centres of production. Sharon Zukin (1995) maintains that culture has become more and more the business of cities and that it will form the basis of a city's tourist attractions and its unique competitive edge.

The then Prime Minister of Singapore, Goh Chok Tong recognised the need for a culturally vibrant Singapore to attract global creative talents with a focus on expanding local creativity besides attracting global creative personnel and retaining entrepreneurs (Goh, National Day Rally Address, 2002). The current economic policies therefore give emphasis to human capital, talent, knowledge professionals and the role of cultural and creative endeavours aiming at Singapore becoming a renaissance 'city of the arts'. The presence of such human capital, or knowledge professionals, creative talents will in turn attract innovative, technology-based industries (Florida, 2002; Brooks, 2000; Glaeser et al., 2001; Bassett et al., 2000). The developmental strategy adopted by the Singapore Government aims at Singapore becoming a creative city equal to the league of creative cities such as San Francisco, London and New York.

This reflects the pragmatic and developmental model (Kong, 2000) of the city-state. As a result, the creative sector is given due prominence in the economy now as the creative industries are slated to be a growth engine of the Singapore's economy (6% of GDP by 2012). The Singapore government has set aside more than 200 million Singapore dollars (US\$116 million) over the next five years to invest in the arts sector (Forbes, July 2004). In the last two years, a number of regional and foreign firms in the creative sector have established their regional headquarters in Singapore including the production studio of Lucas Film, a company founded and owned by 'Star Wars' director, George Lucas and Electronic Arts (EA) which is the world's largest game publisher (EDB News Room, 5 December 2005).`

On a whole, the cultural capital injected into the Singapore cultural scene is basically the 'hardware' or the tangible side of the equation, which includes cultural facilities, programs and festivals. There is a need to nurture the 'software' or intangible and intrinsic aspects of cultural capital. Although there is a growing trend towards harnessing the intangibles such as ideas, knowledge and expertise to add value and create new value in the new economy (Economic Review Committee Reports, September 2002), these efforts are still very much driven by the State. Singapore's key agenda in the cultural policy is to propel the growth of a new creative economy that entails developing mechanisms to harness the creative and economically productive conduct of each person in a rational and ritualised fashion (Lee, 2004). This involves heralding the economic potential of the arts, culture and the creative sectors, and simultaneously enforcing strict boundaries of political and social exchange (Lee, 2004, p. 295). The creative direction appears contradictory or even schizophrenic. It appears antithesis to the sustenance of a knowledge-based economy, which requires a constant renewal of human and organizational capacities and creating conducive environments for creativity, innovation, learning and change to thrive (Knight, 1995: 226).

## CONCLUSIONS & RECOMMENDATIONS

The knowledge-based industries in Singapore have so far contributed to a rising increase in the GDP from 48 per cent between 1983 and 1985 to 56 per cent in 2001 (APEC Economic Committee Report, 2003). The future growth of sectors such as healthcare, ICT, education services, photonics, nanotechnology, biomedical sciences, environmental/water technologies and interactive/digital media is dependent on Singapore's knowledge capabilities. To that extent, Singapore's efforts in creating an 'intelligent island' through knowledge acquisition and dissemination within the last decade is a very laudable effort (Wong, 2004). Going forward, Singapore will need to position its domestic policies to nurture a more broad-based KBE to sustain economic growth. Toh et al's findings (2002) indicated that the mapping of Singapore's KBE has highlighted three particular areas which will require greater policy emphasis:

1. Domestic innovation system - The quality and type of innovation system Singapore has in place will determine whether it can make the best use of resources devoted to R&D.
2. Commercialization of new knowledge - To maximize the commercialization of new knowledge, Singapore needs entrepreneurs to create new business models and challenge existing firms to innovate.
3. Education and training of workforce - The upgrading of Singapore's workforce is fundamental to the development of the KBE, for it is a key determinant of all four knowledge capabilities. This would involve providing a broader tertiary education base as well as cater to specialized niches for higher education. In addition, attracting MNCs to set up regional training facilities in Singapore will lead to greater dissemination of organizational and technological knowledge.

However the areas of knowledge creation and application especially when they are applied to the entrepreneurship scene in Singapore need further development. There is seemingly

a connection that is missing in the transition from knowledge-based economy to a creative economy. The urban cosmetic form in Singapore (with its seemingly sterile and nanny state approach) belies a lack of network externalities (Scott, 2000), which can provide a platform for creative and innovative activity. The importance of ties, networks and norms needed for individuals to learn to trust one another and engage in cooperative endeavours (Putnam, 1993) cannot be overlooked. The networks, shared values and trust people acquire through interaction bring the appropriate knowledge together in the process of shaping and shifting their self-perception or identity to actively manage learning and change (Falk, 2001). There is a greater need now to examine and harness the cultural and social aspects of human capital to generate economic returns.

