About the chapter authors

The Singapore thought leaders who contributed their ideas in separate chapters are academics, policymaker/administrators, business leaders and non-profit drivers.

Academics covering topics on politics, society, economy, culture, education, infrastructure, environment, resources and defence are:

- Assoc Prof Eugene K.B. Tan
- Dr Ooi Kee Beng
- Assoc Prof Albert Chu-Ying Teo
- Adj Assoc Prof Basskaran Nair
- Professor Euston Quah
- Assoc Prof Hooi Den Huan
- Assoc Prof Kenneth Paul Tan
- Professor Cheong Hee Kiat
- Assoc Dean Donald Low
- Assoc Prof Victor Savage
- Assoc Prof Ng How Yong
- Assoc Prof Kumar Ramakrishna.

Policymaker/administrators covering topics on culture, education and infrastructure are:

- Mr Heng Swee Keat
- Mr Lim Teck Yin
- Mr Khoong Hock Yun
- Mr Khoo Teng Chye.

Business leaders covering topics on economy, education, environment and resources are:

- Mr Kwek Leng Joo
- Mr Paul Heng
- Dr Lee Kwok Cheong
- Mr Michael Heng.

Non-profit drivers covering topics on society and defence are:

- Ms Chia Yong Yong
- Ms Melissa Kwee
- Mr Christopher Ang
- Dr Tan Yong Seng
- Ms Winifred Loh
- Mr Seah Chin Siong.

About the editor

Joachim Sim is an independent writer, editor and publisher who sees his role as a propagator to help publicise and support the causes and efforts of social responsibility and sustainability practitioners, advocates and other stakeholders. His other SG50 book 'Giving A Helping Hand: Celebrating Singapore social enterprises' is his third title on how socially-responsible individuals and businesses are helping the less fortunate in our community, following the two he wrote for Singapore Compact in 2014 and the Singapore Institute of Management in 2013. Joachim previously headed several publishing companies, including Marshall Cavendish Academic, where he was developing its Asian Studies programme. He graduated with an MBA in Strategic Marketing from the University of Hull, UK.

"This is an important book and I wish it success."
- Tommy Koh, Ambassador-At-Large, Ministry of Foreign Affairs

What some of the chapter contributors say about Singapore's future…

"The text of our governance must constantly adjust and adapt to the context. Values competition and contestation will feature more prominently in the years ahead."
- Eugene K.B. Tan, Associate Professor at School of Law of Singapore Management University and former Nominated Member of Parliament

"Every citizen should have equal rights and opportunities regardless of his or her abilities or limitations. Community inclusion helps to make this happen."
- Chia Yong Yong, President of SPD and Nominated Member of Parliament

"It may not be overly ambitious to say that the Singapore technopreneurship volcano could erupt within the next 10 years."
- Hooi Den Huan, Director of Nanyang Technopreneurship Centre

"We can change our present and create our future by challenging ourselves to aspire to something better."
- Lim Teck Yin, CEO of Sport Singapore

"Learn for mastery. Learn throughout life. Learn for life. This must be our compass as we chart our way forward on this pioneering path and live the pioneering spirit together, to create an even better future in the next 50 years."
- Heng Swee Keat, Minister for Education, Ministry of Education

"The primacy of home ownership, which is a consequence of Singapore's welfare ideology of self-help and ownership, individualises risks, engenders dependency and entitlement, and may be costly to sustain."
- Donald Low, Associate Dean, Lee Kuan Yew School of Public Policy

"Without a healthy planet, there will not be any businesses or people. It is hence crucial for everyone to contribute to the development of our eco-nation, because we build tomorrow, today."
- Kwek Leng Joo, Deputy Chairman of City Developments Limited

"To achieve water self-sufficiency for Singapore by 2060, besides increasing local catchment areas and expanding the capacity of sea-water desalination and NEWater, efforts to maximise recycling of water and the capture, storage and usage of rain-water are necessary."
- Ng How Yong, Director of Centre for Water Research, National University of Singapore

"In the next 50 years, it does seem that…..rather than the traditional concern with (national) security, future leaders in the government, businesses and civil society may be grappling with (homeland) resilience."
- Kumar Ramakrishna, Head of Policy Studies and former Head of Centre of Excellence for National Security, S. Rajaratnam School of International Studies

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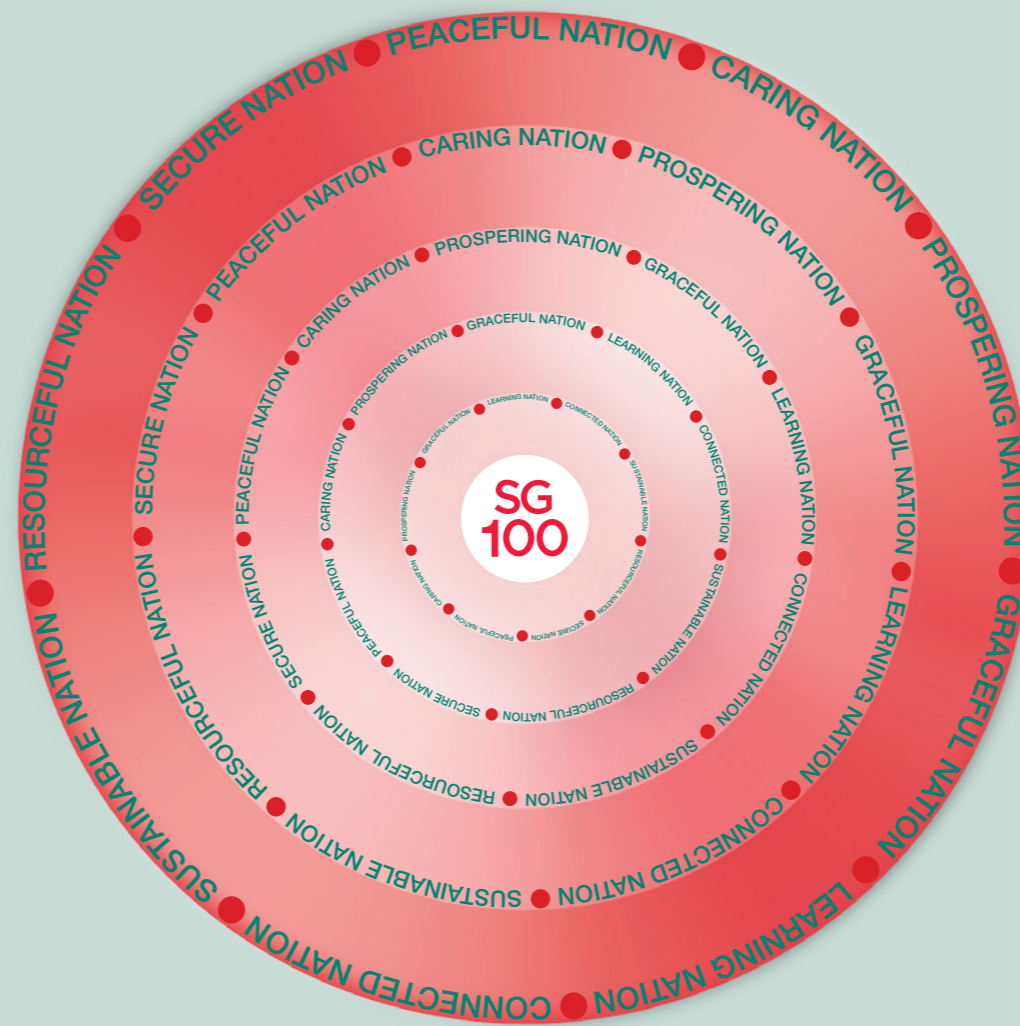
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SG 50

BEYOND 50: RE-IMAGINING SINGAPORE

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BEYOND 50: RE-IMAGINING SINGAPORE

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SG 100

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Conceived/edited by
Joachim Sim

SG 50 Supported by the SG50 Celebration Fund

BEYOND 50: RE-IMAGINING SINGAPORE

Imagine going back in time to 1965, 50 years ago. Imagine waiting for the boat at Clifford Pier. Could you have imagined the Marina Bay we see today? Now, try to imagine what Singapore will be like 50 years from now, in 2065. Hard to imagine?

Hardly, as the 26 chapter authors in this book about Singapore over the next 50 years will tell you. In this SG50 celebration book, these Singapore thought leaders share their imaginative ideas and forward thinking on Singapore's future in nine important areas – politics, society, economy, culture, education, infrastructure, environment, resources and security. These are framed as Peaceful Nation, Caring Nation, Prospering Nation, Graceful Nation, Learning Nation, Connected Nation, Sustainable Nation, Resourceful Nation and Secure Nation.

The many ideas in their collective imagination were developed based on some or all of the elements present in an essay about the future – reflective (where we are/were), predictive (what may happen next), prescriptive (what can be done) and anticipative (what they hope or wish to see).

Beyond presenting the substance and style of Singaporeans' thoughtful and caring ideas, it is hoped that the content of this SG50 book will convey the Singapore spirit in a most endearing and enduring way, and inspire Singaporeans to aspire for a better future for all. Majulah Singapura!

What cover design means

Blue book title signifies Blue Sky thinking and imagination, while green background connotes future growth. The circle symbolises one nation. The five concentric circles in a time tunnel denote the next five decades, with all nine 'ImagiNations' turning in the right direction. Close up, it's a telescopic view of the years ahead. Viewed from afar, it shows we're on target as we aim for SG100. The many red dots represent different parts of Singapore adjusting and adapting to an increasingly volatile, uncertain, complex and ambiguous world, depicted by the variation in colour tones.

BEYOND 50: RE-IMAGINING SINGAPORE

Conceived/edited by

Joachim Sim

*This SG50 book is dedicated
to Mr Lee Kuan Yew,
whose bold imagination
and strong determination
had helped to build our nation.*

"A hundred years ago, this was a mudflat, a swamp.
Today, this is a modern city.
Ten years from now, this will be a metropolis."
(1965)

"If we press on, in 20 years we shall build a great metropolis
worthy of a hardy, resilient and stout-hearted people."
(1972)

"My purpose is to secure Singapore's future."
(1995)

Lee Kuan Yew

Contents

SG50 'ImagiNation'

*When the next bold ideas
take wing in Singapore*

Foreword

I thank Joachim Sim, the convener and editor of this inspiring book, for inviting me to contribute the foreword. I had met Mr Sim many years ago, when I was the Director of the Institute of Policy Studies and he was working with our publisher, Marshall Cavendish Academic.

In his new incarnation, Joachim Sim has published several books about the making of a better Singapore as a caring nation. In 2013, he wrote and edited a book about corporate sustainability and responsibility for the Singapore Institute of Management (SIM). SIM and UniSIM (SIM University) are among the drivers of the new learning initiative, SkillsFuture. In 2014, he wrote and published a book about corporate social responsibility (CSR) for Singapore Compact. Earlier this year, he wrote and published a book about Singapore's social enterprises, entitled *Giving A Helping Hand*, which is supported by the SG50 Celebration Fund.

For this SG50 book, Joachim Sim has invited 26 of Singapore's thought leaders to share their ideas and thoughts on the challenges and opportunities that Singapore may face in the next 50 years. One of the essayists is Mr Heng Swee Keat, our Education Minister. Mr Heng is also the Chairman of the SG50 Steering Committee, of which I am a member.

I have enjoyed reading the essays in this book and find myself in agreement with many of them. I agree with Eugene Tan that we should welcome alternative voices in our national discourse. I also agree with Ooi Kee Beng that relations between Singapore and Malaysia have, under the Prime Ministerships of Abdullah Badawi and Najib Razak, become more mature and cooperative. The essay by Chia Yong Yong on the aspirations of our disabled and the essay by Melissa Kwee, on her vision of Singapore as a giving nation, are quite inspiring. I shall resist the temptation to comment on each of the remaining essays in order not to usurp the role of the editor.

This is an important book and I wish it success.

Tommy Koh
Ambassador-At-Large, Ministry of Foreign Affairs
Rector, Tembusu College, National University of Singapore
Member, SG50 Steering Committee

Preface

Like Singapore, this SG50 book project is a purpose-driven endeavour with immense implication for all Singaporeans. It is about our future based on the collective imagination of Singaporean thought leaders who care deeply for Singapore. Viewed in context, it's an idea whose time has come.

As Prime Minister Lee Hsien Loong has observed, Singapore today was unimaginable 50 years ago. He also said: "SG50 will be a time to look back, give thanks for what we have achieved, and look forward to the future with confidence." When he opened the Jurong Rock Caverns last year, he shared that "we are limited only by our own imagination".

There were three reasons why I wanted to publish this SG50 book – celebrate Singapore's 50th anniversary as a resilient nation, inspire Singaporeans to help build a better future for all, and honour Mr Lee Kuan Yew for what he had done for us.

I'd thought of this SG50 book as I believed there were more reasons to re-imagine the future than to remember the past, 'be-cause' inspiring Singaporeans with a better future for all would be a "common cause" to help unite our nation. As Education Minister Heng Swee Keat pointed out, "turning 50 is as much about looking forward as it is about looking back".

I like to think that the project has generated a new narrative about our future that will inspire Singaporeans to create new history. Where appropriate, I hope it also presents alternative views on areas that are important to Singapore and Singaporeans. However, as suggested by Mr Barry Desker of the S. Rajaratnam School of International Studies, breaking free from the 'prison' of the present that is shaped by the reality of our experiences may be necessary for coming up with bold ideas on our common destiny as a nation in future. Going beyond incremental shifts to embrace paradigm shifts would certainly bring a fresh perspective. Hopefully, our natural optimism will lead us in the right direction with imagination and discernment.

It is said that the best way to predict the future is to create it. Perhaps the next best way to predict our common destiny is to re-imagine it and to inspire others to help create it. I have therefore conceived this book about Singapore's

future and co-created it in collaboration with many thoughtful Singaporeans. It is a book about Singapore by Singaporeans for Singaporeans.

The idea of Singapore as a resilient nation is underpinned by nine important areas, among others – politics, society, economy, culture, education, infrastructure, environment, resources and security. These are framed as 'ImagiNations' in this book – Peaceful Nation, Caring Nation, Prospering Nation, Graceful Nation, Learning Nation, Connected Nation, Sustainable Nation, Resourceful Nation and Secure Nation.

We begin with the outcome in mind, which is a peaceful nation that is able to secure its long-term future. In between, we need to work hard at developing Singapore as a caring nation while ensuring its continuing economic development. Beyond becoming a gracious society, we need to embrace deeper cultural development. Beyond studying for a career, we need to learn for life in many ways. After building our infrastructure across the island, we need to connect the many 'small dots' in our aspiration to become a smart nation at all levels. After building up our resources from nothing, there is a need to expand our water sources while drawing on natural energy supply. Having done all the above, we need to secure them through homeland resilience and a strong national defence.

It has also been said that we become what we think about. According to Einstein, imagination is more important than knowledge. Indeed, imagination opens our minds to new possibilities. I hope that by encouraging Singaporeans to think of our future through the 26 imaginative and thought-leading essays, they will be inspired to contribute to the future development of our nation.

Following our founding Prime Minister Mr Lee Kuan Yew's passing, which had changed the tone of SG50 celebrations and this SG50 book, it's appropriate to pause and reflect on our past as we look forward to the future. In 1965, Singapore (as an independent island-state with no natural resources) was a bold idea that was 'en-thrusted' upon us. At that time, it was literally a swim-or-sink situation for our people.

It is a privilege to be able to honour Mr Lee by dedicating this book about Singapore's future to him. His bold imagination and strong determination had helped to build our nation. Mr Lee touched our lives in many ways. He was always looking for a better future for Singapore and Singaporeans. Thanks

to what he had done in the past, we have Singapore to call home, SG50 to celebrate and the Singapore experience to inspire patriotic Singaporeans to conceive and co-create this book about our future. During his leadership, Mr Lee had urged Singaporeans to "build an enduring Singapore". It's hard to imagine Singapore without Lee Kuan Yew because of what he'd done for us. It's not hard to re-imagine Singapore without Lee Kuan Yew because of what he'd built for us.

In a way, this book is about re-imagining Singapore beyond Lee Kuan Yew's leadership, ideas and era. However, in this book we honour him by including his quotes about Singapore's future (in context), as a tribute to him. His relevant quotes will help readers to view our collective re-imagination with a historical perspective.

For this SG50 celebration book, I wanted it to be as inclusive as possible and had tried hard to get representation from all the major community groups by inviting their thought leaders to contribute their ideas. The 70 over potential chapter authors invited are academics, policymaker/administrators, business leaders, non-profit drivers and media commentators. (However, only the first four groups are represented by the 26 chapter contributors.) I also wanted the book content (substance and style of presentation) to have as much diversity as possible by minimising editing as appropriate. These are their views, and not of the editor.

Fifteen months ago, I'd imagined holding this book in my hands when I submitted my book project proposal to the SG50 Programme Office. I imagined it would contain the thoughts and ideas of Singaporeans who are committed to Singapore and its future. I'd imagined it would cover areas that are important to Singapore and Singaporeans. As you can imagine, the task ahead was not easy, to say the least.

Like Singapore, this book was not supposed to be plausible. While it is about Singapore as a resilient nation, it has been an experience in personal resilience and 'deter-mi-nation' to get the project off the ground, into the 'blue sky', before coming down to earth beyond my expectations. While imagination had helped me to develop the book concept, determination has helped me to produce it, in spite of the many unexpected challenges. It was about dealing with the known and unknown 'unknowns' – the future, potential authors' response and chapter contents. I was undeterred by the many obstacles

along the way. A 'think tanker' told me that most thought leaders might be reluctant to publish their ideas about the future (for public scrutiny), while a senior academic said that he would not speculate on the future. A thought leader I invited disagreed with the book concept and suggested organising a forum instead.

Although more than half of those I approached turned down the invitation, over 30 turned up to be counted. Some of those who declined connected me with other potential authors, some of whom agreed to contribute. However, some who'd agreed later turned around to express regret. Fortunately, as it turned out, the target of 18 to 20 essays was exceeded in the final list. Among the challenges was a long essay about our past. I had to turn it partially around towards the future while reducing its historical content that is relevant. (Who says history has no future?) With more essays, more content development time and efforts were required, not to mention the higher production costs for a bigger book, but with the same SG50 funding.

This book is thus the result of a determined individual's initiative and efforts in seeing his dream project come to fruition. I have single-handedly and single-mindedly brought out this meaningful and worthwhile publication without the support and resources of a publishing company. Staying the course for a good cause has been a satisfying experience.

While most of the 'obvious' writers invited had declined, a few of them accepted. Fortunately too, all those who declined gave their permission for me to quote them in this preface to the book. They are former Foreign Minister Mr George Yeo, Professor Tommy Koh (who has also agreed to contribute his foreword), Mr Ho Kwon Ping, Professor Kishore Mahbubani and Mr Barry Desker.

Apart from Mr Desker who was quoted earlier, here are what the others said about Singapore's future:

"In mediaeval times, the future was first to be discerned in the free cities. So the future, with all its uncertainties, is perhaps easiest to be discerned in the free cities of today, and Singapore should aspire to be one such free city."

George Yeo (*The Straits Times*, 18 October 2014)

"I think the greatest challenge is to manage the contradictions between our ambition to be a global city and our ambition to make Singapore an inclusive society based on justice and equality. It is important to ensure Singaporeans continue to feel that this is their country, and foreigners, though welcome, are our guests."

Tommy Koh (*The Straits Times*, 29 March 2014)

"I conclude…with a hopeful view of Singapore politics in the next 50 years, simply because in the bigger picture, I do not see the ossification of an ageing political elite increasingly out of touch with a restless youth, such as (that which) led to the Arab Spring; nor do I see fundamental divisive issues such as in Hong Kong over its relationship with China; nor the exhaustion of Old Europe unable to confront big, difficult issues."

Ho Kwon Ping (*The Straits Times*, 21 October 2014)

"Be bold. Singapore succeeded in the early years because we had exceptionally bold leaders, who were unafraid of taking risks and learning from their mistakes as they fought against major odds to survive and prosper. Not taking risks is the biggest risk for Singapore."

