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## FROM THIRD WORLD TO FIRST WORLD: LEE KUAN YEW AND THE SINGAPORE TRANSFORMATION GROWTH STORY

Singapore has just celebrated its Golden Jubilee on 9th August last year. It has come a long way from its poor, under-resourced and under-developed past since its independence 50 years ago. Against overwhelming challenges and difficulties, Singapore has successfully reformed and transformed itself into a developed and advanced economy. Through bold and innovative policies and initiatives, Singapore has seen its economy being transformed from its low skill, low tech and low pay model into a high skill, high tech and high pay model of economic growth. Singapore is the poster child for Globalisation. It is among the first nations in the world to adopt many of the successful policies which help it to win in this relentless and merciless race called Globalisation [7, 16]. Although Singapore has experienced rapid economic growth, social stability and racial harmony due to its far sighted policies, there have nevertheless been some policy dilemmas and failures too. In this paper, I shall attempt to make a critical analysis of the policy successes and failures of Singapore.

*Key words:* Capital and Labour intensitivity, Foreign Direct Investment (FDI), Knowledge Based Economy (KBE), Entrepreneurship, Global supply value chain, Globalisation and Regionalisation drivers, Policy reform, National competitiveness, Tiger Economies, Manufacturing and Service clusters, Research Ecosystem.

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## ВІД «ТРЕТЬОГО СВІТУ» ДО «ПЕРШОГО СВІТУ»: ЛІ КУАН Ю ТА ІСТОРІЯ ТРАНСФОРМАЦІЙНОГО ЗРОСТАННЯ СІНГАПУРУ

З моменту незалежності Сінгапур пройшов довгий шлях від бідної, з нестачею власних ресурсів та нерозвиненої країни до суспільства з розвинутою економікою. Смілива стратегія та новаторські ініціативи перетворили Сінгапур на країну з високотехнологічною, конкурентоспроможною економікою та висококваліфікованою робочою силою. Сінгапур можна вважати «дитиною глобалізації». Це одна з перших країн у світі, яка адаптувала успішні стратегії, що дають змогу їй перемагати в безжалісних та нещадних перегонях, які називаються «глобалізацією». Завдяки далекоглядній політиці в Сінгапурі спостерігається економічне зростання, соціальна стабільність та расова гармонія, хоча були й політичні дилеми та невдачі. У статті проведено критичний аналіз успіхів та невдач політики Сінгапуру.

*Ключові слова:* інтенсивність праці та капіталу, прямі іноземні інвестиції, економіка знань, підприємництво, компанії, глобальний ланцюжок доданої вартості, драйвери глобалізації, реформаторська політика, національна конкурентоспроможність, креативне руйнування, «економічні тигри», виробничі кластери та кластери послуг, дослідницькі центри, дослідження екосистеми.

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## ОТ «ТРЕТЬЕГО МИРА» К «ПЕРВОМУ МИРУ»: ЛИ КУАН Ю И ИСТОРИЯ ТРАНСФОРМАЦИОННОГО РОСТА СИНГАПУРА

С момента независимости Сингапур прошел долгий путь от бедной, с нехваткой ресурсов и неразвитой страны до общества с развитой экономикой. Благодаря смелой стратегии и новаторским инициативам Сингапур превра-

тился в страну с высокотехнологичной, конкурентоспособной экономикой и высококвалифицированной рабочей силой. Сингапур можно считать «дитем глобализации». Это одна из первых стран в мире, которая адаптировала успешные стратегии, которые помогают ей одержать победу в этой безжалостной и беспощадной гонке под названием «Глобализация». Благодаря дальновидной политике в Сингапуре наблюдается быстрый экономический рост, социальная стабильность и расовая гармония, тем не менее были политические дилеммы и неудачи. В статье проведен критический анализ успехов и неудач политики Сингапура.

*Ключевые слова:* интенсивность труда и капитала, прямые иностранные инвестиции, экономика знаний, предпринимательство, компании, глобальная цепочка добавленной стоимости, драйверы глобализации, реформаторская политика, национальная конкурентоспособность, креативное разрушение, «экономические тигры», производственные кластеры и кластеры услуг, исследовательские и инновационные центры, исследование экосистемы.

**Introduction.** Against overwhelming odds and challenges, Singapore has successfully reformed and transformed itself into a developed and advanced economy boasting of a GDP of US\$55,000 which surpassed many members of the OECD [29]. The man behind the incredible transformation of Singapore for the past 50 years is none other than Lee Kuan Yew, its first Prime Minister [11]. Lee's authoritarian government has often been deemed to be highly reformed minded and heavily interventionist. This strong interventionist and, one may even say, interference approach of Lee Kuan Yew can be seen even in what has been traditionally private and sacred domains like the family and bedroom, and even the toilet cubicle, in Singapore. There have been several instances of rather amazing and amusing intersection between the official policies of the Singapore government and the private domain of its citizens' lives. Although Lee's policies have achieved remarkable economic success for his country, his critics have pointed to the rising elitism and the lack of consultation and political freedom in Singapore [3, 14]. The focus of my paper is more on the economic development rather than political development of Singapore, although the two are closely intertwined.

**Aim of the study.** In this paper, I shall attempt to make a critical analysis of the policy successes and failures of Singapore. My years of living in Singapore, working in the Ministry Headquarters and teaching in the universities in Singapore has enabled me to gain an invaluable insight into the Singapore economy, society and mentality. I shall offer my deep insights into the often complex and intricate process of policy decision in Singapore with a view to gain a deeper understanding of both the policy successes and failures in Singapore. The powerful story of policy reforms in Singapore should serve as useful and worthwhile lessons for newly developing nations like Ukraine.