The institution-centred approach to the generation of social capital argues that government policies and political institutions create, channel and influence the amount and type of social capital (Hall, 1999; Rothstein et al., 2001; Stolle, 2002). Such an approach epitomizes the case of Singapore where the manifestation and generation of social and cultural capital is often being criticized due to the dominant influence of the State in all sectors of society. There is not much understanding given to the creative process, which forms part of the social system, and the lack of understanding that creativity is both a complex social process and individual activity (Csikszentmihalyi, 1996).

There is a need to balance the extremes of bureaucracy in order to unleash human creativity. In a study carried out by Brown and Eisenhardt (1998), it has been shown that the bureaucratic model often contains potential efficiencies which become a 'bureaucratic trap' when adaptability and creativity are a fundamental source of competitive advantage in highly dynamic global markets. Social capital is frequently a by-product of religion, tradition, shared historical experience and other factors that lie outside the control of any government (Fukuyama, 1999). This is where community development in Singapore could be encouraged as a creative process of

transforming a place in such a way that it uses its own distinct character to fit the needs of the changing society (Landry, 2000). This relates to the need for a multifaceted cultural environment that accepts highly divergent views within the film, art and theatre circles (Sigurdson, 2000). Government in Singapore has to adopt a more balanced approach to allow creativity to happen organically such as opening up sources and flows of information into the city-state and unleashing the creative energies of different groups in trying different things, some of which will make little difference and some of which will not (Florida, 2004, p.54). Having creative industries is not synonymous as being creative (Pratt, 1997). It is about understanding the operations, the location decisions and the linkages of different creative sub-sectors and how they relate to the local economy. This will help identify their potential contribution in underpinning economic growth, and how they support cultural/creative life or communities and drive the overall transition to a creative city (Hall, 2000).

Perhaps the new economy could be gleamed with a different lens by monitoring and studying it from a broad social science perspective rather than an engineering based or systems approach. This might help illuminate the Singapore government's perspective in understanding the process of value creation in the new economy implying nothing less than a revision of Schumacher's (1973) core idea of economics as if people mattered.



## References

Amsden, A. (1989), *Asia's Next Giant: South Korea and late Industrialization*, Oxford University Press, New York.

APEC Economic Committee Report, (2003), "*The Drivers of New Economy in APEC: Innovation and Organizational Practices*". Available (16 March 2005) <http://www.apec.org>.

Aslesen, H.W. (2003), Knowledge Intensive Business Services and Regional Innovation. Consultancy in City Regions in Norway- Paper for the conference "*Reinventing Regions in a Global Economy*", Regional Studies Association International Conference. Pisa Conference Centre, Pisa, Italy 12th-15th April. Available (5 January 2006) <http://www.regional-studies-assoc.ac.uk/events/pisa03/aslesen.pdf>.

Bassett, K., Griffiths, R. & Smith, I. (2000), "Cultural Industries, Cultural Clusters and The City: The Example of Natural History Filmmaking in Bristol", *Geoforum*, Vol 33 No 1, pp. 165-177.

Brooks, C. (2000), "Knowledge Management and the Intelligence Community", *Defence Intelligence Journal*, Vol 9 No 1, pp. 15-24.

Brown, S.L. & Eisenhardt, K.M. (1998), *Competing on the Edge: Strategy as Structured Chaos*, Boston, Harvard University Press.

Chia, S.Y. (2000), "*Singapore: Towards a Knowledge-Based Economy*." Available (10 March 2005) [www.tcf.or.jp/data/20000127-28\\_Siow-Yue\\_Chia.pdf](http://www.tcf.or.jp/data/20000127-28_Siow-Yue_Chia.pdf).

Coe, N.M. (2000), "The View from out West: Embeddedness, Inter-personal Relations and the Development of an Indigenous Film Industry in Vancouver", *Geoforum*, Vol 31, pp 437-51.

Csikszentmihalyi, M. (1996), *Creativity: Flow and the Psychology of Discovery and Invention*, New York, Harper Collins Publishers.

Economic and Social Council, (2000), "*Development and International Cooperation in the Twenty-First Century: The Role of Information Technology in the Context of a Knowledge-Based Global Economy*", Report of the Secretary-General, New York.

EDB Annual Report, 1999, Singapore, SEDB.