Kishore Mahbubani (*The Straits Times*, 9 August 2014)

The big challenge before me was to 'flesh out' all the nine 'ImagiNations' with at least an essay each, based on my content framework. To realise this, I needed to persuade the respective thought leaders to cover the topics that I had suggested. While most of them agreed, a few topics required slight modification to adjust to the authors' preferences. I hope I have realised sufficient diversity in the choice of topics and authors, and broad inclusiveness in their ideas – from the 'wow' to the wild – with varying degree of imagination and inspiration 'quotient' in this book.

The chapter authors wanted to contribute, either on their own or with co-authors, for various reasons. For former Nominated Member of Parliament *Eugene K.B. Tan*, it is his way of continuing to contribute to society by voicing his thoughts and concerns through the media. Now a permanent resident in Singapore, *Ooi Kee Beng* was born in Malaysia and educated at Stockholm University. He believes in helping to foster a better understanding of Singapore-Malaysia relations.

Nominated Member of Parliament *Chia Yong Yong* hopes her essay will bring issues such as the challenges faced by people with disabilities and the need to build greater understanding of differences to the fore. As head of the National Volunteer and Philanthropy Centre, *Melissa Kwee* is happy to share her vision of a giving nation for a caring community. Describing himself as an "advocacy evangeliser", *Christopher Ang* hopes to help chart a brighter future for organisations and the community.

Albert Chu-Ying Teo's research interest in social entrepreneurship and background in community service have given him valuable insights and fresh perspectives that he likes to share through his essay. As a doctor, *Tan Yong Seng* hopes to promote active ageing among more senior citizens in Singapore. In advocating gender equality, *Winifred Loh* would like to see it becoming a reality in 50 years' time, as envisioned in her essay with a co-author.

As a career coach, *Paul Heng* is an advocate of planning for one's future and shares his views and expert knowledge through various media channels. Book author and former PR professional *Basskaran Nair* sees an innovating society that constantly comes up with solutions to recurrent and new national issues as a critical success factor in future.

For economist *Euston Quah*, who worked with his former student on their joint essay, "it takes a certain degree of courage to try to envision what Singapore's environmental landscape would be in the far future. Fortunately, the far future is sufficiently distant for both not to be too bothered if the predictions do not pan out. This gives us courage to boldly make the following claims."

A business school professor who is tasked with promoting technology entrepreneurship development, *Hooi Den Huan* believes strongly in fundamental family values. When I invited him to share his ideas on 'technopreneurship', he thought it would be more meaningful to do so with his wife and daughters. He saw such a collective effort by two different generations, whose members come from diverse disciplinary backgrounds (albeit not in technology) with their unique experiences, as providing a rich opportunity for them to interact and understand each other better. Through their joint chapter, the family hopes to contribute back to Singapore and, through Singapore, to the world.

Academic *Kenneth Paul Tan's* involvement with The Necessary Stage and Asian Film Archive sets the stage for sharing his ideas on how these art

forms are shaping up in Singapore. National sport administrator *Lim Teck Yin* wants to reach out to all Singaporeans with his message that sport can help to cultivate good habits for living better.

As founding head of Singapore's first and only private university, academic *Cheong Hee Kiat* dreams of the day when many Singaporeans will benefit from more learning pathways and places that technology will help to make possible. With his background in information technology and education business, *Lee Kwok Cheong* shares his thoughts on how technology will transform higher education in future.

While spearheading Singapore's future development as a smart nation, *Khoong Hock Yun* feels that it is important for Singaporeans to know how it will develop in the context of our inclusive society with diverse needs. Researcher *Donald Low* and his co-author are concerned that a longstanding public housing policy that has enabled mass home ownership might become a source of insecurity for individuals and of inequality for our rapidly ageing society. The research-based essay by *Khoo Teng Chye* and his colleagues at the Centre for Liveable Cities, which is in the enviable position of predicting the future by helping to create it, is their attempt to "traverse the gaps between organisational or disciplinary silos" in Singapore's transport/urban mobility development.

Being an untiring advocate of corporate social responsibility, *Kwek Leng Joo* shares his views as leader of a trail-blazing company that is leading the way in environmental sustainability with its "Conserve as we Construct" motto. Academic *Victor Savage* hopes that his ideas on Singapore geography would show that it can integrate science and the arts, the environment and culture, the local and global, and fundamental and applied research for a sustainable Singapore. He realises that dealing with the future of any country, let alone a small city-state like Singapore, is no easy task, as one needs to steer away from naïve optimism, blue-sky idealism, speculation, futurology and alarmism.

On something as basic and life-supporting as water, few can claim to be experts on how its future supply could be ensured for our tiny island-state. *Ng How Yong* is one of them, and he feels a sense of responsibility in sharing what he knows with fellow Singaporeans. Business leader *Michael Heng* sees the book as a useful platform for conveying his ideas on the adoption and application of renewable energy in Singapore.

National security expert *Kumar Ramakrishna* thinks that in the coming decades, it would be important for the nation to move beyond the current concern with homeland security, in the face of ever-evolving security threats, to a more durable longer-term posture of homeland resilience, which his essay addresses. As a civilian-soldier who commands a brigade, *Seah Chin Siong* has noted the shift in national service (NS) context, and wants to create and share an emerging narrative on NS that's inclusive and inspiring.

Over the past 50 years, Singapore has grown beyond being a little red dot or a bonzai plant or even a nano-state, as some had described it. Its capabilities, capacities and context are not limited by its small physical size. In fact, it continues to attract foreign businesses, talent and events, and these are becoming increasingly of higher value-added in nature as Singapore advances further as a developed nation. President Tony Tan Keng Yam noted last year: "At 50, we are still a young nation, with great promise ahead. Our best years lie ahead."

What brought Singapore thus far were the traditional values of the pioneer generations. What will bring it farther will be a combination of traditional and 'new age' values. Like the proverbial optimist, I believe Singapore is in the best of all possible worlds. Unlike the proverbial pessimist, however, I believe it could only get better in future.

Ten years from now, when we sit back and review our SG50+ ideas, it would be about what have happened and not about what did not. One thing is predictable though, the VUCA (volatile, uncertain, complex and ambiguous) world we know today will still be a VUCA world, albeit with different individuals, intensity and impact.

It's every publisher's dream to produce something that is meaningful and to leave a lasting legacy for future generations. I hope I've succeeded with this dream book of mine. Beyond re-imagining Singapore in future, this book is also about inspiring Singaporeans to take ownership of their common destiny as a united nation and to help remake the country over the next five, 15 or even 50 years. It is hoped that the sharing of ideas through this book will encourage Singaporeans to bond as a people and community, and excite them about celebrating SG50. I also hope that the future Singapore scenarios and possibilities shared through the book will foster a sense of belonging to Singapore. I believe this process of sharing ideas as one people will help to build on our national identity and love for Singapore.

In its own way, this book has taken wing – from concept to completion – before arriving at its destinations (through public libraries and websites). The publication journey has been a fulfilling one, after overcoming the many challenges and obstacles. The book development process included much community engagement (with thought leaders), getting their consent to participate, receiving and commenting on the chapter contents, and finalising the copy for printing and e-book conversion.

I am most grateful to all the chapter authors who have agreed to contribute their insights and imaginative ideas, and who have joined me in this common cause of inspiring fellow Singaporeans to look forward to a better and brighter future as a nation, with renewed hope, informed optimism and a new sense of adventure. I also wish to thank those who could not participate but who had connected me with some of those who did.

I would very much like to express my thanks and appreciation to Professor Tommy Koh for gracing this SG50 book with his foreword.

My heartfelt gratitude goes to the SG50 Programme Office for approving my book project proposal and supporting it with the SG50 Celebration Fund, without which this book would not have been feasible.

Last but not least, I would like to record my appreciation to the design team at Key Editions for helping to produce the book, and to my wife Mary for her support and encouragement.

Although the future is unknown, it is not unimaginable. For one, I can imagine that Singapore will be a better place for all to live, work, learn and play. Does this book have a future of its own? Imagine SG50 turning SG60 in 10 years' time, when we re-imagine Singapore in the next 50 years again. The best is yet to be. Majulah Singapura!

Joachim Sim
July 2015

Introduction to the Chapters

In this SG50 book, nine 'ImagiNations' covering politics, society, economy, culture, education, infrastructure, environment, resources and defence underpin the idea of Singapore as a Resilient Nation. In a world that is increasingly volatile, uncertain, complex and ambiguous (VUCA), changes in these important areas in future are expected to be influenced by many factors, not least of which are ideology, technology and geography (climate change in particular). For example, education will be enabled by technology for life-long learners to choose from a wide array of pathways, programmes and part-time options. The spread of radical ideology and practices has endangered the whole world, and this has engendered the need for vulnerable nations like Singapore to move from national security to homeland resilience. Climate change may be beyond man's control, but it could be managed by reducing our negative impact on the environment. The list of examples goes on.

In my engagement with the chapter authors, I have suggested the possible inclusion of the four elements for an essay about the future in their content development – reflective (where we are/were), predictive (what may happen in future), prescriptive (what can be done) and anticipative (what they hope or wish to see). While some of the essays are long on reflection, many are predictive and/or prescriptive. Some of the predictive attempts are long on imagination but understandably short on detail, with some long on imagination and longer on detail. While many authors are not limited by any specific timeline, some look over the next five decades to the year 2065. However, they all share a common direction – up – although their projected pace and tone of change may differ.

The policy maker/administrators and some industry leaders are in the enviable position of predicting the future by helping to create it. Understandably, the academics tend to be prescriptive in their imagination, while the non-profit drivers draw on their hope and wish for a better future for all Singaporeans. There are some exceptions, of course.

Some authors take the multi-disciplinary or inter-disciplinary approach in their re-imagination. Evidence of cross-coverage of same topics by different chapter contributors abound, such as green nation, renewable energy and transport/urban mobility. I've retained the substance of each essay and the style of presentation as much as possible, to reflect the diversity of views in the book, while editing minimally for inclusiveness as appropriate.

Re-imagining Singapore as a Peaceful Nation

Chapter 1:   ***Singapore's Ideational Social Compact: The Compelling, Inclusive Force of Voices in a Plural Society***

The essay delves into the idea of alternative voices coming from all Singaporeans and not just from those in Parliament, in a more engaged and inclusive society. Its author Eugene K.B. Tan shares that we are very much a part of an evolving society, with being apart not a viable option. In the years ahead, he expects a radical rethink of fundamentals that have served our country well. According to him, the text of our governance must constantly adjust and adapt to the context. He builds up a compelling case for many (alternative) voices and their roles in an inclusive (plural) society with diverse needs. He touches on some possible platforms where they can be heard, such as "vertical" and "horizontal" conversations. Beyond voices, he expresses the hope for care and concern to be demonstrated amply in deeds.

Chapter 2:   ***Leaving the Separation Behind: Singapore-Malaysia Ties are Finally Maturing***

Having lived and worked in both Singapore and Malaysia, Ooi Kee Beng draws upon his 'inside' understanding of Singapore and Malaysia to share his insights on the state of their bilateral relations. His essay reflects on past issues and developments to provide the background for an appreciation of how the relationship may develop in future. Although security ties have always been good, he cautions against exaggerating the similarities between them or overstating their common history. According to him, ASEAN has brought the two countries closer in a spirit of regional cooperation and mutual goodwill, and relations seem geared more towards developing good future ties.

Re-imagining Singapore as a Caring Nation

Chapter 3:   ***My Dream for a Truly Inclusive Society***

Chia Yong Yong's observation of the loose fabric of diverse social service organisations serving different needs and pursuing different causes is particularly noteworthy. Her essay reflects on where we were/are with case examples and suggests what could be done in the context of persons with disabilities and the social service sector. She also proposes how all stakeholders

– community, beneficiary, social service sector and the government – can advance the social cause in future. She concludes with an anticipation of the day when every citizen truly has equal rights and opportunities.

Chapter 4:   ***My Vision of a Giving Nation***

Melissa Kwee uses story-telling to share her vision of a giving nation, in the context of a caring and compassionate community. In her essay, she reflects on where we are now as a caring community. She elaborates on its hope and challenges, and asks individuals and companies to pause and ponder over how they could give of their time and use their skills to help the less fortunate in our community. She offers ideas on what make a caring community, what make an ideal Singapore and what can be done, among others. She also shares what she hopes to see happening in future. To her, all of us are given choices to make each day.

Chapter 5:   ***CSR 2.0: Evolving from How Money is Spent to How Money is Made***

Christopher Ang addresses two sustainability issues that are expected to have significant impact on businesses in Singapore in the coming years. He anticipates more corporate leaders investing in meaningful and sustainable ways of involving their people in giving back to society, as they realise the sound economics of deep community participation and see corporate social responsibility (CSR) programmes achieving intangible results for their companies. He notes the growing acceptance by businesses that they must move beyond the pursuit of profits to remain viable in the long run, by playing a socially-responsible role. In his view, CSR needs to evolve beyond philanthropy to more upstream and supply chain-focused activities, and to create positive and lasting impact on society, the economy and the environment through the greater involvement of CEOs.

Chapter 6:   ***Emergence of Impactful Social Entrepreneurship***

Albert Chu-Ying Teo discusses impactful social entrepreneurship in the context of community development. In this essay, he clarifies what constitute social entrepreneurship, as its concept is being defined differently by scholars and practitioners. This sets the stage for a better understanding of where social enterprises are and a more effective articulation of where they may be

going in future. The chapter explains the four schools of thought on social entrepreneurship and six principles of impactful social entrepreneurship. He also shares his four wishes for the next 50 years.

Chapter 7:   ***Singapore as a Nation of Active Agers***

Dr Tan Yong Seng foresees a more age-friendly society in a caring nation as he reflects on what the government has done to help the elderly in our society, including its four strategic thrusts to realise the twin objectives of achieving productivity from longevity and ageing with dignity and grace. He offers his ideas on what can be done to develop Singapore as a nation of active agers with government's support and initiatives. He briefly describes the People Association's National Wellness Programmes as an example of a national effort in realising this goal. His vision of active ageing in future encompasses healthy living, learning and contributing, forging family ties and creating social networks.

Chapter 8:   ***Life in 2065: Realising Gender Equality***

The joint essay by Winifred Loh and her co-author presents their re-imagination of women's roles in the year 2065, when gender equality is fully realised in many areas (including national service) and at every level of society. It has a strong predictive element with a prescriptive tone that is underscored by anticipation. Most notable perhaps is the idea of seeing "a few female Prime Ministers" by 2065. In reflecting on the past/present, reference is made to four notable 2015 situations – gender stereotypes, sexist or biased media coverage, male national service and our 50th national birthday celebration. This helps to put their vision in context.

Re-imagining Singapore as a Prospering Nation

Chapter 9:   ***How Work, Workers and the Workplace May Change in Future***

Paul Heng's wide-ranging essay about work and life in Singapore identifies structural unemployment as one of Singapore's four key challenges and touches on what employees can do to boost their employability in the face of this possibility. He suggests the creation of new industries to hire low-skilled and unskilled workers in future, highlights some issues for Singaporeans to ponder over and foresees the possibility of the Workforce Development

Agency being spun off as a separate ministry. He completes the chapter with a review of what true success at work means in one's life.

Chapter 10:   *Envisioning Singapore as an Innovating Society*

Basskaran Nair's essay points to an innovating workforce that's enabled and empowered by technology whilst navigating a life-time learning loop to stay relevant. Such a scenario augurs well for Singapore as a capable, competent and competitive nation in the years ahead. He notes the government's recognition of the need to rewrite the national narrative in chapters and not footnotes for future generations, the language of an innovating society used in the 2015 Budget speech and past creative solutions like Workfare and SkillsFuture. He suggests four steps (in his wish list) for the 'red dot' to be future-ready.

Chapter 11:   *Singapore's Future Economic Landscape: Pursuing Growth or Protecting the Environment*

Economic growth has historically taken centre stage as the backbone of Singapore's material progress. In more recent years, with its increased affluence, there have been calls to consider reprioritising growth and paying more attention to the living environment. Looking forward, Euston Quah and his co-author submit that Singapore's concern for the environment fundamentally depends on the economic outlook. As a small open economy, the nation remains inherently vulnerable to external shocks. To safeguard the environment and ensure that it is adequately protected even if the economy were to deteriorate in future, they think that it is paramount to implement certain measures in good times like now. They see the endless possibilities of technological advancement as having the potential to alter the current trade-off between the economy and the environment.

Chapter 12:   *Singapore Technopreneurship Development in Next 50 Years*

While admitting that it is almost unimaginable to predict what the world will be like in 2065, Hooi Den Huan and his family attempt to look at not only the what, but also the why and how of Singapore technopreneurship in an ever-changing landscape, where the speed of change will grow not incrementally but dynamically and disruptively. Three predictions are particularly memorable for them. They identify three key components for nurturing an internal technopreneurship sector and the four 'Ps' of entrepreneurial spirit in driving the development of an enterprising mindset. They see the early signs of a Singapore technopreneurship

'volcano' that could erupt within the next 10 years, as it continues to grow in importance and impact. They like to see it embedded as a way of life among both technopreneurs and consumers, and suggest the setting up of a School of Creativity, Innovation and Enterprise to take it further.

Re-imagining Singapore as a Graceful Nation

Chapter 13:   *Evolution of the Arts and Singapore's Soul*

Kenneth Paul Tan presents a masterful articulation of his ideas about the arts in Singapore. He uses the metaphor "soul" to think about the arts as the nation's essence (identity, values and purpose), with a focus on film and theatre. While he recognises that Singapore has been transforming from a global city to a creative city with gradual liberalisation in social, cultural and political terms since the late 1980s, they remain limited and limiting in opening up new possibilities for the arts to flourish. He highlights some facets of the arts and what they have come to mean in and for Singapore, and sees the arts serving as our national conscience and as the animating and life-giving principle of the nation. The essay ends with his three wishes for the arts over the next 50 years.

Chapter 14:   *The Seven Habits for Living Better through Sport*

Lim Teck Yin looks beyond sport for competition to sport in daily life. In his essay, he reflects on the findings of the Vision 2030 study and offers individuals, companies and communities the seven habits for changing our present situations and creating our future by challenging ourselves to aspire for something better. As our society continues to evolve, he sees sport as a language to carry us forward and through difficult times, and the seven habits helping to shape the future of our nation in the decades ahead. He envisions a Singapore where individuals and communities are strengthened through a life-time of sporting experiences. For him, sport becomes a journey and celebration of our people and places, uniting the nation and inspiring the Singapore spirit.

Re-imagining Singapore as a Learning Nation

Chapter 15:   *Living the Pioneering Spirit: Learning for Life*

This is an edited excerpt of Education Minister Heng Swee Keat's March 2015 speech in Parliament, where he called on the whole society to take the pioneering path to embrace life-long learning as a way of life and to become

an inventive, resilient and caring nation. In the face of new challenges and opportunities, he urges all Singaporeans to go beyond learning for grades to learning for mastery, beyond learning in school to learning throughout life and beyond learning for work to learning for life, as their compass for a better future in the next 50 years.

Chapter 16: ***Raising the Bar, Extending the Reach in Singapore Higher Education***

Cheong Hee Kiat shares his views on the future Singapore university education landscape that's increasingly technology-driven, and suggests the need for a new operating environment that's more diverse, inclusive and collaborative. He also addresses issues such as quality assurance, innovation, cyber security, costs, matching of skills with industry needs, supply of graduates, credentialing and integration of some services among local universities.

Chapter 17: ***Beyond 2015: Higher Education Re-imagined***

Imagine 20 years from now, everybody has access to higher education and you can learn anywhere at any time and at your own pace with no fixed duration, when the student can choose and customise from a variety of public and private universities and specialised players offering different parts of contents, delivery platforms, assessment methods and accreditation services. With digital record of each student's learning, customised help would be provided while assessment would be truly continuous. Let Lee Kwok Cheong tell you more as he shares his vision of how the way we learn and teach will be radically transformed by technology.