### **Research results and discussions.**

#### *The Post-Colonial 1950s and 1960s*

In the aftermath of the Second World War, the vast majority of the post-colonial nations were unabashedly and, even fanatically, nationalistic and intensely suspicious of foreign investment or influence. The Bandung Summit in 1955 and the formation of the Non-Aligned Movement in 1961 all testified to the strength and scale of this movement [17, 27]. There was an emerging sense of national pride and destiny among the crop of post-colonial leaders who tend to share a common and intense sense of socialism and nationalism, even Marxism among some of them. Outstanding among them were Nehru of India, Sukarno of Indonesia, Nasser of Egypt and Nkrumah of Ghana [1].

In fact, many of the industries and businesses once owned by their former colonial masters were nationalised in these newly independent post-colonial nations. Historical

evidence suggests that even though nationalism may be good for national pride and useful for political capital, it is seldom good for the economy and society of these nations. Many of these industries nationalised by the new post-colonial nations failed miserably and had to be rescued by massive injections of national funds, thus posing a heavy strain on the national economy and onerous tax burden on future generations of the country.

What was worse was that many of such nationalisation exercises were merely a cover for corruption and cronyism as the leaders made use of their cronies to bid for the businesses concerned and used national savings to bail them out when they failed. Unlike many third world leaders, Lee also ensured a clean and lean government to promote efficiency, transparency and accountability. It is note worthy that Singapore has been ranked among the cleanest in the World Transparency index for Corruption. It is a remarkable achievement for a developing nation like Singapore to enjoy such a clean record for corruption in both the public as well as private sector.

Lee Kuan Yew is probably the only post-colonial leader who has successfully articulated a clear and coherent policy vision to mobilise and energise his people to achieve seemingly impossible lofty targets of economic growth, societal improvement and national development [2, 26]. Although Singapore was a third world nation at its independence 50 years ago, Lee is neither a follower of capitalism nor socialism but a visionary leader imbued with a strong sense of pragmatism and survival for his nation. Instead of joining this fiery brand of socialism and nationalism, Lee chose a more pragmatic approach of encouraging and attracting foreign companies, especially Multi-National Companies (MNCs), to relocate to Singapore [21]. In return, Lee offered generous tax breaks, pioneer investors' status, generous land financing and lease arrangements, complaint workers, attractive living and relocation benefits for the staff of the MNCs concerned. As shown by the following table, a stable political and operational environment are critical factors in attracting the MNCs to invest in Singapore. Given the geo-political and geographical constraints facing Singapore in its early post-colonial years of independence, this national strategy was indeed a wise and far sighted move.

#### *The First Industrial Master Plan*

The main priority of this first wave of investments by MNCs was to offer mass employment for Singaporeans, even though these early investments were neither capital intensive or technology advanced. Examples of these industries were shoe, garment and toy manufacturing and simple assembly of home appliances. As many of these industries brought in by the MNCs were labour intensive, it was paramount to not only to ensure sufficient number of workers for them but also the appropriate workers' attitude.

The National Trade Union Congress (NTUC) was duly formed during that time as a tripartite organisation to promote cooperation between the employers, the employees and the government. However, the unstated real purpose for this umbrella union was to impose control over workers and their bargaining rights in order to ensure a stable and compliant work force, unlike the belligerent and even militant worker unions in the West which often led to strikes, work stoppages and serious down time.

Many of the production lines in the electronic industry work over 24 hours with back to back worker shift rotation to ensure their smooth and continuous operations. Any such work stoppages affect line productivity and product quality as the modern production systems are designed for and predicated on smooth work flow and orderly production cycles. Any disruption to the production and distribution schedule will result in production shortfall and quality issues, affecting both the competitive and financial positions of the companies concerned. Recognising the importance of a compliant and

hard working work force, work strikes were made illegal in Singapore and workers have to obey very strict and demanding rules and laws. Appropriate training manpower and constant skills upgrading for these industries.

Beginning from its independence, Lee Kuan Yew has placed a special emphasis on the education and training of his people [11]. Without any natural resources, Singapore has no choice but to maximise the only resource it has, which is human resources. Right at the start, its Education minister, Ong Pang Boon, has always stressed the importance of education and training for the success of the early industrialisation plan for Singapore [19].

**Table 1. Singapore in ranking of the Business Environment Risk Intelligence (2011)**

Ranking	Countries	Present combined score
1	Singapore	79
2	Switzerland	77
3	Norway	73
4	Taiwan (R.O.C)	73
5	Netherlands	69
6	Austria	67
7	Germany	66
8	Canada	64
9	Sweden	64
10	Finland	62
11	Belgium	63
12	Japan	62
13	Denmark	60
14	China (P.R.C)	60
15	United States	60

*Source: BERI Report 2011-II (August 2011)*

The POR is based on a combined score of the +5 years ratings derived by adding the: 1) Operations Risk Index (ORI); 2) Political Risk Index (PRI); 3) Remittance and Repatriation Factor (R Factor) and dividing by three.

Lee Kuan Yew's strategy of piggy backing on the foreign Multi-National Companies (MNCs) was initially criticised as it was a highly unpopular and unprecedented policy during the early years of post-colonialism when nationalism was a rising sentiment. However, Lee Kuan Yew's sense of pragmatism and vision proves to be prescient after all as his unconventional thinking and contrarian strategy proved to be hugely successful both for the MNCs as well as for Singapore. Besides providing critical Foreign Direct Investment (FDI) and mass employment, MNCs also bring with them superior Western technology, advanced management techniques, global marketing and distribution network and positive work ethics too.

On the domestic front, the mass employment offered by such MNCs helped to solve many social ills associated with mass unemployment and poor work ethics. Besides that, it also help to kick start critical capital formation and infra-structure upgrading as its roads, ports, airports and other facilities needed to be upgraded in order to attract and facilitate such investments. It is a virtuous cycle as more investments engendered more infra-structure upgrading and this in turn attract more investments.