EDB Media Releases, 7 January 2003, "*EDB New Headquarters Program Launched for Companies Across All Industries and Geographies*." Available (10 March 2005) <http://www.sedb.com/edbcorp/browse.jsp?cat=40&type=2&parent=36&root=36>.

EDB News Room, 5 December 2005. "EDB will earmark S\$500 million for the next five years to develop this digital media industry." Available (10 March 2005) [http://www.edb.gov.sg/edb/sg/en\\_uk/index/news\\_room/news/2005/edb\\_will\\_earmark\\_s.html](http://www.edb.gov.sg/edb/sg/en_uk/index/news_room/news/2005/edb_will_earmark_s.html)

EDB Singapore Media Release, 03 June 2003. Available (10 March 2005) <http://www.ida.gov.sg/Website/IDAContent.nsf/0>.

Economic Review Committee (ERC) Reports, December 2001, Ministry of Trade and Industry, Singapore.

Economic Review Committee (ERC) Services Subcommittee Reports on Creative Industries, September 2002, Ministry of Trade and Industry, Singapore.

Falk, I. (2001), "The Future of Work and the Work of Future", *Journal of Adolescent and Adult Literacy*, Vol 44, No.6, pp.566-571d.

Florida, R. (2002), "Bohemia and Economic Geography", *Journal of Economic Geography*, Vol 2 No1, pp. 55-71.

\_\_\_\_ (2004), *The Flight of the Creative Class- The New Global Competition for Talent*, HarperCollins Publishers, New York.

Forbes (24 July 2004), "Singapore Wants to Double Arts and Media, Associated Press", in [http://www.forbes.com/home\\_europe/feeds/ap/2004/07/24/ap1469194.html](http://www.forbes.com/home_europe/feeds/ap/2004/07/24/ap1469194.html). Accessed Date: 10 March 2005.

Fukuyama, F. (1999), *Social Capital and Civil Society*, The Institute of Public Policy, George Mason University.

Glaeser, E., Kolko, J., & Saiz, A. (2001), "Consumer City", *Journal of Economic Geography*, Vol 1, No. 1, pp. 27-50.

Goh, C.T. (August 18, 2002), National Day Rally Address, "Remaking Singapore – Changing Mindsets", Singapore Government Press Release, MITA, University Cultural Centre, NUS.

Hall, P. (1998), *Cities in Civilization*, Pantheon Books, New York.

\_\_\_\_ (1999), "Social Capital in Britain", *British Journal of Political Science*, Vol 29 No.3, pp.417-464.

\_\_\_\_ (2000), "Creative Cities and Economic Development", *Urban Studies*, Vol 37 No.4, pp. 639-649.

Hutton, A.T. (2004), "Service Industries, Globalization and Urban Restructuring Within the Asia-Pacific: New Development Trajectories and Planning Responses", *Progress in Planning*, Vol 61, pp. 1-74.

Knowledge for Development – World Bank Group. Available (20 June 2006)  
Website :<http://info.worldbank.org/etools/kam/line45.asp>.

Knight, R.V. (1995), "Knowledge-based Development: Policy and Planning Implications for Cities", *Urban Studies*, Vol 32, No. 2, pp.225-260.

- Koh, A.T. (2000), "Linking Learning, Knowledge Creation, and Business Creativity: A Preliminary Assessment of the East Asian Quest for Creativity", *Technological Forecasting and Social Change*, Vol 64 No. 1, pp. 85-100.
- Kong, L. (2000), "Culture, Economy, Policy: Trends and Developments", *Geoforum*, Vol 31 No. 4, pp. 385-390.
- Landry, C. (2000), *The Creative City: A Toolkit for Urban Innovators*, Comedia, London.
- Lee, T. (2004), "Creative Shifts and Directions: Cultural Policy in Singapore", *International Journal of Cultural Policy*, Vol 10 No 3, pp. 281-299.
- Loh, L. (1998), "Technology Policy and National Competitiveness", in M.H. Toh and K.Y. Tan, Editors, *Competitiveness of the Singapore Economy: A Strategic Perspective*, Singapore University Press and World Scientific Publishing Company, Singapore.
- Loo, L. S., Seow, E.O. & Agarwal, A. (2003), "Singapore's Competitiveness as a Global City: Development Strategy, Institutions and Business Environment", *Cities*, Vol. 20 No 2, pp. 115 – 127.
- Mendieta, E., (2001), "Invisible Cities: A Phenomenology of Globalization from Below", *City*, Vol 5 No. 1, pp. 7-26.
- Ministry of Information and the Arts. (Mar 2000), Renaissance City Report. Available (Accessed Date: 10 March 2005) <http://www.mita.gov.sg/renaissance>.
- Nakagawa, S. (2002), "Global Cities and Corporate Headquarters", *New Urban Economies*. Available (19/05/2003) <http://www.econ.kobeu.ac.jp/~nakagawa/web2003UG/2003UG6.ppt>.
- Nonaka, I. (1991), "The Knowledge-Creating Company", *Harvard Business Review*, Nov-Dec.
- Ofori, G. (2003), "Preparing Singapore's Construction Industry for the Knowledge-Based Economy: Practices, Procedures and Performance", *Construction Management and Economics*, Vol 21, pp.113-125.
- Organisation for Economic Co-operation and Development (OECD) (1996), *The Knowledge-Based Economy*, OECD, Paris.
- Pratt, A. (1997), "The Cultural Industries Production System: A Case Study of Employment Change in Britain 1984-1991", *Environment and Planning A*, Vol 29, pp. 1953-1974.
- Putnam, R.D. (1993), *Making Democracy Work*, Princeton University Press, Princeton, NJ.
- Rothstein, B. and Staffan, K. (2001), Demokrati, Socialt Kapital och Fortroende, in *Land du Valsignade*: SOM-insitutet, Goteborgs Universitet.
- Saxenian, A., Motoyama, Y., & Quan, X. (2002), *Local and Global Networks of Immigrant Professionals in Silicon Valley*, Public Policy Institute of California, California.
- Schumacher, EF (1973), *Small Is Beautiful: Economics As If People Mattered*, Harper and Row, New York.