Re-imagining Singapore as a Connected Nation

Chapter 18: ***Re-imagining Singapore as a Smart Nation of the Future***

This essay 'paints' possible scenarios in Khoong Hock Yun's presentation of what are to come in a smart nation that improves lives and create opportunities, in his enviable role of predicting the future by helping to create it. There is a fine flourish of what need to be done through collaboration and co-creation for it to happen, after he reflects on past developments since the IT2000 master pIan of 1992. He provides a glimpse of our future smart nation and concludes that our future is limited only by our imagination.

Chapter 19: ***Rethinking Singapore's Asset-Based Welfare System***

Singapore's unusually extensive public housing programme is a phenomenal success and is arguably its most important policy innovation. However, as Donald How and his co-author write in this chapter, policy success requires constant rethinking and reinvention as the context changes. In a rapidly ageing Singapore, they are concerned that a longstanding policy that has enabled mass home ownership might become a source of insecurity for individuals and of inequality for society. The essay offers a critical analysis of the current public housing situation and areas for possible improvement.

Chapter 20: ***Future of Urban Mobility in Our Transport System***

Singapore has been focusing on liveability and sustainability long before these words were coined out of necessity. Researchers at the Centre for Liveable Cities have studied its half century of urban transformation, reviewed its present conditions and explored how it could continue to improve in future, while trying to bridge the gaps between organisational or disciplinary silos. In this essay, Khoo Teng Chye and his colleagues share their findings and ideas on how to make Singapore more liveable and sustainable in transport/mobility in the foreseeable future.

Re-imagining Singapore as a Sustainable Nation

Chapter 21: ***Eco-Nation of Tomorrow: A Developer's Vision***

Kwek Leng Joo shares his views on how Singapore could develop further as a green nation. After reviewing how rapid urbanisation has impacted our environment, he sees the building industry contributing to his green vision of how we live, work, play and learn while championing a green mindset among caring citizens. His message is that environmental sustainability is everyone's responsibility today and tomorrow, and it should involve the public, private and people sectors. He also shares his dream eco-nation of the future.

Chapter 22: ***Singapore's Geography Does Matter: National Embeddings, Global Aspirations***

Victor R. Savage thinks that Singapore's future development as a global city lies in understanding and tapping on the many cultural crossroads, geopolitical relationships and global intersections of multi-disciplinary research and diverse activities. His essay places emphasis on investing in the national software and

utilising smart solutions and adaptations, for the nation to remain relevant in a globalised world whose future is undergirded by four major revolutions. He argues that Singapore's strategic position and small space give it certain advantages in spite of its unchangeable location, size, climate and lack of natural resources, which can be overcome through clear political decisions, astute cultural creativity, nimble planning and sound economic programmes.

Re-imagining Singapore as a Resourceful Nation

Chapter 23:   ***Rain-water Harvesting/Storage and Water Recycling: Towards Water Sustainability***

They say pressure makes diamonds! The increasing pressure of possible water shortage gave the impetus for Singapore to develop NEWater, as part of its plan to become self-sufficient by 2060. Besides increasing local water catchment areas and expanding seawater desalination and NEWater production, water recycling and the capture and storage of rainwater are necessary. This could be achieved through three whole-of-island strategies, as Ng How Yong explains in his informative and insightful essay. In the process, the economic activities and business opportunities generated are expected to help establish Singapore as a "Global Hydrohub".

Chapter 24:   ***Driven by Natural Power: The sEV Revolution in Singapore***

Michael Heng's essay on renewable energy is long on imagination and longer on detail, with compelling descriptions of possible scenarios. He projects a 20-year timeline with an appendix of key milestones and completion dates for good measure. His "brief history of our future" is both audacious and inspiring. While the chapter has a remarkably strong predictive element, there are some hints of the prescriptive element too. He tackles the possible application of renewable energy in the transport system, housing, green buildings, smart nation, water and waste recycling, higher education and the economy with its ripple effect.

Re-imagining Singapore as a Secure Nation

Chapter 25:   ***The Evolving Singapore National Security Problematique: Towards Homeland Resilience***

Kumar Ramakrishna thinks that in the coming decades, it would be important for the nation to move beyond the current concern with homeland security to

a more durable longer-term posture of homeland resilience. After reviewing the political and security impact on Singapore of the historic September 11 attacks on the US by Al Qaeda in 2001, the near-miss of its planned strikes in Singapore a few months later, and the SARS crisis in 2003, he outlines the ever-evolving nature of the violent extremist terrorist threat – expedited by the Internet – to Singapore, the possibility of cyber-terrorist attacks and the emergence of new infectious diseases. He next examines the operational measures undertaken by the government to 'harden' Singapore and the 'soft' measures to build resilience. Finally, he argues that in the ultimate analysis, a 'common cause' among all communities remains the *sine qua non* of the homeland resilience needed for the long-term stability and success of Singapore.

Chapter 26: *A Vision for National Service in Singapore*

Seah Chin Siong writes that a strong defence force is crucial for a secure nation, where every Singaporean is willing to defend our sovereignty for the sake of our children and our children's children. He sees national service (NS) as an institution that helps Singaporeans to define their identity, show their commitment to the nation and nurture their leadership. After reviewing NS in the past and how it has developed today, he points out the need to adapt to a new and broader context that is emerging and to allow people from all walks of life to serve the country in the best possible ways they can.

RE-IMAGINING SINGAPORE AS A PEACEFUL NATION
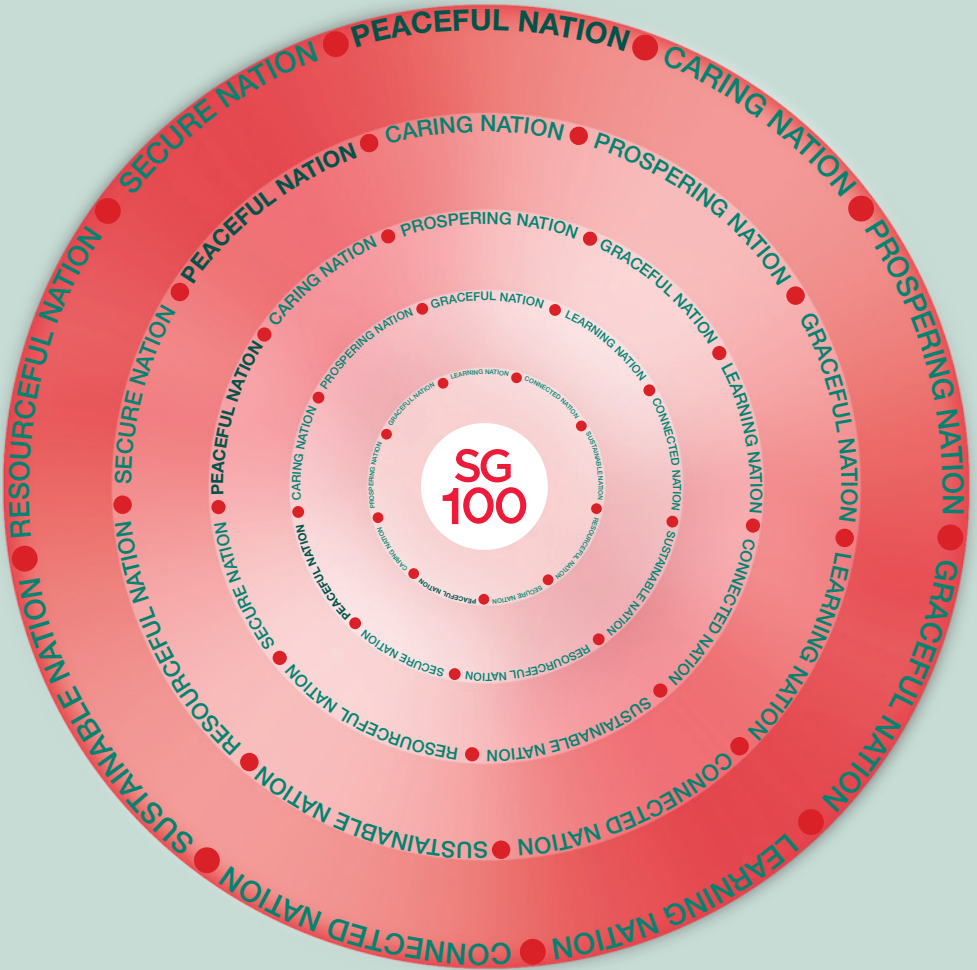
"There'll be different voices, different standpoints but I stand by my record."
(2011)

"To begin with, we don't have the ingredients of a nation, the elementary factors, a homogenous population, common language, common culture and common destiny. We are migrants from southern China, southern India, Pakistan, Bangladesh, before it was divided, Ceylon and the archipelago. So, the problem was, can we keep these people together? The basis of a nation just was not there. But the advantage we had was that we became independent late. In 1965, we had 20 years of examples of failed states. So, we knew what to avoid - racial conflict, linguistic strife, and religious conflict." (2007)

"We did join Malaysia, but that did not mean that we had surrendered Singapore! If riots were started with a pan-Malay agenda thereafter, you would have had resistance in all the major cities. Now, can you contain that? The Tunku, Razak and Ismail knew they could not. So it was decided that Singapore should get out." (2006)

Lee Kuan Yew

Singapore's Ideational Social Compact: The Compelling, Inclusive Force of Voices in a Plural Society

Eugene K. B. Tan
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As Singapore moves into uncharted waters, how can we recapture, revitalise and nurture the passion, courage and imagination of pioneer Singaporeans when independence was thrust upon them that fateful day in 1965?

Today, that testament of independence may lose some lustre as we busy ourselves with quotidian activities. How do we protect and grow our precious inheritance of sovereignty, self-determination and dignity? The process of arriving at a consensus matters tremendously. Political participation must be embraced and "voice" – understood as expressing one's thoughts and being engaged in the deliberative process – will play a critical role in the process of reaching a consensus or arriving at a decision, without fear or favour. The range of voices is essential to the rigorous formation of public opinion.

It is perhaps trite and self-evident that we have achieved much since 1965. We had it good, truth be told. The rapid economic growth seemed almost inevitable, accompanied with a tinge of entitlement. But those halcyon days may well be the easy part when the imperatives then were stark and clear. The imperatives were many, including growing the economy so that we had the means to do what needed to be done, developing our fighting-fit armed forces so that we would not be bullied, and urgently imbuing a sense of nationhood amid the polyglot mix that could easily unravel our fledgling but fragile nation-state. We were neither a nation nor a state then. Both conceptions were alien to us. Yet, we are still not quite a nation-state today.

Singapore's perennial quest for relevance, pertinent then, remains an abiding endeavour. Like it or not, it is our national fate, and one that we would do well to wear as a badge of honour.

Going forward, the imperatives may become not so self-evident even if the strategic threats seem to fade away with our growing gravitas in the community of nations. Perhaps the imperatives are masked in a society marked by growing diversity and complexity characterised by the shift from Newtonian certainty to Einsteinian relativism. Apparently, the huge progress made on all fronts has also generated an air of self-confidence that this very diversity and complexity does not have its own set of issues and challenges.

The quest for a forward-looking vision for Singapore – one that epitomises opportunity, hope, fairness, dignity and social solidarity – is not just a self-consuming exercise of strategic planning. It embodies to a large extent our belief of how we are very much *a part* of this evolving society, with being *apart* not a viable option. This is compelling because the vision to be as one nation needs to be constantly invigorated, justified and manifested.

As a global city that also needs to be a nation-state, Singapore cannot be just a place to stay (like a hotel), but a home even as we continue to require a substantial number of non-citizens in our midst in that common effort and aspiration to eke out a living and endow the hope for a better future.

In this regard, the search for the right balance in terms of the roles of the state, the community and individuals at this turning point in our history is crucial. While economic vibrancy remains essential to our well-being, the growing desire of Singaporeans for a home with heart and hope patently needs to go beyond rhetoric.

That Singapore must engender within Singaporeans a deep sense of identity, belonging and rootedness to this little 'red dot' we call home is fundamental to our sovereignty. This is where the voices of Singaporeans must play a bigger part in our national life. Having Singaporeans willing to spend time, energy and money in advocating causes and values they believe in is important and a meaningful expression of a personal stake vested and intertwined with the larger good. Our nation's future is secure if Singaporeans see their well-being as an integral and intimate part of the nation's.

In the years ahead, we can expect a slew of policy shifts, which may entail a radical rethink of fundamentals that have served us well. The text of our governance must constantly adjust and adapt to the context.

The Our Singapore Conversation (OSC) held between 2012 and 2013 was a massive exercise in consultation and the response of Singaporeans demonstrated our enthusiasm, maturity and involvement in sharing our views on issues, including 'hot-button' ones. We need to have and to be at ease with having more conversations regularly (rather than one Big Conversation), and without their being mediated by the government. The usual protocol of government consultations must continue with renewed vigour post-OSC. This "vertical" conversation has become an accepted aspect of our government communication process, facilitated by REACH, the government feedback unit.

But where there is tremendous opportunity for a paradigm shift is for Singaporeans to develop the habit of speaking with each other and engaging robustly on key issues of the day. These "horizontal" conversations are necessary as issues are increasingly not about what the government thinks is best but rather about what citizens are comfortable with.

In these conversations, *how* we converse with each other matters as much, if not more, as what we converse. It's the quality of our conversations. It's also about our speaking *with* each other, rather than speaking to or past each other. Even if a meeting of minds cannot be achieved because the differences are too great, the engagement provides a valuable platform to understand the various perspectives on an issue, the vested interests and the possible ways forward. Thus, this process of engagement should not be about sticking to entrenched positions, no matter how principled, but also about how contending groups can co-exist. We should not downplay the "live and let live" mindset – they should operate as a viable segue to more lasting outcomes.

The next 50 years will probably see a withering of the state. This is not simply because the state will be less important. Rather, Singaporeans would desire a fundamental rethink of how Singapore has been governed, a recalibration of state-people relations, as well as getting the balance right on (economic) value vis-a-vis values that define Singapore. This is where we need to arrive at a consensus, and that comes more purposefully from talking with each other, deliberating and recognising the need to accommodate is not a cop-out. The horizontal conversations are a means to this end.

If the changes in the past 50 years had been rapid, then the next half-centennial will likely be just as rapid. These changes can be internally generated but they can also be imposed upon us externally. But in ringing the changes, it is also

crucial that there is no alienating effect. This is where having a range of voices can facilitate in engendering a more nuanced understanding of the issues, the options, and the pluses and minuses that come with a choice. It will take a while to re-imagine and be accustomed to a good life that is based on rather different values from those of the past.

Yet, it bears remembering that even a fundamental relook of policies that have served us well should not prompt us to throw the baby out with the bathwater. It should not be change for change's sake. Open communication lines help ensure that we are not enslaved to established paradigms but are open to change.

In this light, Albert O. Hirschman's *Exit, Voice and Loyalty: Responses to Decline in Firms, Organisations and States* (1970) provides valuable food for thought. Hirschman argued that people responded to disappointment in two different ways – they could simply vote with their feet (exit) or complain and stay put (loyalty). There is a third – complain and still exit. Voice is the distinguishing feature if we would like to ensure that the exit option is exercised only after an effort to set things right does not work.

The crux of the matter is that we *do* have a choice. How we exercise that autonomy of choice is vital for our individual and collective well-being. And this autonomy, with voice as the linchpin, can energise individuals and society. Imagine if Singaporeans are unhappy with the overall direction of society and exit without even expressing their concerns and trying to advocate change. That would be such a waste of the vast potential of bottom-up vitality.

So the ability to voice, to be heard, to be engaged are facets of active citizenship. We need to sharpen the focus not on the challenge of exit but on how exit and voice could be used to reinforce each other.

If our past, with the emphasis on economic value, affluence and consumption, had been short on voice options, then the mind-share of our future must embody the growing importance of transcendental pursuits, post-material values and quality of life in which the opportunities to voice and be engaged are critical.

What must define us is our shared values even if our conversations, vertical and horizontal, become robust and passionate. Shared values discipline and

enhance our shared purpose. Our social compact will continue to evolve and be right-sized according to needs, aspirations and consensus of society. How we manage the competing, and even conflicting, rights, interests and power in the quest for a fair and just society will define the kind of society we will become.

Thus, to keep society thriving and cohesive, we need a recalibration of the roles of the individual, the community and the state. Whether it is about strengthening social safety nets, redefining success beyond academic achievements or the successful helping the less successful, the centrality of co-creation, as an exemplar of togetherness, self-reliance and resourcefulness, is a *sine qua non*.

In many respects, Singapore faces its first significant post-material existential challenge since independence. "What does it mean to be Singaporean?" and "What does Singapore stand for?" How we engage these aspirational concerns will significantly determine Singapore's soul.

In this regard, alternative voices or voices from Singaporeans of all walks of life will have to take centre-stage in any public deliberation in a more focused manner. Public policy engagement, deliberation and implementation will be more successful if there is buy-in by the community. This is where co-creation offers the powerful platform for active citizenship to go beyond being a mere concept and rhetoric, to a lived reality that is inherently about collaboration, in which open communication lines between all stakeholders will characterise the partnership.

Co-creation is, In short, about a government-civil society partnership, with collaboration and cooperation being the hallmarks in the delivery of public services or in the formulation of policies at the municipal and national levels.

In short, it's very much about tapping the social capital, local knowledge and domain expertise within a community to benefit the community, while enhancing the stock of social capital in the process. Co-creation also acknowledges the limitations of the government in delivering public services, and that money alone is inadequate in the effective and efficacious delivery of public services with a human touch.

Grassroots expertise can be a force multiplier in service delivery. Service co-creation can also lower the "transaction costs" of delivering public services

because it taps local knowledge and works with the local community, which has a vested interest in the outcomes.

Driving this trend is the desire of citizens to be involved and not be a mere digit in policy-making and policy implementation. As a society matures, post-material considerations become more important. People increasingly seek self-fulfilment, self-actualisation, and desire to be consulted on issues that concern them or affect their communities. This sense of involvement and engagement is an important manifestation of active citizenry and a vibrant civil society. An engaged citizenry, confident that their voices matter, provides the foundation and wherewithal for a more resilient and cohesive society.

In Singapore's context, co-creation is not a wholly new idea – the "many helping hands" approach to social service is a good example. Yet beyond the social services sector, the question has been: How keen are the public service, business community and civil society to reach out and collaborate with each other in a substantive manner? If collaboration is more form than substance, this may put the brakes on service co-creation because community partners are likely to shy away from lip service.

Even as the modalities of this mode of collaboration are being worked out, the imperative of voices is the heart of the operating system of co-creation. We must eschew a one-size-fits-all approach. Both the government and civil society must approach co-creation with open minds, and realise that service co-creation may not be suitable in all instances. There must be realistic expectations about what service co-creation can do – and what it cannot do.

Co-creation is important for the public service sector and for Singapore. The former does not have the monopoly on wisdom, and the public policies ultimately must serve the people and engender buy-in. At the same time, co-creation requires more than just volunteerism on the part of the community. It is about being involved, responsible and steadfast to the commitment undertaken. Volunteerism may, in some respects, lack the degree of accountability needed for a sustained delivery of high-quality public services.

When co-creation has taken root, we can look at such services as community-generated, delivered and consumed. The distinction between the public and people sectors will be blurred. Through this process of co-creation, we can develop an ethos of trust and inclusion, and imbibe an ethic of respect for

pluralism. Even as we value alternative or critical or opposing voices, we recognise that voice is impossible without responsibility.

Co-creation in which a range of alternative voices, including critical and opposing voices, is part of the collaborative process, implicates participation in a community. It challenges us to go beyond gazing at our navels. It can provide the moderating influence and catalyse nation-building.

As we strive to overcome the proverbial mid-life crisis that afflicts nation-states more familiar with success than failure, our society stands to gain if it encourages respect for a diversity of voices even at inconvenient times like during a crisis. I believe that more Singaporeans can be encouraged to care enough about our society and so would crave to have a say in how the country is run. It reflects a better educated, more informed and demanding citizenry who would like to participate in policy-making or, at least, to be heard and to be consulted on matters that affect them. This manifestation of active citizenry is to be encouraged. Increased participation and involvement in Singaporean society provides real and actionable pathways to active citizenship. This hands-on approach is necessary to temper the self-indulgent "navel gazing" and the "me-my-and-mine" value system that is deleterious to nation-building.