Capital formation is aided by the compulsory scheme of Central Provident Fund (CPF) which enforces a high savings rate of about 45 %, one of the highest in the world.

These huge savings were then used to support the government mass housing programme through its Housing Development Board (HDB) to provide housing for its people.

Along with this virtuous cycle of investments and upgrading, more and better jobs were also created leading to dramatic improvement in the education, training, work attitude and quality of life for the local work force. Hence, it is both instructive and imperative for developing nations to adopt a long term and far sighted multi-faceted approach in order to develop its economy and society. Lee's policies also prove that his socialist goals of providing mass affordable housing, schooling and employment can be achieved through free market forces and practices of capitalism. Hence, Lee's brand of pragmatism shows that a national leader needs to rise above dogmatism or idealism in order to achieve the maximum benefit for his people and nation.

Through my past 50 years of living and working in Singapore and East Asia, I have seen not only how Singapore but also other East Asian economies have transformed themselves and taken off through such far sighted and strategic policies. The World Bank has compiled a comprehensive study on this rise and called it the "East Asian Economic Miracle" [28]. The early success of Japan was emulated by the Tiger economies of Singapore, Korea and Taiwan. This was followed by the second wave Tigers like Malaysia, Thailand, China and currently Vietnam [4]. Given its size and scale, the rapid rise of the Chinese economy has made a drastic and dramatic impact on the economies of East Asia and around the world. The latest volatility in both the stock and currency market in China has caused a great deal of concern to the region and the world too. Many so-called experts are asking whether the East Asian Economic Miracle is now over. For the moment, let me go back and critically discuss and analyse how Singapore successfully developed its economy through its long sighted strategy of attracting investments by MNCs in order to proffer some useful insights and worthwhile lessons for developing nations like Ukraine.

#### *Critical Investments by leading Electronic and Technology MNCs in Singapore*

More than any other post-colonial national leader, Lee Kuan Yew foresaw, way back in the 1960s, the leading and critical role played by emerging technology like electronics and semi-conductors in the future for Singapore and the world. Lee would give strong emphasis and incentives to attract and promote the sunrise industries and disincentives to phase out the sunset industries. This is again a testament and hall mark of his policy vision and long term strategy.

The first successful investment in Singapore by a giant technology firm was in 1969 by Texas Instruments (TI), the largest technology company in the world at that time.

It is note worthy that TI semiconductor chips helped fuel the modern electronics revolution and its engineer, Jack Kilby, was awarded the Nobel prize for his invention. Lee Kuan Yew set up the Economic Development Board (EDB) to spearhead Singapore's drive to attract Foreign Direct Investments (FDIs) by the global MNCs into Singapore. Through its pro-active and attractive "package" approach, EDB successfully wooed TI and many other technology giants, like Seagate, Motorola and Western Digital, to make multi million dollar investments in Singapore.

The successes of such MNCs in Singapore resulted in a shortage of workers and rapidly rising labour costs. Worsening labour shortages and ensuing rising costs eroded Singapore's competitive advantage as a low-wage manufacturing base and required a shift in industrial structure towards high-tech manufacturing and high value added services. By the late 1970s, industrial restructuring policies were launched together

with emphasis for automation, mechanisation, and computerisation. Wages were also accelerated upwards to actively phase out low pay and low tech sunset industries. Low skill, labour intensive and land extensive industries like ship building and repairs were shifted out to neighbouring countries like Batam in Indonesia. This is due to the fact that Batam is much cheaper in terms of land and labour costs and yet near enough to Singapore for close management support and supervision.

*The 1985–86 recession and the Strategic Economic Plan (SEP) in 1991*

The Industrial restructuring programme was disrupted briefly by the 1985–86 recession, brought about partly by the rapid increase of local wages and phasing out of the sunset industries like ship building, garment manufacturing and furniture businesses. The active phasing out of such sunset industries is a demonstration of his ardent belief in Schumpeter's creative destruction [25]. However, there is an important lesson here for developing nations to adopt a more gradual and calibrated approach when embarking on economic transformation of a national scale.

There should be enough diversity and resilience in the economic landscape to absorb any shocks that come with any major economic policy reform exercise. Sufficient time and support, eg man power training and incentives, should also be provided to ensure a more orderly and timely phasing out of the «Sunset» industries.

After recovery from the 1985–86 recession, the Singapore government began to plan for the longer term. The Economic Planning Committee issued the Strategic Economic Plan (SEP) in 1991 which provided an overview of the economic landscape for the following two to three decades. The SEP called for promoting and developing Singapore as a “total business centre” and developing high-tech and high value added manufacturing and services as twin engines of growth. It made two strategic proposals, ie evolving highly developed manufacturing and service clusters and upgrading the low productivity domestic sector. The cluster proposal adopted Michael Porter's framework for competitiveness [20].

At the same time, Lee Kuan Yew also planned for political succession in order to ensure policy continuity, political stability and economic prosperity for Singapore.

He carefully vetted through some candidates and decided on Goh Chok Tong to take over his Prime Ministership in 1990. However, Lee did not retire from the political scene at all and upgraded himself to the role of a Senior Minister for Singapore. He would be frequently consulted on and making pronouncements for national policies.

The key thrusts of the SEP were to develop an international orientation, to maintain international competitiveness, to develop manufacturing and service clusters, to spearhead economic redevelopment, to create a climate conducive to innovation, to enhance human resources, to promote national teamwork, and to reduce vulnerability. Strategies were grouped under the Manufacturing 2000 and International Business Hub 2000 Programmes. The Economic Development Board (EDB) was the lead agency to implement these programmes. The Manufacturing 2000 Programme (M2000) affirmed the continuing role of manufacturing as a mainstay of the economy.