Scott, A. J. (1998), "Multimedia and Digital Visual Effects: An Emerging Local Labour Market", *Monthly Labour Review*, Vol 3, pp. 30-38.

\_\_\_\_\_ (2000), "The Cultural Economy of Paris", *International Journal of Urban and Regional Research*, Vol 24 No. 2, pp. 567-582.

\_\_\_\_\_ (2004), "Cultural-Products Industries and Urban Economic Development-Prospects for Growth and Market Contestation in Global Context", *Urban Affairs Review*, Vol 39 No. 4, pp. 461-490.

\_\_\_\_\_ (2005), *On Hollywood, the Place, the Industry*, Princeton University Press, Princeton and Oxford.

Sigurdson, J. (2000), "*Singapore means to turn into a Knowledge-Based Economy*". Paper prepared as Visiting Professor at the Centre for Management of Innovation and Technopreneurship (CMIT), National University of Singapore, May-July 2000.

Singapore Department of Statistics, (2004) & (2005) Available (21 Feb. 2005 & 20 Jun 2006) <http://www.singstat.gov.sg/keystats/annual/indicators.html>

Stolle, D. (2002), Communities, Social Capital and Local Government-Generalized Trust in Regional Settings, in Prakash, S. And P.Selle (eds), *Investigating Social Capital: Comparative Perspectives on Civil Society, Participation and Governance*, Sage India (in press).

Sunday Times, (1998), Singapore Press Holdings.

Tan, K.P. (2003), "Sexing Up Singapore", *International Journal of Cultural Studies*, Vol 6 No. 4, pp. 403-423.

Tan T.K. (2000), *Social Capital and the Travailing of Civil Society in Singapore*, Public Policy Program, National University of Singapore, Singapore.

Toh M.H., Tang H.C.& Choo, A. (2002), Mapping Singapore's Knowledge-Based Economy, *Economic Survey of Singapore, Third Quarter*, Ministry of Trade and Industry, Singapore.

Wade, R. (1990), *Governing the Market*, Harvard University Press, Cambridge, MA.

Wong, P.K. (2004), "*The Information Society and the Developmental State: The Singapore Model*", National University of Singapore (NUS) Entrepreneurship Centre Working Papers, Singapore.

Wong, P.K. & Singh, A. (2004), "*Country Survey Report: Singapore.*" Report prepared for ECLAC/IDE (JETRO) Joint Project, Comparative Study on East Asian and Latin American IT Industries.

Wong, P.K., Ho Y.P. and Singh A. (2005), "*Singapore as an Innovative City in East Asia: An Explorative Study of the Perspectives of Innovative Industries*", World Bank Policy Research Working Paper 3568, April 2005.

Wong, P.K., L. Lee, Ho, Y.P., Wong, F. (2005), *Global Entrepreneurship Monitor GEM: Highlights in Singapore, 2004*, NUS Entrepreneurship Centre, Singapore.

Yeung, H. (2002), "Industrial Geography: Industrial Restructuring and Labour Markets", *Progress in Human Geography*, Vol 26 No 3, pp.367-379.

Zukin, S. (1995), *The Cultures of Cities*, Blackwell Publishers, Cambridge.