Engendering a newfound respect for alternative voices can close the gap between Singaporeans' acceptance of the norm of political participation and the very low level of actual participation. The perception of unilateral government decision-making sits uncomfortably with the desire of citizens to influence government decision-making. If the government does not involve the people enough, then policy-making may well lose its legitimacy, and public policies may be less effective since there is likely to be less buy-in for policies made in such a situation.

This perception of disenfranchisement from policy-making can result in more political alienation. Furthermore, if most Singaporeans believe that the ballot box is the only effective but blunt way of engaging the government, and that all other modes of engagement lack efficacy and effectiveness, this will only increase disproportionately the stakes where elections are concerned, since they take place every four to five years only.

As our society matures, the public sphere and public reason acquire greater importance in a deliberative and consultative polity. Besides the formal or

institutional process of deliberation that takes place in our legislature, the courts and the executive, there is the equally important process, often informal, of deliberation among citizens. We need to tap this latent source of ideas, passion and beliefs. Dialogue, difference, debate, persuasion and learning in the public sphere are central to political decision-making. A government cannot ignore the weight of citizens' well-informed opinions and reasoned arguments.

A society without a platform for alternative voices loses a vital tool in the moulding of public opinion and developing social solidarity and consensus. Our society will be impoverished if there is little or no role for public discourse and reason.

We can expect some of the major differences or divides in our society to revolve around the different values that motivate and inspire us. Values competition and contestation will feature more prominently in the years ahead. It's the nature of the beast for a society inherently diverse and complex. For a plural society like ours to be sustainable, Singaporeans need to be able to deal with the variety of tempestuous issues with resilience and a willingness to learn from such stresses to the social fabric. Otherwise, a destructive dynamic could be set off in which the unresolved differences, misguided views and prejudices remain to fester and sow discord.

If public discourse and reason is receptive and nurturing of a variety of voices, we can be very confident that this ideational social compact can only enhance what Singapore stands for and what it means to be a true-blue Singaporean. The *imagined* community that we are will no longer be imagined but will be a lived reality and epitomise the living testimony of an inclusive society of deeds as well as voices.

About the author

Eugene K. B. Tan is an associate professor at the Singapore Management University's School of Law. His interdisciplinary research and teaching interests include the mutual interaction of law and public policy, constitutional and administrative law, the regulation of ethnic conflict, ethics and social responsibility, and the government and politics of Singapore. He has published widely in these areas in various edited volumes and internationally-refereed journals.

Active in civil society and a strong believer in paying it forward and contributing to society, Eugene serves on the boards of the National Youth Achievement Award

Council and the Catholic Welfare Services. He also chairs the scholarship selection committee for the Tan Kah Kee Foundation Postgraduate Scholarships and the Tan Ean Kiam Foundation Postgraduate Scholarships. He previously served on the boards of the Singapore Swimming Association, National Youth Council Academy, Singapore Scout Association, Old Rafflesians' Association, Centre for Non-Profit Leadership and the Fulbright Association of Singapore. Between February 2012 and August 2014, Eugene was a Nominated Member of Parliament in Singapore's 12th Parliament.

Eugene continues to voice his thoughts and concerns in the mass media. He anticipates values contestation and living with our deep differences to be a growing significant challenge for Singapore. Hence, in a more complex and diverse society, he believes in the need for Singaporeans to appreciate and work towards the ideal of inclusiveness in which the focus is on our commonalities rather than our differences.

Leaving the Separation Behind: Singapore-Malaysia Ties are Finally Maturing

Dr Ooi Kee Beng
Deputy Director
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Introduction

According to the Wealth Report of 2012, Singapore became the richest country in the world in 2010, with a GDP per capita of S$70,000. Although such figures must be approached carefully, especially given Singapore's huge wealth gap, the fact remains that the island-state had achieved much more than what anyone had thought possible since its independence in 1965. The main criticism against the country today is that it has been too fixated with material gains, to the detriment of key human values. Although not totally true, this disparagement has some basis, which also reveals some of the serious limitations Singapore has had to face. These are quite different and are even dichotomous to those that Malaysia has had to live with.

The separation of the two countries in 1965 is, of course, best understood in the context of the 1960s. Any widespread turmoil at that time would have played into the hands of the ongoing communist insurgency, and such seemed likely if there had been no separation.

After what was a peaceful separation, inter-ethnic relations were re-imagined in Malaysia without Singapore's heavily Chinese population being part of the equation. Fighting did take place nevertheless. The Kuala Lumpur riots of 1969 pushed Malaysia away from the vague "Malay special position" rationale of the Merdeka years to embrace instead a much more determined and clearly-defined Malay-centric polity. In the meantime, Singapore, a tiny island-state now left to its own devices, switched from its Malaya-centric mode and identity towards survival and growth based on full participation in the global economy.

The failure of the merger therefore forced both the UMNO government in Malaysia and the PAP government in Singapore to revisit the political

contingencies of their respective countries and gradually to leave behind any rump notion of a re-merger. They had to learn to treat each other as a separate albeit neighbouring country, notwithstanding the emotional baggage. This has not been easy.

These two independent countries chose different developmental paths and assumed divergent conceptions of nationhood. But as with unhappy divorces in general, neither could start a totally new life without undergoing the slow separation of resources and identity. Furthermore, they had to construct a new understanding of each other that held better promise for the future.

At the time of writing, relations between the two countries do not only look good, they seem geared more towards developing happy future ties than towards managing old passionate issues, as had been the case for a long time. Time heals of course, but the new geopolitical situation in the region and the world is a great help as well. More will be said on this later.

A long acquaintance, a hesitant marriage, a messy divorce

Mr Lee Kuan Yew's level of influence on Singapore has often been compared to that of Tun Dr Mahathir Mohamad's on Malaysian development. This is despite the fact that Dr Mahathir became prime minister only in 1981, 16 years after Mr Lee and his team began the task of constructing modern Singapore.

There were reasons for this comparison, even though much distinguished one from the other. For starters, if Tunku Abdul Rahman Putra, the first prime minister of Malaysia, had not left office in 1970 following the 1969 race riots, a comparison between him and Lee Kuan Yew would over time have been the obvious and analytically more salient slant.

Instead, we saw how Dr Mahathir, supported by the ailing prime minister, Tun Abdul Razak Hussein, rose through the ranks with impressive speed throughout the 1970s to become the leader of Malaysia in 1981, and his time in power would overlap with Mr Lee Kuan Yew's last 10 years as prime minister of Singapore. No doubt, even after Mr Goh Chok Tong took over as his successor, Mr Lee remained a formidable force in government until and beyond Dr Mahathir's time in power. And when Tun Abdullah Badawi succeeded Dr Mahathir in October 2003, Mr Lee was still a highly influential figure in the Singapore cabinet.

To this picture should be added the fact that during Singapore's two years (1963-65) in the Federation of Malaysia, Dr Mahathir, who won his first parliamentary election in 1964, was a strident voice championing Malay-centrism. This was something he had done since the late 1940s. The antagonism between the two men was evident in the parliamentary debates of 1964 and 1965; and public knowledge of this came to structure relations between the two countries in the decades to come, and to inform mass media analyses and reports on Singapore-Malaysia relations.

The courting period, the short marriage and the divorce proceedings involving Malaya (Malaysia) and Singapore were troubled times. It did not help that British colonial policies vis-à-vis the two had been so uncertain after the Second World War. The colonial office, faced with a serious talent scarcity, with the dawn of the Cold War and with the rapid rise of nationalism in Asia, tried to simplify the governing structure in Southeast Asia by lumping all territories on the Malay Peninsula under one regime, the Malayan Union. Tellingly, it kept Singapore out of the picture. Thus began the distancing of the island's identity – and politics – from the territories to the north.

This ill-advised move roused the Malay community to organise itself politically, and within a few months, the British were forced to revise their policy and accept the alternative that was put forth by the newly-formed United Malays National Organisation (UMNO) and the sultans. Singapore remained external to the equation. The crown colony was still too important for the British to give up as yet, especially given the continuing loss of its empire throughout the world.

Singapore thus had to go through its own process of achieving self-rule from the colonial office. This it accomplished in 1959. In summary, although British control emanated from Singapore throughout the colonial period, by 1942, with the Japanese occupation of the region, it had been detached from the rest of the peninsula.

For over a century, Singapore had been the key base for the British in the wide geographical expanse between Calcutta at the eastern edge of the Indian continent and Hong Kong at the southern tip of the Chinese mainland. The strategic and economic importance of Singapore made it difficult for the British to give it up.

And yet it seemed obvious to many that the political and economic future of the little island lay with the peninsula. In fact, the People's Action Party

that Mr Lee Kuan Yew helped found in November 1954 had as one of its main objectives independence for Singapore through merger with Malaya. Interestingly, Malaya had not as yet come into being, and its planned independence would take place only in 1957.

Technically, it may be argued that the two countries possessed a common colonial history, but the truth is that British colonialism in Southeast Asia was a complicated story, and its modes of control over different territories varied greatly. The backdrop of the Cold War as well as the communist insurgency were indubitably key factors common to Singapore and Malaya. Ethnically though, the difference was great. Fear of including Singapore's largely Chinese population into Malaya was the main reason the government in Kuala Lumpur would not at first bow to British pressure for merger.

It was only two years after Singapore had gained self-rule in 1959 that Malayan Prime Minister Tunku Abdul Rahman Putra finally allowed himself to be convinced. On 27 May 1961, the Tunku announced the plan for merger and significantly, this was done at the Foreign Correspondents' Club in Singapore. The condition was that a "Mighty Malaysia" would be formed, and with the inclusion of Brunei, Sabah and Sarawak, the inclusion of the Chinese population of Singapore would be balanced by other indigenous groups.

Singapore's return to the Malay Peninsula in 1963 thus took place through a controversial political contract that involved the distant territories of Sabah and Sarawak. This was also a nuptial opposed by powerful neighbours. Indonesia and the Philippines branded the project as a British neo-colonial ploy. To be sure, what Jakarta and Manila opposed was the subsuming of the territories in North Borneo under the regime in Kuala Lumpur. Singapore's historical closeness to Malaya was not something they disputed.

The merger failed badly nevertheless only after two years, and in the process, it vindicated many in Singapore who had been opposed to it from the start. Exactly how the process of separation took place continues to be controversial half a century later.

A common future on the cards

To understand how the relationship between the two countries will develop in the near future, it is essential that one does not exaggerate the similarities between them or overstate their common history. The two have often been seen

as blurred mirror images of each other, which have unavoidably been evolving with one eye observing and analysing the other. One has 60% bumiputera, while the other has 75% Chinese immigrants; one goes ethnocentric, the other goes meritocratic; and one focuses on indigenous and religious identity politics while the other invests in global reputation and urban development.

Be that as it may, many of the controversies post-1965 are better perceived as part and parcel of the settlement process of the disagreeable divorce than as precursory details of the future relations of the two countries.

There was never a manual for how any country should be constructed. Building a nation, building a state and building an economy – they all had to happen in a global political and economic context where conditions were beyond the control of the governing individuals and parties inheriting power from the colonial masters. Everyone – be it Lee Kuan Yew or Mahathir Mohamad – made do with what he had been given. There was much hoping for the best and not everyone had the luxury or ability to think long-term.

Relations with other countries require another set of innovations, especially where big powers and neighbours are concerned. It is well known that security ties between Malaysia and Singapore have always been good. This should not be seen as an anomaly to be contrasted from the many issues that have been troublesome for both sides, and should instead be considered the beneficial bedrock for past, present and future ties. It is after all based on the long-term common interests of both countries seen as independent nation-states and not as a divorced couple.

This is also observed in how both countries were instrumental only two years after their separation, in founding the Association of Southeast Asian Nations (ASEAN). Beneath the veneer of passionate dislike of and disappointment with each other, Singapore and Malaysia could not ignore the fact that they were nation-states with national interests that could not always be overshadowed by past quarrels.

Necessarily insecure, modern nation-states take short cuts and accept compromises. They invest much on continuous strengthening of national identity, and are highly exclusive and rigid when it comes to citizens' loyalty. The trouble is, sometimes the collateral damages involved in this become huge enough to threaten a reversal of the main nation-building process.

In the case of Malaysia, the fixation with racial and religious identity has generated a political process that over time undermines not only the efficacy and integrity of the key institutions but also the integrative processes that are so vital to the transformation of a multi-ethnic population into a harmonious society and vibrant economy.

To be fair, the introversion involved in the early nation-building process of countries in South, Southeast and Northeast Asia was enhanced by the Cold War. No country could ignore the fact that the world was caught after the Second World War in a power tug-of-war where there was no neutral ground. Many compromises were thus made that might otherwise not have been made. The fight for power went beyond simple struggles between individuals and parties, and involved stiff ideological competition and cynical big power contests.

Although the Berlin Wall fell over two decades ago, nationalistic and defensive tendencies do not seem to have lessened, and in many cases have even grown stronger. The intensified mobility of capital, goods and labour that came with the new phase of globalisation has brought new anxiety to Asian populations. In fact, throughout the world today, despite the belief that globalisation is unstoppable, the fear in national societies of being conquered or excessively influenced by foreign governments seems replaced by the fear of being overwhelmed by external economic forces, whether these come in the form of capital, goods or skilled and unskilled labour.

The need to let the past be the past becomes greater in the face of the new challenges facing countries such as Singapore and Malaysia.

Within ASEAN in the Asian century

Ties between the two countries hit a new low after the Asian financial crisis of 1997. A row of issues were resurrected, including the return of CPF contributions to Malaysian workers; the railway land and the Tanjong Pagar railway terminus in Singapore; the pricing of water supply from Malaysia to Singapore; Singapore's military access to Malaysian air space; the proposal for a new bridge to replace the causeway; border contention over the islet of Pedra Branca; and land reclamation disagreements.

The water issue, which was the hottest potato threatening to push relations down to a critical level, was resolved through good urban water planning

and various technological innovations on the Singapore side. The Pedra Branca issue was determined with the help of the International Court of Justice in 2008.

One could argue that much of the express enmity was due to the mutual animosity that Lee Kuan Yew and Mahathir Mohamad apparently felt for each other. After the latter retired as prime minister in October 2003, quite a few of the key bilateral issues causing continued distrust between Singapore and Malaysia were resolved. Abdullah Badawi took the initiative to "pluck the low-hanging fruits", as he described it, and in the process greatly raised the trust level between the two governments during his six years in power.

In many ways, Abdullah's successor, Najib Razak, kept the momentum going. The resolution under his watch of the issue of the Malaysian railway line running through Singapore was a high point in the improvement of bilateral ties between Singapore and Putra Jaya.

The shelving of the plan to build a half bridge on the Malaysian side of the causeway linking the two countries had helped to prevent the historical tension between the two countries from being painfully symbolised in the form of a crooked bridge spanning the narrow Strait of Johor. Tellingly, Dr Mahathir, as late as in March 2015, requested of Prime Minister Najib to restart the crooked bridge project. It was suggested by Najib publicly that it was his refusal to grant Dr Mahathir his request that precipitated the latter's vehement attacks on him on blog sites.

How the story of the crooked bridge reflects past passions, and present contingencies suggest that a page has indeed been turned in Singapore-Malaysia relations, and the distrust and disappointment of earlier times that very often took the form of Singapore bashing in the Malaysia mass media are now overshadowed by other concerns.

The global economic structure has changed over the last two decades, and with the rise of China and India, the role of ASEAN has never been as important as it is today. ASEAN centrality allows the organisation's member countries to imagine an international stature for each of them – through ASEAN – that they could not have thought possible during the Cold War. Both Singapore and Malaysia are influential members of the organisation and their views carry much weight among the other members.

Economic growth in Southeast Asia as a whole depends critically on improved infrastructure. Thus the recent initiative by China to form the Asian Infrastructure Investment Bank (AIIB) by the end of 2015 to serve the region is generally welcomed, given how dire the need of good infrastructure to propel national development was. This includes most ASEAN members.

The maritime nature of Southeast Asia has also been given due attention in recent times. China's focus on the maritime silk route stretching across the region draws attention to sea routes and sea industries. The response from Indonesia has been immediate, and is a strong reminder to governments in the region that Southeast Asia is essentially maritime, and early conceptions surrounding nation building in the region had been inaptly land-fixated.

A maritime focus and urbanity will become more and more salient to the region and will affect not only policy making in general but also national identity. This is bound to encourage more extroverted approaches to infrastructure planning as well as regional trade, boding well for inter-member ties in ASEAN, and for relations between Singapore and Malaysia.

Conclusion

Much water may have flowed under the bridge since 1965, but ties between Singapore and Malaysia have remained muddied – at least until quite recently. The two Malaysian prime ministers after Tun Dr Mahathir Mohamad did much to improve ties across the causeway, and this is despite strong pressure exerted by Dr Mahathir on them not to "kowtow" – to use his word – to Singapore.

The personalising of bilateral tensions is not something that will survive the passing of first-generation leaders.

The decision on the separation of the two countries was made after mutual – no doubt hasty – discussions at the highest level, and it was made for the sake of both sides. Without separation, the risk of inter-ethnic conflict was simply too high, and social violent would have caused irreparable damage on both sides.

While one may utilise the marriage-divorce metaphor or even the "big brother-small brother" syndrome, or the race-and-religion perspective to describe and understand the history of Singapore-Malaysia relations, one should remain

cognizant of the fact that we are dealing with two countries that in the final analysis have to act like nation-states, putting present interests before historical disputes.

In light of this, the commendable cooperation in areas of security between the two countries should not be seen as an anomaly, but as a glimpse of the underlying bedrock of international cooperation necessary for good ties between entities that have been closely associated with each other for hundreds of years. The central role played by Singapore and Kuala Lumpur in forming ASEAN in 1967 displayed what their leaders then already recognised as the ground on which future relations are to be built.

This goes beyond bilateral ties. In fact, bilateral relations have to be considered within the larger regional context. The regional context has become extremely salient with the inclusion of all the northern Southeast Asian countries following the end of the Cold War. In recent decades, it has expanded to cover ASEAN's relations with East and South Asia, and even the Asia-Pacific at large.

Given the extended arena in which ASEAN is now active, and the speed and depth of change in international politics and economics, Singapore and Malaysia cannot help but find it wise to work with each other and accept the fact that they may have had a common history, but they have now become saliently dissimilar. Their cooperation must therefore depend on present needs. A healthier relationship is in fact being constructed on that solid ground, which can evade the exhausting pendulation of former times.

About the author

Ooi Kee Beng is Deputy Director of the Institute of Southeast Asian Studies (ISEAS). He is editor of 'Trends in Southeast Asia' as well as founding editor of 'ISEAS Perspective' and 'ISEAS Monitor', published by ISEAS. He is also founding editor of 'Penang Monthly'.

His PhD thesis is entitled 'The State and its Changdao: Sufficient Discursive Commonality in National Renewal, with Malaysia as Case Study' (Stockholm). He has written extensively on Malaysian politics and history, and on Asian nation building. His 'The Reluctant Politician – Tun Dr Ismail and His Time' (2006) won the Award of Excellence for Best Writing Published in Book Form on Any Aspect of Asia (Non-Fiction) at the Asian Publishing Convention Awards 2008, while his 'Continent, Coast, Ocean: Dynamics of Regionalism in Eastern Asia' was named Top Academic

Work in 2008 by the ASEAN Book Publishers Association (ABPA). His noted studies of Singapore include 'In Lieu of Ideology: An Intellectual Biography of Goh Keng Swee' (2010) and 'Serving a New Nation: Baey Lian Peck's Singapore Story' (2013).

His other major works include: 'The Eurasian Core and Its Edges – Dialogues with Wang Gungwu on the History of the World' (2015); 'Merdeka for the Mind: Essays on Malaysian Struggles in the 21st Century' (2015); 'Lim Kit Siang – Defying the Odds' (2015); 'Malaya's First Year at the United Nations' (2009); 'March 8: Eclipsing May 13' (2008); and 'Lost in Transition: Malaysia under Abdullah' (2008). He writes opinion pieces regularly for regional and global media such as 'The Edge Malaysia'.