The strategic goal was to sustain manufacturing at 25 percent of GDP and at 20 percent of national employment in order to prevent hollowing out of its economy. Encouraged by the earlier successes of pioneer investors from giant technology firms like Texas Instruments, Motorola and Seagate Technology, many more other technology firms joined in the “bandwagon effect” in order not to be left out. This soon created a critical mass, with its own supplier and support network and accompanying OEM manufacturers, marketing and logistics activities. All these technology firms and their

support and supplier network of companies help Singapore to be a key player in the Global Value Supply Chain in the electronics industry. Many of these technology companies also upgraded its operations with substantial investments in R&D and related innovations in Singapore.

Please allow me to outline here the four important factors which, I humbly believe, are crucial in attracting giant technology MNCs to Singapore:

1. The booming economies and rising consumer class in the surrounding Asian-Pacific region;

– The Asia-Pacific region is home to about 50 countries, many of which are experiencing rapid economic progress with the rising consumer class of millions of people, eg China, India, Korea, Malaysia, Thailand, Vietnam, Indonesia, etc.

Singapore is within easy reach of a few hours to all its Asean neighbours and three to five hours flight time to China, India, Korea and Japan. In fact, Singapore shares the same time zone with many of its Asean neighbours, thus facilitating business and commercial transactions and interactions with them. Leveraging on the other strategic advantages of Singapore, such as global connectivity with a world class telecommunications, infra-structure and other critical support and business friendly regulatory environment, Singapore has been positioning itself as the preferred business and technology hub of the region. MNCs can make use of the business and technology hub position of Singapore to access the region.

2. First Mover Advantage;

– Without any bureaucratic regulations and minimal localisation, MNCs can focus on Singapore as a test market for more developed markets and a lead market for less developed markets. In this way, Singapore enjoys a unique “First Mover Advantage” and allows the MNCs concerned to focus on global products and services. Given the ample supply and support of well educated and well trained manpower, the learning curve in Singapore is often the shortest and steepest and the technology diffusion and absorption is the fastest in the region.

Very often, a foreign technology MNCs would start its first operations in Singapore as the ease of doing business is unparalleled elsewhere in the region. After establishing itself and testing out and stabilising the processes and procedures, the MNCs would then decide later on to phase out the more labour intensive operations to other neighbouring cheaper countries like Malaysia, Thailand or Indonesia. The island of Penang in Malaysia is a close competitor for technology investment by MNCs as it also enjoys good infra-structure and a well trained and educated work force. However, other critical factors like transparency, accountability, and social and political stability are not as appealing in Malaysia. It is interesting and instructive to do a comparative study of the national policies of both Singapore and Malaysia as both of them were once together under the British Colonial Malaya. The differences in their national policies have led to divergent policy outcomes and a different national destiny and identity. However, it is outside the scope of this paper to provide further discussion and analysis here.

3. Encouragement and engagement in High Value Added activities;

– Singapore is faced with limited natural resources, small domestic population and rising labour cost. Keenly aware of these weaknesses, Singapore has no choice but to focus on high value added activities. Besides having a well trained and educated work force, its workers are also fully conversant in English. Its workers have been voted by BERI and other international organisations as being the most hard working, cooperative and willing to constantly go for skills upgrading.

The Singapore government also offers a broad based package of attractive benefits and incentives, eg training grants, generous tax and land benefits, assistance with construction and location of MNCs, even active equity participant co-investment schemes like the joint venture (JV) wafer fab venture with Canon, TI and HP. Unlike many emerging post-colonial nations, there are very few investment, ownership and repatriation constraints faced by MNCs in Singapore. It has been voted consistently as having the most open economy and the greatest ease of doing business in the world. There are also no tariffs or quota restrictions on imports into Singapore. Additionally, Singapore's laws are based on the Common Law system in UK and it has a long and reliable record of implementing its laws fairly. As shown in the accompanying chart, Singapore's Intellectual Property (IP) laws are among the strictest in the world. They are specially designed to attract and promote high value added activities like R&D and innovation and test centre activities by MNCs.

#### 4. Excellent infra-structure;

– Singapore is no longer a low cost manufacturer but more of a cost-efficient manufacturer. The high cost of manufacturing in Singapore is offset by factors like superior engineering and management skills, which are critical in the short product life cycles of many products. The excellent infra-structure, telecommunications, logistics and transshipment hub play a key role in helping Singapore become a key player in the global value supply chain. Although Singapore is small, it nevertheless is one of the few biggest transshipment centre in the world with the Port of Singapore being the busiest port in the world, as shown by the accompanying chart. Also the whole island city-state is linked with high speed broad band which supports and facilitates ICT work and development around the clock. Such ICT advantages are important to the smooth functioning of the MNCs, especially in the high value added niches like R&D and innovation centre activities. All these strengths enhances the global connectivity and competitive position of Singapore, vis-à-vis its neighbours. Besides these factors, in order to attract more value added activities of MNCs, Singapore also offers excellent government support and incentives to move up the value chain into more value added activities like R&D, innovation, marketing and test centre.

#### *Globalisation and Regionalisation Strategy*

In the earlier part of this paper, I have said that Singapore is one of the first countries to boldly and successfully embark on Globalisation. It is noteworthy to point out here that Singapore is the only country to embark on Globalisation before Regionalisation.

This is both counter intuitive and contradictory as one would expect a company or country to initially familiarise their businesses and operations in the neighbouring region first before venturing further overseas into the world. However, as I shall explain later, there are extenuating circumstances due to the geo-political constraints faced by Singapore in its early years of independence.

Beginning in the 1990s, the Singapore government has begun to actively encourage its companies and businesses to invest in the fast rising regional economies in order to take advantage of the cheaper land, labour and business opportunities there. Lee Kuan Yew wisely foresaw the rise of his regional neighbours and also the rise of the giant economies of China and India. In fact, following his famous visit to Singapore, Deng Xiao Peng launched his Special Economic Zones (SEZs) in China in 1978. It is these SEZs which kicked start the Chinese economy and propelled it to become the largest economy in the world today [29].