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SG50 'ImagiNation'

*When the next bold ideas
take wing in Singapore*

RE-IMAGINING SINGAPORE AS A CARING NATION
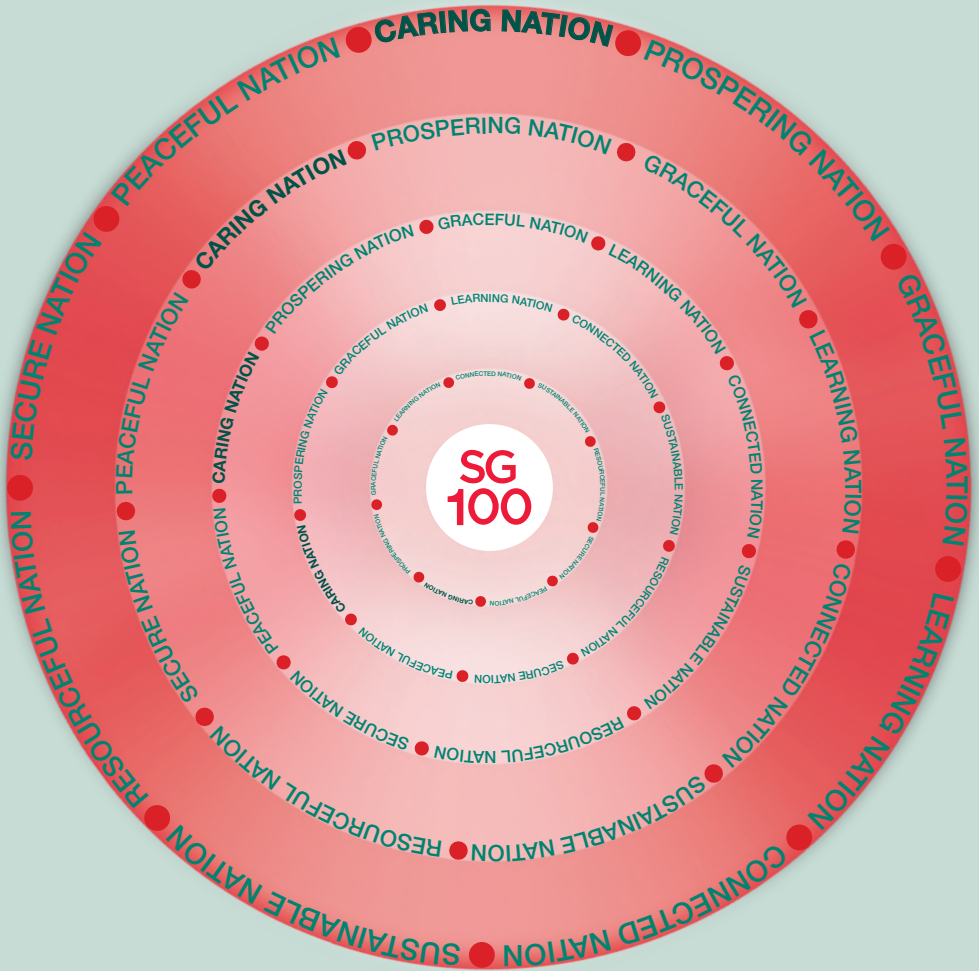
*"It struck me as manifestly fair that everybody in this world should be given
an equal chance in life, that in a just and well-ordered society
there should not be a great disparity of wealth between persons
because of their position or status, or that of their parents."* (2000)

*"At the end of the day, what have I got? A successful Singapore.
What have I given up? My life."* (2011)

*"The human being needs a challenge, and my advice to every person in
Singapore and elsewhere: Keep yourself interested, have a challenge".* (2010)

*"Women had to be put on par with the men, given the same education and
enabled to make their full contribution to society."* (2000)

Lee Kuan Yew

My Dream for a Truly Inclusive Society

Chia Yong Yong
President, SPD

Introduction

Singapore has achieved much progress and prosperity since our independence. Our citizens have access to better housing, healthcare, education and employment opportunities. However, even as we celebrate our successes, there remain vulnerable groups within our society for whom we should take greater responsibility, and whom we should equip to take greater responsibility for themselves.

Singapore ratified the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) on 19 July 2013. It is Singapore's commitment to treat persons with disabilities equally with the rest of the community, with dignity and respect, and with access to rights.

Whilst the ratification was an act of the Singapore government, the commitment requires the concerted and unified efforts of the government and residents, both individuals and corporates, and persons with disabilities and those without disabilities.

Perhaps I could share some personal perspectives.

Never alone

I often thought about the people working in the sheltered workshops at SPD. If they had the same opportunities that I had, would they be in open employment in mainstream society instead, having been empowered to hold good jobs?

I have peroneal muscular atrophy, a degenerative muscular condition that affects my four limbs and limits my mobility. I am a wheelchair user. I am also a lawyer and serve as a volunteer in the social service sector.

As a child, I had weak feet and fell frequently. I was 15 years old when the diagnosis was made, but not before I had undergone several surgeries to correct my ankle malfunctions. My motor skills and ability to walk deteriorated over the years, and eventually after a bad fall in my 20s, I became reliant on a wheelchair.

But I never felt alone. I grew up with the blessing of a loving and supportive family, and caring and supportive friends and teachers. My parents made tremendous sacrifices to send me to university. My teachers taught me as they would any child without a disability, and disciplined me as they would any child. My reliance on friends grew over the years as my limbs weakened progressively. By the time I was in junior college and university, friends had to help me buy food, carry my bag and provide support as I walked and climbed stairs.

It was not easy. The infrastructure of schools in those days did not cater for universal access. Classrooms for secondary three and four students at Paya Lebar Methodist Girls' School were on the third level. There were no elevators. When I was promoted to secondary three and four, the school principal gave my class a room on the ground floor. Friends helped me to the laboratory and chapel on the second floor. Catholic Junior College had stairs to classrooms, lecture theatres and the canteen. The NUS Law Faculty at Kent Ridge had stairs everywhere, and steps leading to some lecture theatres had no handrails. Canteens were far from the faculty and we had to navigate slopes and more stairs.

There was not much that could have been done in terms of the infrastructure then. However, apart from the assistance that I needed, I grew up like any child without a disability. My family, friends and teachers accepted me just as they would any person without a disability.

Such acceptance led me to believe that I was no different from anyone else. Looking back, I am convinced that while physical accessibility is important, community inclusion is critical. It was that inclusion that built my confidence and sense of self-worth. That inclusion gave me equal access to opportunities as my peers, helped me to become who I am today and allowed me to contribute back to the community.

We are one of us

I am glad that awareness of disability issues has increased over the years and people are becoming conscious and attentive to the needs of persons with disabilities. Prime Minister Lee Hsien Loong previously shared the

government's vision and plans for building a fair and inclusive society, where every citizen has a rightful place and the opportunity to fulfill his or her aspirations.

To be truly inclusive, society first needs to acknowledge and respect the inherent dignity and worth of each individual. We should recognise that we are born with different abilities and different limitations. We should nurture each individual's ability with reasonable accommodation and mitigation of limitation, so that each of us can realise his or her potential and play a part in enriching the lives of others. We should treat persons with disabilities with respect as fellow human beings.

We had a case of a father who suffered from a motor neuron disease, with progressive degeneration of parts of his nervous system, and who eventually was rendered incapable of performing his daily living activities. He had two sons who were his only caregivers. The caregiving was a strain on the young men, and well-intentioned neighbours and relatives had urged the father to move to a nursing home. He chose to stay at home, even though it meant that he would be alone during the day until his sons returned in the evening, and even if it meant that his sons might feel the strain of caring for him. Some said he was being a burden to his sons. The father explained that he wanted his sons to come back to a 'home' and not an empty house, a home where their father is around, where there is someone they could turn to or talk to, someone who shows them care and concern.

Perhaps we are sometimes too quick to judge. The father in this case demonstrated his fatherly love and showed us that, like everyone else, persons with disabilities are willing to and capable of shouldering responsibilities and making sacrifices for those whom they love.

Never say die

Apart from being perceived as a burden, persons with disabilities are frequently considered as weak and needy, whether financially, emotionally or psychologically. Yet, in the course of our work, we have met many who are determined and are pillars of strength to those around them.

Zi Heng is one such person. He was in university when he had a diving accident that left him with severe spinal cord injuries. As a result, he became paralysed in most parts of his body. He lost his bladder and bowel functions, lost the

ability to perspire and as a result he would sometimes feel too hot or too cold, and easily became breathless and dizzy due to his weaker lungs. He became almost completely dependent for his daily living activities. But he maintained a high spirit to encourage his loved ones and friends so that they would have the strength to face and resolve problems in their own lives. He challenges himself to be equipped with new skills, and to seek opportunities to grow and empower himself to become a better person. He is now studying to become a teacher.

Each of us has different abilities and constraints. Whether or not the constraints are physical, intellectual, emotional or psychological, or even purely circumstantial, we should learn to rise, in our own ways, above our constraints to be an encouragement and a role model to others. But we cannot do it alone.

Caregiving: burden, responsibility or joy

None of us, whether with or without disabilities, can achieve much on our own. Very often, the persons closest to us play an important and immediately impactful role.

Jin Zhu is one of our beneficiaries. She has congenital muscular dystrophy, a condition present at birth that leads to progressive muscle weakness and degeneration. Jin Zhu has little control over her movements and needs constant care in her daily living. Even meal times are challenging as she has difficulty chewing and swallowing because of her weak muscles. However, Jin Zhu has a guardian angel in her elder sister Sharon, who is her cheerleader and strength.

Sharon and Jin Zhu have an age gap of 14 years. At the age when her friends were active in after-school activities such as shopping or going to the movies together, Sharon took it upon herself to care for her younger sister. She could have continued her studies at a polytechnic, but she switched to the Institute of Education (ITE) as the less intensive curriculum allowed her more time to care for Jin Zhu. She sought permission to be released an hour earlier each day to rush to fetch her sister home from school. She also saved her already limited allowance to buy presents for Jin Zhu. After graduating from ITE, she took a part-time job and employed a domestic helper to supplement the caregiving for Jin Zhu. When she found the caregiving being compromised, Sharon resigned from her job and took it upon herself to care for Jin Zhu full-time. Through Sharon's love and sacrifices, Jin Zhu completed her GCE 'O' level education and is now pursuing further studies in a polytechnic.

Sharon's selflessness made a positive impact on her sister's future. Perhaps to some, Sharon's putting aside of her studies, career and even marriage prospects for Jin Zhu is too big a sacrifice. However, Sharon feels that looking after Jin Zhu gives her a sense of purpose in life and she gets satisfaction and joy from giving her sister happiness.

Many helping hands

Taking reference from the stories that I shared above, it is noteworthy that for as many protagonists as one might identify, there are many others in the background, behind-the-scenes, without whom the positive impact on the person with disability would have been lessened. Indeed, community inclusion is not a one-man show. Unlike charity, which is a one-way flow from donor to beneficiary, community inclusion is a stakeholder partnership for the betterment of society.

I envision the Singapore of the future as one that is truly inclusive, one in which we respect and accord dignity to each person of the community, regardless of his or her ability or limitation, It is a society that fosters social and psychological acceptance of the disadvantaged within our community, and equips and empowers them and their caregivers, and in which each member of our community is able to grow and to serve one another.

However, the journey towards community inclusion will be long, and unless we harness the challenges in this journey, they will become obstacles in the way.

The challenges

Persons who are disadvantaged are often perceived as necessarily dependent on charity. They are perceived as lacking in ability, motivation or ambition. Those with disabilities, for example, are generally referred to as "disabled". Such self-defeating misconceptions held by the community, and often by those who are disadvantaged themselves, constrain efforts to equip and empower the disadvantaged towards financial independence and mainstream integration.

Increasingly, there is a growing expectation that the government must do more. While I agree that the government need to do more, the "more" that the government does will not be sufficiently efficacious, if it works alone. There is also the question of "what" the government should do more of. Even as the voices calling for public assistance grow louder and more demanding, and

the expression of entitlement takes a bolder tone, I cannot help but feel that there is another challenging misconception of what constitutes "collective responsibility".

Often, we assume it means the responsibility of the government, the social service sector or someone else. We forget that "collective" includes "me". We demand services for the community or for our own convenience, yet we resist the setting up of service provider facilities within our neighbourhoods. We demand assistance, but we forget our personal responsibility.

Demographic and other environmental challenges have also grown in complexity. With a higher incidence of acquired disabilities (mainly attributable to lifestyle and a greying population), increasingly complex and pressing community needs, higher expectations of beneficiaries and caregivers, and more stringent requirements for good corporate governance, the pressure and demands on the social service sector have grown exponentially within the last decade.

Today, the social service sector serves beneficiaries across disability types and community needs, providing a wide spectrum of services such as social worker support and counselling, rehabilitative therapy services, early intervention programmes for children, step-down community care, day activity centres, sheltered workshops, assistive technology prescription, employment training and support, mainstream education support, special education, shelters and protective care, to name some of them.

To address the growing demands, voluntary welfare organisations (VWOs) have created or scaled up programmes and facilities, stepped up their recruitment of qualified staff and professionals, and invested in talent development.

Correspondingly, the funding needs of such VWOs and the sector have grown, while funding sources have remained within the conventional revenue model of public agency funding, donations and (low) programme fees.

The increased demands on the social service sector have also placed greater pressure on its manpower requirements. Most VWOs face big challenges recruiting and retaining staff due to limited financial means to remunerate competitively, vis-a-vis other sectors. There also appears to be, in recent years, an increasing number of people joining the sector, not out of passion to serve, but for employment. The difference in the motivation will, in my view, impact the level of commitment and dedication of those who work in the sector. This

situation poses yet another challenge ultimately to the quality of the services rendered to beneficiaries, given that the sector is currently not in a position to pick and choose.

In the midst of these challenges, the social service sector remains a loosely-woven fabric, comprising many VWOs, each pursuing its own causes. Instead of drawing on the core competencies of each other, some VWOs attempted to replicate existing services, often with lesser effect.

Recasting mindsets

As we move into the future, we need to recast the mindsets of all the stakeholders.

Community mindset

The community should recognise that:

- Persons who are disadvantaged are as much a part of the community as those of us who wear glasses. We should acknowledge that we are born with different abilities and different limitations. As a community, we accept one another and make reasonable accommodation for each other, so that to the greatest extent possible, each of us can exercise equal rights to participate in the community;

- Competent, professional and compassionate staff and professionals are key to the welfare of beneficiaries, and acknowledge the principle of fair remuneration for such staff and professionals. It is a fact that for many years, those who work in the social service sector are generally paid less than their peers in other sectors. I, however, cannot think of any good reason why they should continue to suffer the inequity of remuneration vis-a-vis their peers. Fair remuneration is necessary to recruit, retain and reward those who serve. An outflow of talent from the sector is ultimately detrimental to beneficiaries; and

- Direct services to beneficiaries can be compromised without good corporate services support and any restriction by donors to apply donations only to direct services is incongruous with the demand for good governance practices and the delivery of efficacious direct services to beneficiaries.

Beneficiary mindset

Persons who are disadvantaged should accept that we have different abilities and different limitations, and should develop our abilities and manage our limitations. We don't always have to rely on charity. We can, to varying extent, break out of the charity trap. We can do so by assuming responsibility for our own well-being and future and those of our dependents. We must aspire to be better than ourselves. Let us accept what the community offers, and to the best of our ability, rise to the occasion, yes, rise beyond ourselves, to serve the community.

Sector mindset

The social service sector must exercise foresight and be visionary in how it is to serve the community in the next lap. If it merely extrapolates from the needs of the community as currently perceived, it would be in danger of lagging behind in service delivery. It must be the soul leader of the community, leading with compassion, conviction and courage.

Within itself, the social service sector must achieve cohesion in its diversity. VWOs must remember that we exist for our beneficiaries, and not for ourselves. As such, there should be greater collaboration among VWOs, in the sharing of expertise, staff and other resources, to deliver better and adequate services for the benefit of our beneficiaries as a whole. We must use our diversity for their benefit.

In order to ensure that beneficiaries are adequately served and taken care of, the sector needs to employ and retain the right people. In this respect, I had earlier argued for fair remuneration. On the other hand, those who join the sector should remember that they are serving members of their community, and not just holding a job.

In addition to employing good people, the sector must learn to empower and equip caregivers and volunteers to supplement the services in the sector. With greater cross-community caregiving, we reduce undue reliance on resources that can be better employed where professional inputs are required.

It is also important that the sector should be financially sustainable in the long run. Currently, VWOs derive revenue from donations, public agency funding and programme fees. Donations are largely influenced by economic factors, with

growing competition for the same pie. Public agency funding has its limitations, being generally limited to programmes that can be mainstreamed at a national level. Programme fees have traditionally been low and highly subsidised.

To be vibrant and effective, the sector and the relevant VWOs must be sufficiently nimble (and funded) to respond to and provide services in newly identified service gaps. It requires its own funds to do so, as it is often difficult to justify public agency funding to move into "uncharted" water. Yet, responsiveness to needs is an important aspect of social service.

At the VWO level, we therefore need a change from the current mindset that programmes may not be offered on a profit-generated basis. It is my view that as long as the VWO remains faithful to its mission and vision and continues to help the needy, it may offer programmes to generate a profit, and to practise price discrimination between beneficiaries who are able to pay for the services and those who require subsidies.

Government mindset

The government should move beyond equipping the sector with expertise and funding. It should provide the resources, expertise and framework for the sector to move towards self-sustenance in the long term.

Above all else

Community inclusion of persons with disabilities is an important philosophy that must continue to underpin our society. Inclusion is not just about universal access to infrastructure. Inclusion is not about what society can do for an individual or a group of people. It is about how, vis-a-vis each other, we accommodate and accept what we are able and not able to do. It is about what we as members of the community can respectively and jointly contribute to it.

I believe that the recasting of the various mindsets will result in the qualitative empowerment and enablement of beneficiaries and caregivers in our community, and in their integration into mainstream society, thereby dramatically impacting our community towards inclusion.

Every citizen should have equal rights and opportunities regardless of his or her abilities or limitations. Community inclusion helps to make this happen. And I look forward to the day when we become a truly inclusive society.

About the author

Chia Yong Yong is President of SPD, an organisation that serves persons with disabilities, and a partner of law firm Yusarn Audrey. Her contributions to the social service sector span nearly three decades. She was conferred the President's Social Service Award in 2011 and the Public Service Medal in 2013. In 2014, Yong Yong was sworn in as a Nominated Member of Parliament, a role she hopes will enable her to bring issues such as the challenges faced by persons with disabilities and the social service sector, and the need to build greater understanding and acceptance of differences, to the fore. She also serves on the boards and committees of SG Enable, Our Singapore Conversation and REACH Supervisory Panel.

My Vision of a Giving Nation

Melissa Kwee
CEO
National Volunteer and Philanthropy Centre

Introduction

A good friend of mine, Saleemah spent her birthday this year with a new special friend. It wasn't a new lover, partner or peer. It was a young woman brimming with potential who had just been released from Changi Women's Prison. They spent the day at the library with another volunteer, a retired banker, and reviewed how to prepare a resume. The day concluded with a visit to the polytechnic where this top student was planning to apply for admission in the coming term. The unlikely trio got to know each other during an experimental programme that connected mothers in prison with their children through the efforts of volunteers who read to the inmates' children. Volunteers befriended and regularly visited the children on behalf of their mothers to read with them. Reading skills for all children improved as a result although the goal was simply for the volunteers to be attentive reading friends and ambassadors representing their mothers' care. For the mothers, it was an opportunity to redeem some hope in the future beyond themselves and the bars that separated them from their most loved ones. During the reading programme, when the children heard their mothers' recorded voices, there were many and mixed reactions. But when the mothers heard their children's voices, most mothers cried. Being the bridge of love and hope started many journeys towards healing. Perhaps not unexpectedly, it was the volunteers who said they also found healing by being part of the process as they reflected on their own relationships, gave thanks or realised opportunities to bridge or repair some brokenness. Giving is one of the surest ways to receive.

A collective of people who care will ultimately be a giving nation. The essence of care is that it is done for its own sake, caring for the sake of expressing love, hope, faithfulness or joy. Care is not instrumental but expressive. It is not about giving to get. It is giving for the sake of giving and an overflow of one's abundant life. Abundance, as we discover in every Individual Giving Survey, is not measured financially. It is consistently those who earn less than $1,000 a month who give the highest proportion of their monthly income (at 2%) away.

Millard Fuller, the founder of Habitat for Humanity, once visited Singapore and expressed an urgency to address the great challenges of our time. He identified and framed them in a way that I will always remember. He said our great challenges had remained unaddressed or unresolved not for a lack of technology, money or intelligence, for in the world we see the powerful edifices and testaments aplenty. He said the great challenges had remained unaddressed for the lack of our decision to care and make them a priority. It sounded simplistic but as I reflected and dug deeper, his words rung ever true. The challenges that were previously considered impossible to overcome – abolition of slavery, elimination of smallpox, end of colonialism and even putting a man on the moon – were all overcome because people dared to dream, focus and create a different reality. So much more must be possible if we could rally our resources to care for one another. What does that possibility look like? Why do we often fail? What are the implications of this for us today?

In this essay, I seek to revisit those questions and consider the hope and challenge of as well as the invitation to a caring community.

Hope of a caring community

The hope of a caring community is ultimately one where the joy of giving and receiving is equal. The result of this is a nation where there is a friend for the lonely, a meal for the hungry, an opportunity for each child to have a fair start in life, for every student to have what he needs to apply himself at school, for every person needing a fresh start to get one, and for a dying person to do so with dignity. It is a combination of meeting needs, inventing new solutions and expanding the realm of the possible. Caring can be as creative as it is palliative.

We see this creative caring all around us – in the lives of many homemakers who make extra food to feed neighbours and local social services, in the voracious talent of youth who raise awareness of many causes and appeal to parents, friends and viewers of their videos and online campaigns, and in the million-strong volunteers who faithfully render service to coach football teams, offer tuition, take elderly for outings, and befriend and assist the elderly, ex-offenders or those in transition.

The volunteer spirit and acts of kindness abound everyday – on buses, in hawker centres, on the street and in quiet places that no one sees. Paying the

old tissue-paper auntie more for her packets of tissue, buying a meal for the stranger in need, helping an over-laden person carry her items, holding the lift for a neighbour, or giving up your taxi to the family with young children that needs it more than you. It only takes our eyes to see and notice these small and often unapplauded acts of kindness.

Caring and giving Singaporeans abound. Consider Bridget Lew, whose dedication to ensuring no man or woman would be left a stranger in a strange land. She had used her CPF savings to open a shelter for foreign workers that led to the founding of HOME (www.home.org.sg), which has been recognised internationally for its work in aiding workers in distress. Or consider lesser-known Beng Huat, an elderly uncle and an Anti-Problem Gambling Ambassador who cares for his bed-ridden wife and regularly checks in on his neighbours, including the older widow who most recently has been suicidal. The elderly suicide rate is stark, accounting for 45% of all suicides in 2013. The incidence of elderly suicides, which seem to spike just before the New Year, is a preventable human tragedy with friends like Beng Huat whose caring presence provides care and comfort in their otherwise monotonous and lonely lives.

Challenge of a caring community

Why do we think of ourselves more as a 'kiasu' nation rather than a caring or giving nation? Perhaps it has something to do with the way we tell our national story. Are we a nation of immigrants who had survived through toughness and, with survivalist skills and sacrifice, overcame the challenges of a small domestic economy, high unemployment and poverty, but are still vulnerable, not good enough and lagging behind our KPIs (key performance indicators)? Or are we a small nation of immigrant survivors who overcame almost every possible resource constraint to create a peaceful society, a strong economy and a resilient nation that are ready to face and create the future? Do we give thanks for the miracle that we are and find ways each day to strengthen the bonds between neighbours and acknowledge the part each of us plays in being stronger together? Our values shape our identity, which in turn shapes our thoughts, outlook and assessment of the future.

Can you ever give what you do not have? Can you ever feel secure sharing when you do not believe you have enough? Values of scarcity will not foster a caring or giving culture. Values and beliefs of abundance, on the other hand,

begin with the premise that there is already enough to go around. Abundance, rather than being abstract or intangible, is actually the experience of a caring community. In a community, a crowd of nameless and faceless individuals becomes familiar with one less person as a stranger. Abundance is the presence of one person to another, being there for and with another human being. It is in this context that people feel not only comfortable but derive joy from sharing with others. The challenge we face in modern societies is the speed and fullness of our lives. We are obsessively busy, distracted and hurried. We consider it a more important achievement to clear an inbox of email messages than to be kind to our colleagues. I am guilty of this too.

All of us, including pre-schoolers, are now considered professionals, with skills to acquire, projects to deliver, and reports and assessments to make to calibrate our progress. We run and see 20% of the world around us, instead of walking and experiencing the totality of smell, sound, sight and touch. Nipun Mehta, founder of ServiceSpace who delivered the now infamous 2012 University of Pennsylvania commencement address, put it this way: "A walking pace is the speed of community. Where high speeds facilitate separation, a slower pace gifts us an opportunity to commune." He spoke of his walk across India through villages where the radical generosity of the poorest people awakened him to a new sensibility because in contrast to more affluent city folk, they always felt they had enough to share. It is a good lesson for us in our 'deserts' of abundance.

Invitation to a caring community

Can we slow down? Can we walk with one another? Can we unplug and focus on one person at a time? One moment at a time? I imagine that if we do, we may discover how to bring a smile to a sullen face, ease the discomfort of a fellow passenger, or speak the timely word of encouragement to a child or loved one.

If we pause and reflect upon our multitude of blessings, we might ask different questions. Instead of only considering what jobs our well-honed skills could match, we might ask how we could help or how our skills could be utilised to serve others, as a volunteer designer, a volunteer doctor, a volunteer organiser or a volunteer chef. In the course of serving and getting to know others who are different from ourselves, we might ask about their dreams, believe with them or even find a way to help fulfill their aspirations with the resources and

networks available to us. We might ask how our companies could play a larger role in society, or how suppliers and customers could get involved. Business leaders could deepen their intricate and nurtured networks of relationships by jointly contributing to the benefit of others beyond their functional transactions. Instead of entertainment expenses, could we imagine community investment expenses that bonded people and build pride and affinity to companies? Could the aspirations of employees be fulfilled through the culture and contribution of their employers? We already see the signs of companies seeking to attract a younger generation of talent who want to see their work and life converge with greater purpose and meaning. The millennials are a creative and caring force and the companies they seek, create or eventually lead will carry the hallmark of the generation.

We might plan different family events. Instead of grander and grander parties, perhaps we could celebrate by helping and remembering others. We might plant trees together, clean up parks, help clean homes, bake or cook for neighbours. I observe an emerging trend of people giving during the seasons when we usually receive – birthdays, anniversaries and even the New Year. In celebration of abundance, we give and know whatever we have is enough to share and make someone else's day.

We might celebrate and honour life differently. At birth, we could give thanks for our healthy child by donating to a child in need. At anniversaries, we could share the joy and bless others with lesser means a chance to celebrate with their loved ones. At someone's passing, we could honour his life by contributing to the causes he had lived his life for or wanted to support.

At each life stage and at different moments throughout our day, our choices and acts of care in the community create the culture of abundance in our nation where our values and mindsets are shaped. Life rituals reflect the contours of a collective culture. Singaporeans are generous, thoughtful and caring but we struggle with the fears of fragility, falling behind and seeing diversity drowning our identity. None of these need to be true but each 'fact' must be interpreted differently in order to create a different reality. If we are vulnerable, can we muster our ingenuity and work together to be stronger together? If there is competition, can it catalyse better ideas that change the game while we also create space and pay attention to those who would otherwise be left behind?

If the world is a place of possibilities and abundance, it is because we are. In a 2012 study conducted by the Barrett Values Centre, 2,000 Singapore residents

were asked for their perception of what defined the Singapore society and what they would want their ideal Singapore to be. The results were telling. While we view our current society as 'kiasu' and self-centred, our ideal Singapore is one that is caring, kind and compassionate. Singaporeans want to be a caring community. So the question is now in our hands. How do we move from 'wanting' something to 'being' it? Do we see it as someone else's responsibility to make our society a compassionate one or must we start with ourselves and make new choices?

In the end, I believe we face such choices every day. Instead of waiting to be invited, why don't we invite? Instead of waiting to be helped, can we help? Instead of waiting for the solution, can we be it? Our choice is our most powerful gift. A giving nation begins with you and me.

About the author

Melissa Kwee was appointed CEO of the National Volunteer and Philanthropy Centre in September 2014. Her career has spanned the public, private and community sectors as anthropologist, researcher, educational programme designer, social innovator and now as a catalyst in the private sector. She has worked in villages, urban areas, schools, shelters and board rooms to mobilise talent in service of increasing economic opportunity and dignity for marginalised groups. She started as a 21-year-old idealistic social entrepreneur fresh from a fellowship in the Himalayas. After returning to Singapore, she started Project Access, a values-based leadership education initiative to inspire and equip girls and young women to be role models and catalysts for positive change. She pioneered service learning programmes in schools and has since served as Chairman of Halogen Foundation, a youth leadership organisation that brings quality leadership education to schools at accessible prices.

Melissa also spearheaded anti-trafficking campaigns and developed initiatives to empower migrant workers as President of UN Women Singapore. She is currently building a family of mentors to teenage girls in residential rehabilitation through Beautiful People, a programme of Beyond Social Services. Beautiful People was a recipient of the 2013 President's Award for Volunteerism. Melissa also serves on the boards of Crest Secondary School, Institute of Technical Education and Prison Fellowship. She is a director at Pontiac Land and serves as chairman of an investment firm for Capella Singapore. She was recognised with the Singapore Youth Award in 2007 and ASEAN Youth Award in 2008. She was educated at Harvard College and was a Fulbright scholar to Nepal.

CSR 2.0: Evolving from How Money is Spent to How Money is Made

Christopher Ang
Executive Director
Singapore Compact for Corporate Social Responsibility

2015 is quickly turning out to be more than just an interesting milestone year in Singapore's history. As the nation celebrates its 50th year of independence and with the passing of our founding Prime Minister, it is timely for Singaporeans to reflect on where we have come from, where we are now and where we are going.

For someone who is just months older than our nation, I am also reflective of my own self, how my life has been similarly affected by national events, and my career choices. We are constantly drawing lessons from developments that happen around us so that we can improve ourselves in the years ahead.

For sustainability practitioners and advocacy evangelisers like me, it is also an opportunity for us to review the current year and to look at the trends ahead of us so that we can chart a brighter future for our organisations and the community we operate in.

Last year, Oxfam released a briefing paper[1] with a staggering revelation: The richest 85 people in the world own more wealth than the bottom half of the entire global population. Indeed, corporations and individuals today hold a significant amount of wealth, and much of this wealth resides in Asia. There is much that corporations can do to push for the necessary changes that would bring about sustainability in the long term.

From our perspective at Singapore Compact, we believe that two sustainability issues would have significant impact on businesses in Singapore in the coming years: climate change and the Sustainable Singapore Blueprint; and the importance of sustainability communications and reporting.

Climate change and the Sustainable Singapore Blueprint

The impact of climate change is increasingly being seen in extreme weather conditions around the world that bring with them loss of lives and properties and huge damages to investments. With Singapore ratifying the Doha Amendment to Climate Change in September 2014, the developments leading to the Paris Climate Change Summit in 2015 and the recently-unveiled Sustainable Singapore Blueprint 2015[2], corporations can work towards greater reduction of carbon emission, more efficient use of resources and better waste management. More importantly, businesses can find new opportunities as the world looks for ways to cope with climate change. I believe there will be growth areas in the clean and green technology sector that companies can tap on.

Importance of sustainability communications and reporting

The 2014 Edelman Trust Barometer showed that 58% of the global respondents to the survey said they trusted businesses. This had plateaued compared to 2013, but it remained higher than trust in governments. Businesses in general have 'recovered' from the crisis of confidence or trust following the financial meltdown in 2008. This is due in part to businesses demonstrating transparency and accountability in their supply chains and product quality.

KPMG's International Survey of Corporate Responsibility Reporting 2014 showed that over 71% of the 100 largest companies in 41 countries reported on their sustainability performance. Such communication of companies' sustainability efforts can help to build trust in corporations, and this is immensely valuable in providing companies with the 'social licence to operate'. The need for accountability is especially crucial for large corporations, with complex supply chains that will impact thousands of employees and sub-contractors.

It is no wonder then that the Singapore Exchange (SGX) has announced an impending regulatory change for all listed companies here to provide their sustainability reports. SGX's CEO Magnus Bocker, who made the announcement at Singapore Compact's CSR Summit in October 2014, said that "this move to improve reporting of environmental and social aspects of sustainability through a comply-or-explain approach is meant to demonstrate the quality of our listed companies". Such transparency and accountability can lead to greater trust in the company, increase positive mindshare among consumers and attract high-quality and responsible investments. Singapore Compact applauds this move, and we look forward to encouraging and

engaging companies in Singapore to communicate their sustainability initiatives and outcomes through regular reporting.

While there is an intrinsic value in sustainability reporting, it is still not entirely understood by both reporters and stakeholders. Clearly defined strategic ownership and objectives of sustainability reporting are required for it to be effective for the business and comparability is required for it to be useful to the stakeholders, particularly investors. As such, sustainability reporting currently presents both benefits and barriers, and companies in Singapore are not moving towards increased reporting. This was ascribed to both corporate culture and lack of demand, strengthening the vision of a reinforcing virtuous circle between companies and stakeholders.

In the larger context of ASEAN and the rest of Asia, for producers and suppliers of raw materials, sustainability in the supply chain would be significant and important to companies. Many supply chain sustainability challenges such as sustainable agriculture, use of natural capital like land and water, treatment of migrant workers and indigenous populations and the fight against corruption, if managed well, would reduce business risks for companies, lower business costs and lead to healthier bottom lines. The successful management of these issues will also ultimately contribute to more equitable economic development in Asia, and this can bring about stability and a more conducive business environment.

Responsible companies have done much to advance these agendas, but they must not rest on their laurels and must continue their work to improve their business practices. They can also be leaders in sustainability and examples for other companies in their industries to emulate. Companies can work with NGOs like Singapore Compact to bring more companies on board the sustainability agenda, creating a better business environment where all can thrive.

Companies looking to implement not-for-profit initiatives for the betterment of the community are slowly going beyond just ad hoc philanthropic acts. They are instead committing themselves to various social and environmental causes with sustained and long-term initiatives under their corporate social responsibility (CSR) programmes.

Corporate donations have always been important for charities, but increasingly visionary corporate leaders are looking to invest in more meaningful and sustainable ways of involving their people in giving back to the communities around them, and they have been offering their resources and expertise.

Two reasons explain the emergence of this trend. First, companies are fast acknowledging the sound economics of deep community participation and so are tailoring their CSR activities to meet business objectives.

Investors and business clients now scrutinise corporations' CSR portfolios and expect to see a measure of contribution back to society, thus reinforcing the notion that good CSR is indeed good business.

Secondly, CSR programmes can also achieve intangible results; it can burnish a company's image and appeal to both customers and employees. For example, employees of accounting firm Deloitte spend time at NorthLight Secondary School, where they impart basic career skills to the school's academically-weak students. This work outside the office has translated into higher staff satisfaction at the firm and, by extension, better work performance.

Not all companies view their corporate citizenship efforts through a purely monetary lens. There is room for altruism. Accenture's Skills to Succeed programme, for example, aims to equip 500,000 people with career and business-building skills by next year. This drive was borne out of the desire to help disadvantaged communities escape dire poverty.

Some companies even take responsibility for the negative social and environmental impact their businesses have created. At StarHub, for example, CSR entails helping to strengthen social cohesion in disadvantaged families, on the grounds that the telecommunications company may have played an indirect role in eroding ties among family members with its mobile phone subscription packages.

One way corporations can go about choosing their CSR specialisations is to identify specific problems that they are most passionate about and which would bring the greatest potential benefit to society if properly tackled.

This was how DBS Bank came to support social entrepreneurship efforts in its operating markets, for it saw such companies as being pivotal in addressing the social problems created by Asia's turbocharged but unsustainable growth rates.

Another way for companies to find their niche CSR areas would be to consider causes that can benefit most from the resources and expertise it can provide.

Leading multinational technology giant IBM pairs its top talent with city leaders to provide insights and recommendations in planning more efficient urban spaces through its Smart City Challenge programme.

Logistics company UPS utilises its supply chain management expertise to provide humanitarian assistance, one of its many CSR causes. The company was most recently involved in the Typhoon Haiyan relief efforts, managing and coordinating the delivery of supplies to the devastated parts of the Philippines.

Some companies with ground-up and employee-led volunteer initiatives have also achieved much in CSR. PriceWaterhouseCoopers, for example, actively supports its employees who organise events on their own by giving them time off and funds to implement these ideas; this dovetails with the company's overarching CSR theme, complementing the overseas and local community projects that it frequently undertakes.

One principal action companies may consider taking before diving into CSR activities is to align business objectives with social investments to ensure that maximum value is generated for both the company and the community.

I am of the view that companies should focus their CSR activities in areas that not only allow them to address social needs with their expertise, but also align them with their business objectives and their stakeholders' preferences. This makes sense because these companies do want to extract synergistic value out of their budgets and resources available for CSR activities.

Even as more companies keep their fingers on the community's pulse, there are many other ways to enhance the spirit of giving. The National Volunteer and Philanthropic Centre (NVPC) suggested, for example, having more skill-based volunteering initiatives, enhancing private-public CSR partnerships and pairing more senior board members with non-profit groups.

Widespread adoption of sustainability reporting will also keep the trend chugging along, by enabling companies to measure the social, economic and environmental impact and their contributions.

CSR efforts by small and medium-sized enterprises (SMEs) are lagging behind those of their multinational counterparts, although more of such firms have stepped up lately to support various social causes.

As we look ahead from an investor's point of view, it is important for the management to take ownership of CSR as this would indicate a clear commitment to the process. Otherwise, it can be seen as merely a public relations exercise or a competitive manoeuvre.

The two things investors look at are whether the management understands and supports the sustainability reporting process in the long term, and comparability with other companies. From that point of view, GRI is very beneficial, despite its flaws, because it allows investors to improve the comparability between companies, particularly with regard to managing risk and identifying opportunities.

Mandating sustainability reporting by the Singapore Exchange may attract a certain kind of capital and a certain type of company, but it may also discourage some companies from listing there. It was suggested that setting a minimum requirement would not see companies moving away, and that the key factor would be how much and what reporting was mandated. In particular, if it was mandated for the leading companies that are more likely to have good practices in place, it might encourage them to take the final step and report on those practices. Looking ahead, companies and regulators should continue to raise awareness of sustainability and the benefits of sustainability reporting as mandating it may not be conducive to the production of comprehensive and useful reports.

There is a skills gap between what is required to create a comprehensive sustainability report and what companies have available and are willing to commit to the task. Organisations like Singapore Compact can help to bridge the gap through capacity building and advocacy. We hope that industry leaders in Singapore can provide momentum for sustainability reporting by reporting themselves and encouraging their partners to report.

As companies reflect on today's focus on the triple bottom line (people, planet and profit), we witness a growing acceptance of the notion that businesses must move beyond a single-minded pursuit of profits at all costs in order to remain viable in the long run.

How can we help companies achieve this? Without a doubt, there will be a need for greater collaboration between businesses, the government and society. I would like to suggest some possibilities of how this can be accomplished.

First, companies must understand that they do not operate as a silo and accept the role that they have to play in society. Those with exemplary practices of responsible business often have leaders who believe in balancing profits with social good. They see a social need as a business opportunity – not a need to be exploited but one that can be met by their business expertise. I would like to cite two examples.