In 1992, Singapore co-invested with China to start the Suzhou Industrial Park. Following this example, modern and well equipped industrial parks were also built by Government linked companies (GLCs), like the Keppel and Sembawang group of Singapore, in Vietnam, Batam and India too. This has helped to spread Singapore's wing into the Asian region and diversify its national income base too. However, the business and political culture in the regional countries can be rather different from Singapore and pose a major challenge to Singapore's regionalisation effort. While Singapore practices and adheres strictly to the Common Law system, inherited from the British, many of its regional neighbours operate either on a different legal system or quasi-legal one which is not well established. Sometimes, this can lead to different interpretations of business contracts during disputes, often with disastrous consequences for the Singaporean investors. Another example is the corruption culture in existence in many of the third world countries in the region.

The Singapore International Foundation and ASEAN Scholarship Fund were also set up with a fund of \$500 million to help Singapore's poorer neighbours in the field of education and medical needs. In a way, this is Lee's far sighted strategy to help Singapore to project soft power among its poor but rising neighbours. Both the NUS and NTU in Singapore are also conducting specially tailored Master degree courses in Management and Administration for government officials and national leaders from its regional neighbours. In this regard, the Singapore government also conducts regular briefings for visiting delegations from its regional neighbours. I was once working in the Ministry's Headquarters as a briefing officer for such visiting delegations. These delegates were very serious minded and keen to learn from the development policies and strategies of Singapore.

Given Singapore's geo-political situation, Lee has chosen to adopt the wise and patient strategy of a «Win-Win» approach to take part in and enjoy the rising economic prosperity of its neighbours. It is note worthy to point out that Singapore faced with immense challenges to its very own survival during the early years of its independence [8, 13]. After a long period of, often bitter, differences over political differences, Singapore was separated from Malaysia in 1965 [9]. Almost immediately, it was threatened by Konfrontasi by the Indonesian armed forces. Hence, this wise “Win-Win” strategy should be applauded as it not only help Singapore to win friendship and security but also ensure the long term prosperity of Singapore as well.

Since its “Regionalisation” drive begun, many GLCs and SMEs have actively invested in the Asian and ASEAN region with the direct support and encouragement of the Singapore government. After some initial hiccups, many Singapore companies and businesses are now doing rather well in their business investments. However, as recent events in Thailand have shown, sometimes this strategy backfired as Singapore is seen to be too close to some of the predecessor governments in a power struggle. The downfall of the Thaksin government and the ensuing lengthy and bloody battles between the “Red” shirts and “Yellow” shirts is a reminder of the fragility, uncertainty and unpredictability of the political situation in the country. The present military government, after the latest coup d'état, is a direct consequence of power and class struggle going on in Thailand.

*The aftermath of the Asian Financial Crisis: The 1998 Report of the Committee on Singapore's Competitiveness and the Economic Development Board's Industry 21 (EDB I21) Master Plan for a knowledge-based economy (KBE).*

In 1997, the Asian Financial Crisis struck the entire region and Singapore also suffered its ill effects. Fortunately for Singapore, the earlier years of solid economic

growth and prudent public finances helped to produce a good buffer to absorb any economic shocks to the nation. In light of the crisis and faced with the eroding competitiveness of Singapore's economy, the government set up a special committee to do an in depth study of its economy and outline a vision for the future for Singapore going into the new millennium.

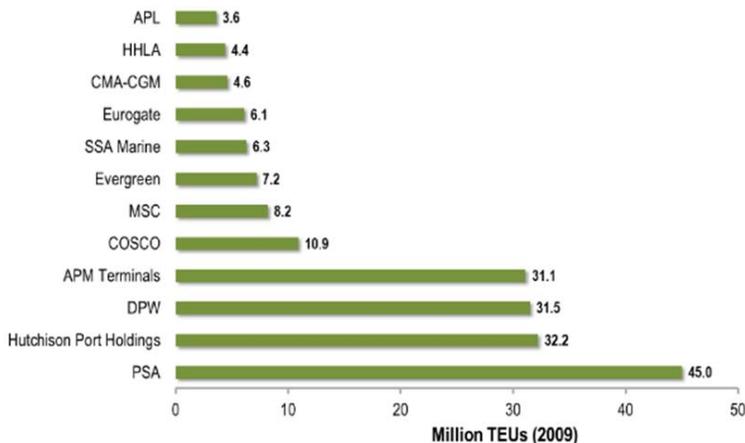
The 1998 Report of the Committee on Singapore's Competitiveness and the Economic Development Board's Industry 21 (EDB I21) Master Plan set the goal for Singapore to become a globally competitive knowledge-based economy (KBE). According to the EDB I21 Master Plan, Singapore's economy will be powered by knowledge-intensive and high value added manufacturing and manufacturing-related services and by exportable services. The OECD (1996) [18] defines a knowledge-based economy (KBE) as one in which the production, distribution and use of knowledge are the main drivers of growth, wealth creation and employment for all industries. In an industrial economy, labour is a factor of production and competitive advantage comes from more resources, cheaper labour and better machines. In the KBE, people and ideas and capabilities are the key source of wealth and opportunities.

Singapore is recently ranked as the number one logistics hub among 155 countries globally in the World Bank's 2012 Logistics Performance Index (table 2).

**Table 2. Singapore in Logistics Performance Index, 2012**

Country/ economy	Rank						
	overall	customs	infra- structure	interna- tional shipments	logistics qual- ity and com- petence	tracking and tracing	timeliness
Singapore	1	1	2	2	6	6	1
Hong Kong SAR	2	2	7	1	5	5	4
Finland	3	3	6	4	1	1	15
Germany	4	6	1	11	4	7	2
Nether-lands	5	8	3	3	7	2	12

Singapore's strategic location in the heart of Southeast Asia, and at the nexus of major shipping lanes, has made it an important logistics hub and conduit for world trade (figure).