Hollywood actress Jessica Alba started The Honest Company in 2012 when she was pregnant with her first child and faced difficulty finding baby products that did not contain toxic chemicals. The Honest Company makes conscientious efforts to track the materials of all their products, in order to report on their "cradle-to-grave" impact. To encourage suppliers to do likewise, the company also implements a code of conduct in their supply chains to ensure that they comply with human rights, environmental and documentation standards. In a bid to further demonstrate its commitment to doing social good, The Honest Company also donates a percentage of its proceeds to charitable causes that address critical health and social issues affecting children and families.

Closer to home, we have Adrenalin Group, which was founded in 2008 to provide socially-disadvantaged people the opportunity to earn an honest living. It is the only social enterprise in the local events industry and has since grown to provide services in audio-visual, photography and videography and design. About a third of Adrenalin's business are "events with heart" that aim to create social impact. Such is their business commitment to serving our community. About 30% of Adrenalin's employees are individuals from socially-disadvantaged backgrounds or those with disabilities. Adrenalin provides them with jobs that offer competitive remuneration, job security and advancement opportunities – on the same terms as the other employees.

Both of these companies prove that there is a business case for CSR, and that balancing the triple bottom line is the way forward for businesses, and I hope that these success stories will inspire more people to think about adopting the same approach in their business.

How do we see CSR evolving in the future?

While progress in CSR is undeniable, more needs to be done beyond the outcome. Beyond philanthropy, which I like to call CSR 1.0, businesses need to ensure that they create a positive and lasting impact on the environment,

society and the economy. One of the ways to drive CSR forward in Singapore would be to recognise the efforts of companies that employ exceptional CSR strategies and focus on areas within their control. Organisations can focus on their internal and external stakeholders and their supply chains. They can also encourage the business community to build sustainability into their corporate strategy and shift their focus beyond their triple-bottom-line performance.

Let us also get the CEOs more involved in pursuing sustainability in their business practices. They can improve their overall local and international competitiveness as there is a growing global trend among stakeholders, international and local MNCs, and consumers to request businesses to demonstrate responsible sustainability practices. The impending formation of a CEO Sustainability Committee will go a long way to address this gap.

William Clay Ford, Jr, former Executive Chairman of Ford Motor Company, once said: "Creating a strong business and building a better world are not conflicting goals – they are both essential ingredients for long-term success." As Singapore turns 50 this year, it is my hope that more business organisations will embed CSR in their business strategies and practices, so that they can play an influential role in its long-term success as a nation.

About the author

Christopher Ang is Executive Director of Singapore Compact for Corporate Social Responsibility (CSR), the national society promoting a holistic approach to meaningful and sustainable benefits for businesses and stakeholders through CSR and sustainability. He was Senior Deputy Director of 3P Division at the National Environment Agency, where he oversaw its strategic marketing and community outreach programmes. During his 25 years in the private and public sectors, Christopher has been involved in engagement, marketing and management, among other areas. He graduated with First Class Honours in Electronics Engineering from Loughborough University and an MBA in Marketing from Curtin University.

Endnotes

1 http://www.oxfam.org/sites/www.oxfam.org/files/bp-working-for-few-political-capture-economic-inequality-200114-en.pdf

2 http://app.mewr.gov.sg/web/ssb/index.html

CHAPTER 6

Emergence of Impactful Social Entrepreneurship

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The social entrepreneurship conundrum

In recent years, social entrepreneurship has received much coverage by the mass media and has been adopted by communities all over the world to address social problems and challenges. But what exactly is social entrepreneurship as a concept, as an approach and as a process? Also, how does one define a social enterprise (which is the organisation that carries out social entrepreneurship)? While social entrepreneurship is now very much a part of the community development landscape, there is still a lot of confusion surrounding the conceptualisation of social entrepreneurship. If one were to ask different practitioners and scholars for their definitions of social entrepreneurship and social enterprise, one is likely to get a range of very divergent answers. In short, there is no consensus on what constitutes social entrepreneurship and what defines a social enterprise.

When I started on my social entrepreneurship research journey in 2008, I was initially troubled by the lack of conceptual consensus in the field. But as I spent more time reviewing the literature on social entrepreneurship, I soon realised that three main schools of thought have actually emerged during the past two decades.

The first school of thought emerged in the United States and it focuses on earned income strategies. Specifically, non-profit organisations conduct commercial activities that generate income, which in turn can be channelled to support their respective social missions. For instance, YMCAs in various countries operate hotels or hostels that offer short-term accommodation to overseas visitors. These hotels or hostels generate income for the respective YMCAs, and the surpluses generated are channelled to support the YMCAs' social and community programmes. This school of thought is often extended to

include for-profit organisations that operate with social purposes or missions. One good example of such a for-profit organisation is Divine Chocolate, a London-based Fairtrade company. It produces and retails a wide range of Fairtrade chocolate products, and 45% of its shares are actually owned by cocoa farmers in Ghana.

The second school of thought also emerged in the United States, but it equates social entrepreneurship to social innovation. According to this perspective, social entrepreneurs are change makers in society. They break away from established systems and patterns of doing things, and introduce new production methods, production factors, services, quality of services, forms of organisation or markets. Their social innovations address a broad spectrum of social problems, including poverty, hunger and malnutrition, unemployment and underemployment, lack of educational opportunities, crime and violence, healthcare and sanitation problems, injustice, marginalisation and discrimination, pollution and environmental damage, and sustainability challenges. Examples of such social innovations include the introduction of microfinance, new techniques of water filtration and clean-water production, and pedagogical innovations that bring educational opportunities to children in disadvantaged rural communities.

The third school of thought emerged in the European Union and its birth can be traced to the research efforts of the EMES European Research Network. This EMES perspective recognises the prevalence of two types of not-for-profit organisations in Europe – cooperatives and work integration social enterprises. Cooperatives are organisations that are jointly owned and run by their members, and they practise democratic decision making and profit sharing amongst the members. Work integration social enterprises (WISEs) provide training and employment opportunities to marginalised communities who are excluded from the open job market and who face chronic unemployment. The EMES perspective suggests that social enterprises encompass two dimensions – the economic dimension (production of goods or services, autonomy, economic risk and remuneration for work done) and the social dimension (social impact, civic participation, democratic decision making and profit distribution).

Interestingly, a fourth school of thought has just emerged in Asia within the past year. A group of Asian scholars, including myself, have come together to set up the Institute for Social Entrepreneurship in Asia (ISEA). The ISEA scholars recognise the prevalence of poverty in the developing countries of

Asia. In the developing Asian countries, the poor are in the majority. In this context, the ISEA scholars have observed the emergence of a specific type of social enterprises in various developing Asian countries – social enterprises with the poor as primary stakeholders (SEPPs). The SEPPs reduce poverty by helping the poor to create wealth and improve their quality of life. More importantly, the SEPPs provide the poor with not only transactional services (i.e., building up the capabilities of the poor so that they can perform their roles as workers, suppliers or clients more effectively), but also transformational services (i.e., building up the capabilities of the poor so that they can become empowered to take on new roles as community leaders and change agents).

Social entrepreneurship in Singapore now

Perhaps not surprisingly, the social enterprises in Singapore are quite heterogeneous and do not fit neatly into the typologies described by the four schools of thought. According to the Registry of Co-operative Societies, there are currently 81 cooperatives (e.g., NTUC FairPrice Co-operative, TCC Credit Co-operative and ACS (Independent) Multi-purpose Co-operative Society) in Singapore. However, there are no published statistics on the number of non-cooperative social enterprises in Singapore. Nevertheless, a recent web-trawling exercise carried out by my research students has yielded 182 non-cooperative social enterprises. Amongst these, about one third can be classified under the social innovation category (e.g., Play Moolah, Sustainable Living Lab and Bridge Learning) and the remaining two thirds focus on creating livelihood opportunities for various disadvantaged and marginalised communities in Singapore (e.g., Eighteen Chefs, Circus In Motion and A-changin).

While livelihood-generating social enterprises do indeed represent the majority of social enterprises in Singapore, my assessment is that they generally fall short of the ideal WISE and SEPP typologies. While the WISE typology emphasises civic participation and democratic decision making, and the SEPPS typology stresses transformation of the poor into leaders and change agents, the local livelihood-generating social enterprises are primarily transactional and focus mainly on creating job opportunities for the disadvantaged. Moving forward into the future, this begs the question: How can the livelihood-generating and other types of social enterprises in Singapore become more impactful, so that they can play a more significant role in the transformation and empowerment of communities? To answer this question, I would like to propose six principles of impactful social entrepreneurship.

Six principles of impactful social entrepreneurship

Over the past seven years, as part of my research on social entrepreneurship, I have been blessed with opportunities to engage in conversations with a number of highly-regarded social entrepreneurs and community development practitioners in different parts of the world. A common refrain articulated by these experienced practitioners is the importance of engaging and involving the community before a social intervention is formulated and implemented. In other words, for social entrepreneurship to be impactful, community engagement and involvement are necessary conditions. The words of wisdom that I have gleaned from my conversations with these effective practitioners can be summarised as what I call the six principles of impactful social entrepreneurship. Looking into the future, it is my wish that these six principles will eventually be adopted and practised by all social entrepreneurs and social enterprises in Singapore.

The first principle of impactful social entrepreneurship asserts that the social entrepreneur must understand the aspirations, dreams and motivations of the community whom she/he works with. With such an understanding, the social entrepreneur can ensure that the social enterprise idea introduced to the community is in alignment with these aspirations, dreams and motivations.

Principle 1: *Impactful social entrepreneurship demands a good understanding of the community's aspirations, dreams and motivations.*

The second principle asserts that the social entrepreneur must understand the priority, not just the needs, of the community whom she/he works with. When I presented a paper on community development at a conference in Abu Dhabi in October 2011, I used the term 'community needs' one too many times. Consequently, I was interrupted and reprimanded by a social activist, Nora Lester Murad, in the middle of my presentation. She pointed out that a community has many needs, but only one priority. According to her, a lot of international aid had been squandered over the past decades on expensive social intervention programmes that eventually yielded minimal impact; this was because these interventions had targeted non-priority needs of communities. In spite of the public shaming that I experienced at the conference, I am very grateful for Nora's reminder to focus on the community's priority rather than its assumed needs. Thus, for social

entrepreneurship to be impactful, the social entrepreneur must first identify the community's priority, and then ensure that the social enterprise idea addresses this priority area.

Principle 2:   *Impactful social entrepreneurship demands a good understanding of the community's priority, not just its needs.*

The third principle asserts that impactful social entrepreneurship requires the application of the asset-based community development (ABCD) approach. According to scholars Alison Mathie and Gordon Cunningham, the traditional needs-based community development approach (in which a community development practitioner channels external resources to meet the needs of a community) does not usually encourage the community to be self-reliant. Rather, over time, the approach may lead its members to see themselves as deficient and incapable of taking charge of their lives and their community.

In contrast, the ABCD approach identifies the assets of the community members, and challenges them to brainstorm creative ways of mobilising these assets to address their shared priority need. The ABCD approach recognises that their capacities as well as their associations can be harnessed to build up the community. Examples of assets include: individuals' skills, expertise, knowledge, life experiences and stories; families' histories, customs, rituals, cuisines, crafts and technologies; kinship ties and social networks; citizens' and business associations; cultural and religious organisations; financial institutions; businesses (such as shops, factories and farms); services (such as education, healthcare, transport, water supply and sanitation); physical structures and spaces (such as houses, schools, libraries, religious buildings, hospitals, markets, shopping centres, cultural centres, recreation centres and parks); and natural assets (such as forests, mountains, wetlands, rivers, lakes, flora and fauna). Therefore, a potentially impactful social enterprise idea is likely to be one that harnesses the assets, resources and strengths of the community members.

Principle 3:   *Impactful social entrepreneurship demands a good understanding of the community's assets, resources and strengths, and consequently an asset-based community development approach.*

The fourth principle asserts that the social entrepreneur needs to obtain buy-in from the members of the community for the proposed social enterprise

idea. Ideally, the social entrepreneur should work closely with the community members to brainstorm possible ideas, and then collectively select the most preferred and appropriate social enterprise idea. Alternatively, if the idea is developed by the social entrepreneur, she/he should then expend considerable time and effort to present the idea to the community members, and gain their support and buy-in. This ensures that the community would wholeheartedly participate in and own the social enterprise idea.

Principle 4: Impactful social entrepreneurship demands that buy-in for the proposed social enterprise idea be sought from members of the community.

The fifth principle asserts that the social entrepreneur also needs to obtain buy-in from the stakeholders in the community (such as the government, businesses and non-profit organisations) for the proposed social enterprise idea. An effective social entrepreneur does not work alone; she/he is a skilled facilitator who rallies not only the community members, but also the other material stakeholders around the social enterprise idea. When these stakeholders are co-opted, they can potentially contribute vital resources to support the idea. In other words, with buy-in from the stakeholders, the social entrepreneur can then leverage on their resources to set up and run the social enterprise.

Principle 5: Impactful social entrepreneurship demands that buy-in for the proposed social enterprise idea be sought from stakeholders in the community.

The sixth principle asserts that the social entrepreneur's main function is to create the necessary conditions for members of the community to empower themselves. In a conversation with Pamela Hartigan, the Director of the Skoll Center for Social Entrepreneurship at Said Business School, University of Oxford, in 2008, she shared that many social entrepreneurs believed that they could empower communities through their social entrepreneurial efforts. According to this wise scholar and practitioner, such a belief is misplaced and reflects arrogance on the part of these social entrepreneurs. In fact, the social entrepreneur does not empower others. Rather, the social entrepreneur is only a facilitator and catalyst, whose role is to serve the community by bringing the community members together, getting them to identify and own their shared priority need, and motivating them to find a solution, thereby

bringing about positive social changes in the community. True empowerment does not emanate from the social entrepreneur. True empowerment emanates from the community members themselves, when they take ownership of their shared priority need and its solution, and experience agency and restoration of dignity.

Principle 6: Impactful social entrepreneurship demands that appropriate conditions be created by the social entrepreneur for members of the community to empower themselves and to lead their lives with dignity.

Social entrepreneurship in Singapore in future

As I shared above, I really hope that all social entrepreneurs and social enterprises will adopt the six principles of impactful social entrepreneurship in future. Social entrepreneurship can only be impactful if social entrepreneurs first spend time understanding the communities they work with. An effective social entrepreneur needs to spend time engaging the community, in order to develop deep insights into its aspirations, priority needs and assets. Effective ideation of the social enterprise activity requires active participation by the community, as well as buy-in from other material stakeholders, thus ensuring that the activity can address the community's priority need, and also ensuring community ownership, agency and empowerment.

Secondly, I hope that in the future, more social enterprises in Singapore will engage in social impact measurement and assessment, to determine the impact of their social interventions. For instance, the social return on investment (SROI) methodology, which has been adopted by both non-profit and for-profit organisations in other countries, can be a useful impact measurement tool for social enterprises in Singapore. Besides enabling a social enterprise to evaluate the impact of its activity, the SROI technique also pushes it to determine who its material stakeholders are, analyse the outcomes (both intended or positive outcomes and unintended or negative outcomes) experienced by these stakeholders, and re-examine the theory of change it subscribes to.

Thirdly, I hope that a higher percentage of social enterprises in Singapore will focus on working with overseas communities to address their social problems and challenges. Although some of them currently support communities abroad (e.g., BagoSphere, Nusantara Development Initiatives and Lotus Culture), they

represent a very small percentage of the local social enterprise sector. Given Singapore's developed country status and continuing globalisation efforts, Singapore social entrepreneurs can definitely lend a much bigger and stronger hand to help communities abroad overcome their problems and challenges.

Finally, I hope to see an actual drop in the absolute number of social enterprises in Singapore in the future. This may seem paradoxical, but please allow me to explain. Social entrepreneurs and social enterprises thrive when the society has numerous social problems and challenges to address. So, if their absolute number actually drops, it can possibly mean one of two things. First, it may suggest that the number and/or the scale of society's problems and challenges have decreased, thus reducing the need for so many social enterprises. Secondly, it may suggest that the corporate sector is willing to play a much bigger role in addressing society's problems and challenges, thus reducing the burden on social enterprises to address them. In short, a drop in the absolute number of social enterprises in the future will be a good outcome for Singapore society.

About the author

Albert Chu-Ying Teo is an associate professor in the Department of Management & Organisation, Business School, National University of Singapore (NUS). He concurrently serves as Deputy Director of the NUS University Scholars Programme and Director of the NUS Chua Thian Poh Community Leadership Programme, which he set up in November 2011. He was Director of the NUS Centre for Social Entrepreneurship & Philanthropy from July 2008 to June 2011.

Albert received his MSc and PhD degrees in 1992 and 1994, respectively from the Walter A. Haas School of Business, University of California, Berkeley. His current research interests are in social entrepreneurship, philanthropy, volunteerism, organisational ecology, social networks and strategic alliances. He has published in journals, including 'Academy of Management Journal', 'Organization Science' and 'Industrial and Corporate Change'.

Active in community service, Albert is a volunteer programme coordinator at Patient Care Center and serves as a management committee member of Catholic AIDS Response Effort. He is also an advisor to non-profit organisations ASKI Global, BagoSphere, Impact Investment Shujog, Nusantara Development Initiatives and Solutions To End Poverty.

Singapore as a Nation of Active Agers

Dr Tan Yong Seng
Chairman
People's Association Active Ageing Council
Whampoa Active Ageing Committee

Complex challenges of rapidly ageing population

The world's population is ageing at a rate never seen before in history. The dual effect of a lower mortality and continued decline in fertility has accounted for the world's rapidly ageing population. By 2050, one third of the populations in developed regions and one fifth of those in the less-developed regions will be aged 60 or older, according to United Nations' estimates.

Singapore is not immune to this change. The dynamic shift in age structure that it is experiencing now was set in motion in the 1970s. Our country's population has been ageing rapidly since 2011. In fact, its population is now expected to age faster than Australia, South Korea, UK and US. In 2011, there were 340,000 residents (10% of total population) aged 65 years and above. By 2030, this number is expected to increase to 900,000, which is about 24% of the total number of people.

As our population grows and ages, we will face many challenges. These include both economic and social aspects, such as financial security, employment, living arrangements and healthcare. The most immediate challenge is our economy. Singapore may suffer the most among Asian economies from an ageing population, with its average growth in economic output falling more than 40% over the next 20 years. This is because of the decline in the proportion of people who are economically productive. The sharp drop in labour growth due to the ageing population will cause average gross domestic product (GDP) expansion to slow to about 3.9% between 2006 and 2030, down from 6.9% between 1981 and 2005.

Beyond economic growth, the greying of Singapore's population is also likely to hurt public finances. The potential government support for the elderly could cost the country more than 7% of GDP. This is due to increased healthcare expenditure and provisions for a social safety net for the ageing population.

Twin objectives of successful active ageing

According to the World Health Organisation, "active ageing is the process of optimising opportunity for health, participation and security in order to enhance quality of life as people age." (WHO 2002:12) "Active" refers to continuing participation in many areas. It does not only include being physically active or being employed, but also encompasses social, economic, cultural, spiritual and civic affairs.

Since the 1980s, the government has been working to address ageing issues and the implication of the demographic shift that will affect Singapore's social and economic fabric. In recent years, accelerated policy changes have brought about noticeable shifts in employment and housing policies that are aimed at extending the economic independence of the older residents.

Health Minister Gan Kim Yong announced in Parliament in May 2014 that the government had put together a national plan to prepare Singaporeans for successful ageing. The action plan for successful ageing will holistically chart strategies and initiatives to support and enable Singaporeans to achieve meaningful and successful ageing. The inter-ministry effort for successful ageing aims to achieve the twin objectives of achieving productivity from longevity and ageing with dignity and grace. The action plan will cover seven areas – life-long learning for seniors, employment, volunteerism, urban infrastructure, healthcare, retirement adequacy and research into ageing.

Healthy community, happy residents

One of the health challenges that Singapore will be facing in the coming years is that of an epidemic of chronic non-communicable diseases with its rapidly ageing population.

In 2010, five broad causes, all of which are chronic diseases, accounted for 70% of the burden of diseases from premature mortality and disability in Singapore. The top two causes, cardiovascular disease and cancer, together accounted for 39% of the total in 2010.