**Figure. Port of Singapore Authority (PSA) as the busiest port in the world, 2009**

Port of Singapore Authority (PSA) is the busiest port in the world, despite its tiny size. The question “How would you assess general infrastructure (e.g. transport, telephone, energy) in your country?” had been estimated as very high level in Singapore, country had too position according to Global Competitiveness Report in 2012–2013.

*The Competitiveness Report and the KBE for Singapore in the 21<sup>st</sup> century*

To become a KBE, Singapore will need human and intellectual capital to create, absorb, process, and apply knowledge, a strong technological capability, an entrepreneurial culture, an open cosmopolitan society attractive to global talent, and connections to other global knowledge nodes. P. Drucker has stressed the importance of human and intellectual capital in this new global economy [5]. In this regard, the Singapore government has invested heavily in its schools and universities. For the past few decades, Singapore schools have been consistently ranked as among the top in international tests like the TIMSS and PISA (tables 3, 4).

**Table 3. TIMSS 8th-grade Math Scores for “A+” Countries, 1995–2011  
(Ranked by TIMSS 1995 Score)**

Country	TIMSS 1995	Last TIMSS (year)	Change
Singapore	609	611 (2011)	+2
Japan	581	570 (2011)	-11*
Korea	581	613 (2011)	+32*
Hong Kong	569	586 (2011)	+17*
Belgium (Flemish)	550	537 (2003)	-13*
Czech Republic	546	504 (2007)	-42*

\* $p < 0,05$

Note: The U.S. had a score of 492 in 1995 and 509 in 2011, a change of +17\*

Source: Mullis et al., TIMSS 2011 International results in Mathematics

The results of the tests for international mathematics and science series have above latest PISA international test results.

**Table 4. PISA international test results**

Rank	Math		Sciences		Reading	
	Country	Score	Country	Score	Country	Score
1	Shanghai, China	600	Shanghai, China	575	Shanghai, China	556
2	Singapore	562	Finland	554	South Korea	539
3	Hong Kong, China	555	Hong Kong, China	549	Finland	536
4	South Korea	546	Singapore	542	Hong Kong, China	533
5	Taiwan	543	Japan	539	Singapore	526
6	Finland	541	South Korea	538	Canada	524
7	Liechtenstein	536	New Zealand	532	New Zealand	521
8	Switzerland	534	Canada	529	Japan	520
9	Japan	529	Estonia	528	Australia	515
10	Canada	527	Australia	527	Netherlands	508

As shown in the accompanying chart, both its universities, the National University of Singapore (NUS) and Nanyang University of Technology (NTU) have been ranked by QS International ranking as 12<sup>th</sup> and 13<sup>th</sup> in the world and first and second in Asia respectively (table 5).

Table 5. TOP-20 Universities in the world for 2015/2016

Rank 2015/2016	University	Rank 2014/2015	Rank 2015/2016	University	Rank 2014/2015
1	(MIT) Massachusetts Institute of Technology	1	11	Princeton University	9
2	Harvard University	4	12	National University of Singapore (NUS)	22
3	University of Cambridge	2	13	Nanyang Technological University (NTU)	39
3	Stanford University	7	14	Ecole polytechnique federal de Lausanne (EPFL)	17
5	California Institute of Technology	8	15	Yale University	10
6	University of Oxford	5	16	Johns Hopkins University	14
7	UCL (University College London)	5	17	Cornell University	19
8	Imperial College London	2	18	University of Pennsylvania	13
9	ETH Zurich (Swiss Federal Institute of Technology)	12	19	Australian National University (ANU)	26
10	University of Chicago	11	19	King's College London (KCL)	16

The Competitiveness Report recommended specific plans for key sectors, including manufacturing, finance, and telecommunications, to move Singapore up the value chain. Singapore has stressed maintaining manufacturing and services as twin engines of growth since the late 1980s. This strategy recognises the strong linkage between the two sectors and Singapore's need for a broad economic base to reduce its vulnerability. Also, Singapore needs to balance the global orientation of export manufacturing with the regional orientation of exportable services.

#### *The Competitiveness Report and the Services sector*

Despite its decline, manufacturing still contributed significantly to Singapore's GDP, employment, and foreign exchange earnings, as well as to technological progress, productivity improvement, and entrepreneurship. Due to Singapore's rising costs, it now seeks to become a location where foreign MNCs and local enterprises produce high value added products and to provide manufacturing-related and headquarters services to the region. It also seeks to move along the value chain into R&D, design, logistics, marketing, and sales.

As part of this new drive towards high tech and higher value added manufacturing, the Singapore government has also attracted many major biotech, pharmaceutical and chemical giants to move to Singapore. The Singapore government is applying its trademark sense of focus and urgency in making the specialty chemical and pharmaceutical industry a success. In just ten years, thirty of the world's top pharmaceutical, biotechnology and medical technology companies have their regional and international headquarters in Singapore. Among them are Abbot, Roche, Novarties, Glaxo-Smith, Pfizer, Sanofi, BASF, Mitsui Chemicals, etc.

Singapore has once again shown a far sighted and long term strategic approach in its aim to move up the technology ladder towards high tech and value chemical and pharmaceutical manufacturing. Besides major investments by the pharma giants from

overseas, Singapore has also established its own vibrant biomedical sciences research ecosystem. This approach is both supportive of and critical to the long term success of its major investment in the new biotech sector. It has built up a strong scientific foundation with seven research institutes and five research consortia in key fields that include clinical sciences, genomics, bioengineering, molecular/cell biology, medical biology, bio-imaging and immunology. More than 50 companies are presently carrying out biomedical sciences R&D that includes drug discovery, translational and clinical research, frequently collaborating with these research institutes.

Over the past 20 years, Singapore has steadily built a strong foundation of basic and clinical research through its biomedical research institutes under A\*STAR which have gained the regard of the global scientific community. Among these institutes established are the Genome Institute of Singapore (GIS), the Institute of Bioengineering and Nanotechnology (IBN), the Institute of Molecular and Cell Biology (IMCB) and the Singapore Institute for Clinical Sciences (SICS).

The output from these new chemical and biotech sectors are now rapidly making a sizeable contribution to the manufacturing sector with total output eclipsing that of the electronics industry. However, even though the total output of these new sectors have grown in economic value, the employment opportunities are rather limited.

Compared to the electronics industry, most of the jobs in the specialty chemicals and biotech sector are available only to those with special training and post-graduate education. Hence, many of the high paying jobs in this sector has been filled by foreign talent from overseas, raising a serious concern over the loss of jobs to foreigners.

The Competitiveness Report envisioned the services sector in Singapore to be the premier Asian service hub by expanding existing financial services, international trading, transport and logistics, exhibition management, and tourism services as well as by developing new high-growth hub services such as healthcare, education, media, information and communications technology services, e-commerce and direct marketing.

The stable social, political and financial environment in Singapore are no doubt strong factors in attracting many major banks to its shores. For many years since its independence, Singapore has been seen as a peaceful oasis and used as a safe haven in times of political or financial upheavals in the region, eg the tumultuous riots in Jakarta during the Asian financial crisis in 1997–1998, the various coup d' etats in Thailand since the 1970s, the occasional racial tensions in neighbouring Malaysia, the protracted handover in Hong Kong in 1997, the Marcos revolution in the Philippines in 1986, etc. Singapore has been a favourite place for the rich and elites in the region to park their hard earned money safely. This has given rise to a significant and growing fund and asset management industry to complement the financial services industry in Singapore.

Unlike many Western banks, Singapore banks have been known to be among the most conservative in the world with their large asset holdings and little debt.

However, the status of Singapore as a safe harbour to park foreign funds in times of political crisis has been questioned by some neighbours in recent times. The parliament in Indonesia, for example, has raised its concern that some of their wealthiest individuals took advantage of the political crisis at home to evade tax by moving its funds to Singapore. This shows the sensitivity and vulnerability of Singapore both as a nation and regional banking centre. In fact, there are many more of such intriguing conspiracies and controversies surrounding some of these allegations.

In recent years, the banking scene in Singapore has seen significant growth and many assets formerly held in Switzerland have been moved to Singapore due to new taxes and regulations imposed by the Swiss. Due to rising wealth in the Asian region,

led by China, India and the nearby Asean economies, Singapore may overtake Switzerland as the top choice for banking and financial services in the future. The sizeable hard earned foreign reserves of Singapore is managed by two Sovereign wealth funds (SWF), namely the GIC Private Limited and Temasek Holdings. Both of them hold hundreds of billions of dollars worth of assets and are major investors in both the local, regional and international arena.

The Singapore government aims to grow the local fund management and development industry through the astute and careful investment and management by GIC and Temasek. However, the massive losses from its investment in Citibank just before the financial crisis in 2008 shows its poor decision and timing, despite having some of the highest paid and qualified fund managers in the world. This, again, underscores the fact that the global flows of liquidity can be highly unstable, unpredictable and disruptive. Despite the best attempt and intention of the government concerned, the liquidity and volatility of the international stock and currency market are highly unstable and even disruptive to the long term strategic planning of policy makers around the world, especially so for small and open economies like Singapore.

By the early 2000s, the political succession process was again very much in focus as Lee Kuan Yew felt that Singapore needs a new generation of national leaders to carry on the important and serious work of governing and developing the nation [10–12]. Goh Chok Tong and some of his older cabinet ministers made way for the new Prime Minister, Lee Hsien Loong, and his colleagues in 2004 in a smooth transition of power. Lee Hsien Loong is the eldest son of Lee Kuan Yew and has followed his father closely throughout his political career since his childhood. Lee Kuan Yew was again upgraded to be Minister Mentor, taking on the role of mentoring the younger cabinet ministers. He would be still involved with the government but more over strategic national directions rather than daily operational decisions.

Some of Lee's critics had contended that Goh was merely a seat warmer for the real prime minister, Lee's son, in waiting for fifteen years. They charged that the Minister Mentor's role was further proof of paternalism and Nanny state in Singapore [3, 22–24]. These critics also accused Lee Kuan Yew of gerry mandering by introducing political gimmicks like Group Representative Constituency (GRCs), a sort of group representational politics, to win votes. (*Lee had also proposed the idea of «One Man Two Vote» system but it was eventually scrapped*).

However, to be fair to both father and son, they are elected in a democratic election and won by a clear majority. In fact, in the latest general election held in September of last year, Lee Hsien Loong won by a thumping majority of 70%, a rare feat in any democracy. One of the first things he declared to the nation was national reconciliation and unity with the opposition to build and develop the nation of Singapore. Hsien Loong's ascendancy to Prime Ministership is seen by foreign investors and MNCs as a sign of political continuity and stability and Singapore soon witnessed another wave of major investments in various sectors, notably the high tech chemical, pharmaceuticals and electronics sector.

In a bold and unprecedented move, the Singapore government, under the new Prime Minister Lee Hsien Loong, announced in 2005 the construction of two Integrated Resorts (IRs) featuring top line entertainments like Casinos, five star hotels, Michelin star restaurants, bars and performance theatres. The first IR to be opened was the Marina Bay Sands by the Las Vegas Sands Group (LVS) at Marina Bay, featuring an unconventional design which helped it to win a world architectural award. Every night, visitors are entertained by its impressive laser shows and fireworks. The Resorts World

at Sentosa Island even has the world famous Universal Studios with the latest promotion based on its themes.

The opening of the two IRs in Singapore increased the share of the services sector in Singapore substantially. Besides promoting tourism and the local economy, there have also been some negative side effects and social ills associated with the casinos in Singapore. There was even the fear that the casinos in Singapore might be made use of by the underworld for the laundry of its ill gotten gains. Hence, strict rules and laws were enforced to ensure no such vice activities were allowed. Nonetheless, the recent crack down on corruption in China has dampened business at the casinos in Singapore. This illustrates the fluidity, flexibility and uncertainty of global liquidity and the challenges it poses for national control and management.

In another bold move, Singapore also promoted the Formula One Car racing on its city streets and it is the only F1 race at night in the world. Besides car racing, the whole Formula One scene is also accompanied by partying and celebrating. Before the opening of the IRs and the start of the F1 races in Singapore, there was a series of serious debates in the parliament. Lee Kuan Yew has always been known to stand for strict conservative values like hard work, frugality and humility. Lee champions strict Confucian values and eschews a flashy and flamboyant life style. He has often spoken about the danger of Western decadence and its negative influence on his people.

Lee led by example and also constantly reminded his ministers and government officials to lead austere lifestyles too. Many members of the Parliament, including Lee himself, and a cross section of Singapore society were concerned about the potential negative effects of going in the new direction as it may impact on the hard work, thrifty and conservative values of Singaporeans, especially the younger ones. Despite his initial reservation, his pragmatism helped to steer him to the eventual change in his hard line position against such flashy and costly ventures. Hence, this softening of his policy stance signalled a major turnaround of his own life philosophy. This is an important lesson for developing nations as pragmatism should take precedence over dogmatism or idealism.

#### *Challenges for the Future of Singapore*

Given the increasing competitiveness and challenges in the global economy, Singapore is currently undertaking a serious review of its economy for the future. There is an increasing need for value to be created in Singapore not just by foreign multinationals, but also by local firms in Singapore. Singapore needs to move from value-adding to value-creation and this requires making innovation pervasive in every industry and for firms in order for it to create its own products and services. This would help to establish Singapore as a leading centre for value creation in the business strategies of foreign companies. Unlike the past emphasis on MNCs and GLCs, Singapore will need to give greater focus to its own small and medium-sized enterprises (SMEs) with a view to engender greater innovation and value addedness. Towards this end, the Singapore government has also launched a “SkillsFuture” initiative to support the drive in this new direction.

In the past, the Singapore government has adopted the strategy of picking winners by making major investments in electronics, petro-chemicals, bio-technology and IRs. In its current and latest review, Singapore has identified the five growth clusters to be advanced manufacturing, applied health sciences, smart and sustainable urban solutions, logistics and aerospace, and Asian and global financial services.

The Ministry of Trade and Industry (MTI) has justified its selection of these clusters based on the strong capabilities and reputation of quality that Singapore has established in these fields, as well as global trends of ageing, urbanisation and disruptive

technological change. While it may be easy to target the necessary clusters, it is much harder to engender the kind of innovative and creative spirit necessary to ensure the success of its latest drive. Since its beginning, the Singapore has played a dominant and “Nanny” role in both the business sector and private life of its citizens.

The management expert, P. Drucker, has lamented on the «Sickness of Government» in his book «The Age of Discontinuity» [6]. While the Singapore government has been proactive and responsive to public needs and feedback, as in the Public Service 21 Initiative, there is nevertheless a need to trim down its role to allow for a greater space and better pace for more civic growth and consciousness. This civic growth allows for greater citizens’ ownership and towards engendering the kind of self initiatives and leadership necessary for the spirit of innovation and risk taking.

In the past, top students in Singapore were given generous scholarships and, upon graduation, would enjoy the stability and generous salary by joining the GLCs or MNCs. This safe and straight forward career pathway would invariably meant that the top talents in Singapore were often sheltered from the harsh realities of being an entrepreneur and risk taker. This also denied them of the opportunities and challenges of being innovative and thinking out of the box as they would tend to follow their safe and narrow career path towards a glorious retirement with generous retirement packages. Hence, what is required is nothing short of a cultural revolution both in the mind set of the Singapore government as well as its workforce.

**Conclusions.** In a short 35 years, Lee Kuan Yew has successfully transformed Singapore’s economy from Third World to First. Through far sighted policies and a strict and, at times, rigid regime, he helped Singapore to overcome many daunting challenges and seemingly insurmountable problems facing the small tiny island state. The trade off is that its citizens often have to sacrifice their personal liberties and freedom for the national good. Besides its impressive economic achievements, Singapore has also made impressive improvements in other critical areas like education, transparency and efficiency. Led by a capable government which is highly intolerant towards of corruption and political opposition, Lee Kuan Yew has set a high bar for his successors and his neighbouring economies to follow.

In a way, Singapore has now become a victim of its own earlier policy successes. The earlier successes of Lee Kuan Yew’s policies were predicated on a workforce which was diligent and led by an often rigid and top down approach. This meant that the workers’ mind set is that of a follower and not the kind of risk taker and innovative leader required for the new global economy, with its challenges and uncertainties. Hence, instead of a rigid top down approach, what is required now is a looser and more flexible bottom up approach. The old model of central and rigid planning should be replaced by a new model with greater operational responsiveness and effectiveness. The Singapore government must also engender a greater openness in its national culture coupled with active support in order to nurture and encourage the spirit of innovation and invention.

At the same time, there should be close and constant feedback and communication between the different levels and parts to ensure a well co-ordinated and smoothly functioning system. Hence, what is needed in this new era of global uncertainty is a model which shows greater fluidity, flexibility, agility and adaptability. The whole workforce needs to shift to an entrepreneurial and innovative mind set which is willing to take risks and initiatives in order to succeed in this uncertain and challenging global environment. In the post-Lee Kuan Yew era, it remains to be seen whether Singapore will succeed with its new directions and drivers in this new global economy.

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