It is undeniable that health prevention initiatives can generate significant cost savings. Lifestyle-related chronic diseases such as coronary artery disease, stroke, diabetes and some types of cancer are a growing burden

on individuals and the national healthcare systems. Many of the major risk factors for non-communicable diseases, however, are all preventable.

Maintaining good health is of utmost importance when a person ages. We need to invest now, even in the younger population, to enjoy more healthy years, in tandem with an increase in our life span.

In order to promote health and wellness, we should first raise the health literacy of our older adults. With improved health literacy, there is a tendency to seek healthcare services at much earlier stages of illnesses or suspected illnesses.

Secondly, we should provide a platform for our seniors to go for routine health screening at the community level. This should include chronic disease screening and screening for some common types of cancer. To address the challenges of old age, it is important to increase awareness of the fragility of adults aged 75 and above, and to invest in prevention of decline in their health, functioning and well-being. It is important to conduct frequent evaluation in order to detect risk factors and decline in physical functions as early as possible. I would like to recommend initiating programmes for maintaining and enhancing health and functioning for adults aged 60 and above.

Thirdly, we should have well-organised follow up programmes, particularly for the high-risk groups. Data from the 1995 National Survey of Senior Citizens and the Transitions in Health, Wealth and Welfare of Elderly Singaporeans study (1995-1999) showed that a decline in health status was significantly correlated to a lack of formal education, lower income and a lack of social support. These findings suggest that sub-groups of the elderly require special attention with regard to healthcare.

Today, the People Association's National Wellness Programme, which encourages seniors to go for regular health screenings and to remain physically and socially active, aims to reach out to 500,000 residents aged 50 and above by 2015. (See annex for details.)

Older patients, with their longer life spans, are medically and psycho-socially more complex. They often face multi-faceted needs and challenging ethical and legal conundrums. Geriatric specialists are required to assess and treat their more complex health problems. In addition, they are required to educate and guide general medical services.

We also need to empower our elderly with health learning. Through better understanding and application of behavioural sciences at the community level, campaigns or programmes could be implemented to encourage healthy lifestyles.

Singapore should possess the foresight to identify and mitigate the root causes in the fastest possible way. In this way, we can have a healthy community with many happy residents.

Life-long employability

Since 1 January 2012, the Retirement Age Act is replaced by the Retirement and Re-employment Act. Employers are now required to offer re-employment to eligible employees who turn 62, up to the age of 65. Flexible work arrangement is a key workplace factor for maintaining employment during retirement.

There are many reasons for post-retirement re-employment. The most important reason is to receive an income, followed by a desire to keep active mentally and physically, and to have something meaningful to do. Staying connected, having a sense of self-worth, escaping boredom and receiving health benefits are other reasons.

The Ministry of Health is working with other government agencies, employers and HR practitioners to see how our seniors may extend their economic participation and how to build workplaces for all ages to enable this to happen. But beyond legislation, the success of the government's policies will require a change in mindset among employers who retain an ageist attitude. This mindset change may take time.

Life-long learning

Life-long learning is defined in Wikipedia as the "ongoing, voluntary and self-motivated pursuit of knowledge for either personal or professional reasons".

An average Singaporean has 20-23 years of life after retirement, based on the statutory retirement age of 62. It is important to provide platforms for continuing education and various cultural activities for seniors in order to prolong their active lives. Training in new technologies should be a priority when developing life-long learning programmes. We can find examples of an online learning community of older people that focuses less on the curriculum and more on group interaction with the help of information and communication technology.

Today, there are two new continuing education and training centres that can train up to 50,000 adults each year. The government is also working with community groups and educational institutions on a plan to catalyse a silver learning movement in Singapore, beyond learning for employability.

Social approach to ageing

We need a social approach to ageing that recognises and respects the social capital of the elderly. This approach also promotes empowerment, engagement, self-efficacy and life-long learning. An important facet of this approach is the development of inter-generational interaction and exchanges. To fully realise the social capital of the elderly, there must be platforms for communication and interaction among different generations.

Underpinning the social approach is the need for sustainable elderly care frameworks. This includes the need for innovative solutions to provide income security in old age, the importance of sustainable long-term care systems, as well as the need to strengthen elderly healthcare while supporting the creation of age-friendly environments.

Today, there is inter-generational bonding through the Council for Third Age's inter-generational learning programme where youth conduct lessons for seniors. An active and productive senior population can only be sustained with a positive social climate and perception about the ageing process. We need to expand the involvement of seniors in social activities to include community and voluntary work.

Healthcare system and aged care services

Most healthcare systems are not optimally structured for the changing healthcare landscape, because they are largely centred in hospitals. If the burden of all chronic diseases falls largely on acute hospital-based medicine, there is a fundamental mismatch.

Singapore has begun focused efforts in public health and primary care to cope with the impending 'silver tsunami', but there is a need for new care models and approaches to prepare for a massive increase in chronic diseases as a result of a growing number of elderly patients with multiple medical problems.

We need a two-pronged approach to innovate for Singapore's future healthcare: optimising healthcare for today; and working upstream on fundamental solutions

for tomorrow. The first approach focuses on how to optimise healthcare by innovating for greater hospital productivity and care quality, and to ameliorate existing issues in healthcare. In order to achieve these two goals, additional emphasis should be placed on automation and IT, workflow improvement and changes in care delivery mode. The second approach visualises the healthcare system of the future.

Healthcare system of the future

There are some public health and clinical care imperatives. Approaches in disease management could be used to fundamentally improve health outcomes. Trained laypersons' role could be expanded while finance and economics could be used as drivers of change.

As Singapore's population ages, the majority of care would be provided at home. Holistic care centres with doctor-led teams would optimise functional recovery for this group of patients. In addition to system-related changes, we can also use innovation and technology.

Technological innovation can enable better health monitoring, care coordination and a longer period of living unassisted/alone. For example, remote monitoring devices can track glucose levels in diabetics, detect falls and in more advanced cases, even be linked to analytical systems that predict impending heart failure. Medication adherence can also be tracked by smart pill bottles that notify a caregiver via text messages of cases of non-compliance. Locator devices can assist with the management of dementia patients. Various tele-health initiatives can reduce admissions to hospitals, number of home visits and visits to general practitioners. These and other remote interventions can be less expensive than constant monitoring in a nursing facility, and increase the quality of life by helping people to stay at home.

Provision of long-term care

As the number of elderly rises, so does the need for funding and provisions of long-term care services. Funding is not the only area of concern. Another is the availability of long-term care infrastructure and formal and informal care providers.

Today, between 70% and 90% of those who provide care are family members, and 90% of all home care is provided informally without compensation. In

Singapore, more than 75% of caregivers are spouses and children, and about 14% of caregivers are maids.

Demographic trends point to a decline in the pool of potential caregivers. The informal care sector will likely not be able to keep pace with the growing care needs. This shortage of supply may result in a shift towards the more expensive formal sector. Financial sustainability is the most important priority for long-term care systems.

I envisage the new care delivery model for the future to have the following characteristics:

• Doctors serving as advisors or overseers and not as doers
• Health managers co-creating care services for patients
• Effective tele-communications
• Integration of multiple social and healthcare resources
• Constant resource titration to suit individual patients' needs.

Ageing gracefully in place

The Ministerial Committee on Ageing's City for All Ages project aims to build senior-friendly communities. It involves communities working together to understand our seniors' needs and care for them. Through the project, the committee hopes that our seniors can live safely and confidently, stay healthy and active, and be part of a warm and caring community.

The 'hardware' improvements include infrastructural enhancement such as retrofitting homes with safety features, like grab-bars and anti-slip floor in toilets, and installing senior-friendly benches around neighbourhoods. The 'software' initiatives include activities and programmes that are designed for seniors, like providing health checks, social activities and supporting services.

The three stages of a City for All Ages (CFAA) journey are:

• Reaching out – sharing with residents what the CFAA project is about, its benefits and how they can be involved. This can be done through a townhall forum.
• Understanding needs – finding out from residents how the community can better support their needs via town audit, health screening and social survey.

- Addressing needs – working with public agencies and community partners to customise suitable solutions to meet identified needs. Possible activities include safety and security, health and wellness, and social support.

Today, some 16 communities around Singapore are part of the CFAA project, offering both 'hardware' and 'software' improvements in their neighbourhoods to benefit seniors.

Meeting retirement adequacy

The government is reviewing the retirement adequacy of our future elderly. Beyond reviewing the current CPF contribution rates and having more options to monetise housing, it will also institute a Silver Support Scheme to help the needy elderly cope with their living expenses.

In 2014, the government announced the boldest and most generous initiative to look after the elderly with the $9 billion Pioneer Generation Package. Its move to subsidise medical costs for the pioneer generation of Singaporeans, who did not have the opportunities to further their education and who toiled to set up their homes and raise their families on low wages, is truly commendable.

But in addition to providing a healthcare subsidy, loneliness among the elderly is also another issue that we have to focus on. The role of the family is something that no government or voluntary welfare organisation can assume. Loneliness is not a condition that either of them can relieve, and love is not something that they can give.

Vision of active ageing in Singapore

The dramatic shift in age structure in Singapore will require innovative and inclusive responses to face the complex challenges in an ageing society.

Our government started to prepare for an ageing population in 1980. In March 2007, the Ministerial Committee on Ageing was established to pursue a whole-of-government response to ageing with these four strategic thrusts:

- Enhancing employability and financial security
- Providing holistic and affordable healthcare and eldercare

- Enabling ageing in place

- Promoting active ageing.

To date, we are making steady progress. In 2015, we will see the pieces of the healthcare jigsaw puzzle being put in place. We will see enough hospital beds for all who need them, and patients will find paying for their hospital care less of a financial burden with the MediShield Life scheme kicking in before the end of the year. Even better, more elderly people will find it easier to receive proper care without needing a hospital stay.

Our vision of active ageing in Singapore encompasses four key thrusts:

- Healthy living – providing more infrastructure and facilities for sports and raising public awareness of health literacy. Seniors' participation in sporting activities keep them physically and mentally fit.

- Learning and contributing – developing and promoting volunteering opportunities for seniors, and providing and promoting life-long learning opportunities. Seniors are an important resource. Many of them have a wealth of experiences and possess valuable skills that could be harnessed through active engagement within the community. Those of them who are active in community work can also help themselves to maintain their self-esteem and make them feel valued by society. Active volunteerism will also lead to a positive attitude towards active ageing.

- Family ties – creating more platforms for interaction among families and their friends. Strong families provide an important pillar of support for the nation. Families are the first line of support for seniors. Children have the responsibility to take care of their elderly parents, providing them with emotional support and looking after their needs. Elderly parents can play a contributing role in the family, for example, by playing an active part as a grandparent. Strong family ties also enable seniors to transmit values, wisdom and family traditions to the next generation.

- Social networks – creating more platforms for communication and interaction between generations. Inter-generational programmes are important to promote family bonding and bring closeness among friends.

I believe age is an asset and not a liability. What is needed are community support and eldercare to make this belief a reality. Instead of viewing our ageing population as a silver tsunami, we can actually celebrate our longevity if we prepare ourselves well.

About the author

As Chairman of the People's Association (PA) Active Ageing Council, Dr Tan Yong Seng believes in being active from as young as possible by being physically, mentally and socially engaged in the community. The council works with grassroots organisations and community partners to promote wellness among active agers and to encourage every Singaporean to stay active and healthy. He has been serving in the Whampoa constituency since 2005 and has spearheaded many interest groups to engage its seniors socially. As a heart specialist, he is particularly concerned about their cardiovascular health. Dr Tan founded a heart ambassadorship programme to educate seniors in Whampoa on the risk of heart disease.

Dr Tan is a senior consultant cardiothoracic and vascular surgeon in private practice at Gleneagles Hospital. He received his MBBS from the National University of Singapore and is a fellow of the Royal College of Surgeons, Academy of Medicine, International College of Surgeons and American College of Cardiology. He was a clinical fellow in cardiovascular surgery at Mayo Clinic and Cleveland Clinics, USA. Dr Tan aspires to be a doctor of the future who "will give no medicine but will interest his patients in the care of the human frame, in diet and in the cause and prevention of disease".

PA National Wellness Programme

The People's Association (PA) National Wellness Programme is the flagship national active ageing programme. It was started in 2008 as a pilot to help our seniors age positively and actively by keeping them physically, mentally and socially active. It has been rolled out progressively to 87 divisions nation-wide since 2012. To date, it has reached out to about 400,000 seniors.

Under the programme, seniors are encouraged to go for regular health screening and take corrective medical action where necessary, and to participate in physical programmes to stay active and take part in the different social interest groups in the community clubs or residents' committees. Findings from a Duke-NUS longitudinal impact study conducted from 2012 to 2013 showed that participants had better health outcomes and more positive health behaviours, and were more physically active and more connected socially.

Life in 2065:
Realising Gender Equality

Winifred Loh
President
Association of Women for Action and Research (AWARE)
Kirsten Han
Member, AWARE

Life for the average Singaporean woman in 2065 is very different from that of her counterpart 50 years ago. So much has changed in the past five decades, with each generation improving in terms of protection and status.

As Singapore celebrates its 100th year of independence, we have finally moved away from the already outmoded gender stereotypes that so many people still clung to in 2015. Society no longer sees certain behaviours or preferences as being more "male" or "female", and people are able to move towards their interests and take on roles and activities that fit their aptitude and abilities, rather than jobs that society expects of them by virtue of their gender.

This casting off of gender stereotypes has had a major impact on the family, both in the way it is viewed in society and in the way it operates in the privacy of home.

Without traditional gender roles requiring Mum to do certain things and Dad to do others, it has become much easier for all of us to acknowledge a much wider range of family types and relationships, from single mothers to adoptive parents to even same-sex couples. Instead of imposing our expectations on each and every family, requiring them to fit into that neat nuclear-family-sized box, society now recognises that it is up to each family to decide what's best for its members.

Families now share household tasks fairly among their members, rather than assume that they are the responsibility of women. The further development of robotic household aids has helped speed up daily chores and reduced Singaporeans' dependency on domestic workers. Where domestic workers are still employed, regardless of gender and nationality, they are now compensated

and respected for their labour and contribution, as housework is no longer devalued as "just women's work".

Childcare, too, is now negotiated and fairly shared between partners. Couples enjoy a parental leave package from their employers whereby both parents can assign the number of leave days for each other as they choose, rather than have separate paternity and maternity leave benefits. This leave package is open to all regardless of their marital status, socio-economic circumstances or backgrounds, and allows parents to figure out for themselves how they should best split the time they spend with their newborn child. In many cases, couples decide that the mother should return to work first, leaving the father to care for the infant.

As there are now more women in senior leadership roles, it is becoming common for couples to decide that the husband takes on the caregiver role at home permanently after the birth of their first child. Fathers now have so many more opportunities to spend time with their children, including picking them up from school and attending parent-teacher conferences. It seems unimaginable that this used to be seen mostly as the mother's responsibility. Most fathers would be devastated not to have as much of a chance to savour this joy!

The birth rate continues to be fairly low, although that's not much of a surprise in a highly-developed and urbanised city. Women's choices are no longer scrutinised as the major contributing factor to this low birth rate; we have realised that people cannot be cajoled into having children, and that each family will make its own decisions.

In 2065, we do our best as a society to remove barriers standing in the way of families who *do* want children, and supporting young families by making it easier for them to manage various challenges. There are more childcare options available, and at affordable prices. Most office buildings and industrial estates have their own crèches or other childcare facilities, funded and run by groups of employers. This gives parents peace of mind, knowing that their children are being well taken care of close by as they go about their work.

Single people no longer feel the brunt of the government's pro-nuclear family policies. In 2065, single Singaporeans are able to purchase public property under the same schemes as married ones, and are not required to pay higher

prices for their homes. All schemes meant to support parents are now available regardless of marital status, so single parents get all the help they need to care for their children even as they work to earn an income. Many singles also choose to adopt children, raising them in safe and nurturing homes.

Beyond its impact on the family, the shift away from gender stereotypes has transformed the workplace. Nobody bats an eyelid at the many male nurses or early childhood educators. Women regularly take on supposedly masculine jobs, such as serving in the military and police. Women are prominently represented in the fields of science and technology, contributing to research and innovations that benefit humanity and advance our knowledge and development.

The growth of telecommunications technologies has also cut down the amount of time Singaporeans spend in their offices. Flexi-work schemes and telecommuting are the norms rather than the exceptions. People are no longer required to show up in their offices day after day to clock time; they mostly do their work from home or wherever convenient, participate in teleconference calls to discuss projects, and only turn up for in-person meetings when absolutely necessary.

No longer required to choose between work and familial responsibilities, more women now join and remain in the workforce with more confidence, freed from the guilt-trip that society took so many women on 50 years ago. Flexi-work and childcare options allow more women to carry on building their careers and climb up the ranks, whatever their family situations. In 2065, there is an equal number of men and women in senior levels of business and corporate organisations. Women, too, now lead many major multinational corporations, making business deals with huge impact.

With remote working taking away the need for costly rentals, more and more independent start-ups have sprouted up, providing necessary services to the community without the overwhelming drive for profits at all costs that characterises mega-corporations. Women have founded many of these small businesses, creating ethical and sustainable models. Young mothers, too, now run their own businesses largely from their home offices, even as they care for their families.

Corporations and start-ups are not the only places where female representation has increased; there is now more female representation at *every* level of society.

In politics, we have seen a few female Prime Ministers by 2065, supported by female Cabinet Ministers and parliamentarians from all parties and persuasions. Bringing their much-needed perspectives to governance, these women champion an equal Singapore where no one is marginalised because of their race, gender, religion, socio-economic circumstances, marital status or sexual orientation.

With more bold and vocal women in Parliament, we've seen policy changes in women's issues come much faster. Marital rape is now recognised, and protection provided for women facing assault and abuse from their spouses. We have also adopted more victim-centric approaches to handling cases of violence against women and human trafficking. There is a higher proportion of female police officers now, and all officers regardless of gender attend adequate rights-based training to deal with victims of exploitation and abuse. This gender sensitisation has made it much easier for women to report cases of maltreatment without fear of the repercussions and scrutiny of their personal lives.

Singapore in 2065 now has robust anti-discrimination laws, ensuring that no one is disadvantaged by her ethnicity, nationality or sexual orientation. Anti-discrimination laws also protect pregnant women from unfair dismissal, and prevent employers from participating in the race to the bottom that ultimately disadvantages all workers.

In pushing for these progressive policies, women in Parliament have been supported by a strong and vibrant civil society. Women play a major role here, too, working alongside men on a variety of causes from animal rights to the abolition of capital punishment.

Women in civil society have stepped up as allies of the lesbian, gay, bisexual and transgender (LGBT) community, supporting their struggles for equality. Built on the foundation of a strong solidarity, there has been great progress in the LGBT movement by 2065. Section 377A is a mere historical footnote, long repealed, with gay men and women able to live their lives fully and freely without fear of persecution.

Feminism is mainstream in Singapore, and public education campaigns (including those by the government) have led to it being more widely understood and appreciated. It is common to hear people of all backgrounds and identities speak out for gender equality and the pushback against patriarchy. There are now more and more people calling out the media for sexist and

biased coverage, or opposing the constant objectification of women in the media that we saw so often in 2015. This increasing pressure – combined with an increase in vocal women in decision-making roles within mainstream media establishments – has changed the way the press talks about women and women's issues.

We now talk differently about relationships, gender and the way we treat one another. Sexuality education in schools has been reformed not only to focus on abstinence and safer sex but also to emphasise consent within equal relationships. Young Singaporeans learn to value and respect other people's choices, fostering a society in which Singaporeans are aware of the importance of consent and the need to dismantle rape culture. Instead of teaching girls to be careful and not get raped, we focus on teaching potential perpetrators not to rape instead. The impact of such education has been felt by women in all aspects of their lives, from school to the workplace and beyond. In 2065, Singapore has become a safer environment for everyone.

There is one more aspect of life in Singapore that has yet to be addressed - that of national service. Once a cornerstone of life for Singaporean men in 2015, this institution has now seen fundamental changes.

The changing demands and state of warfare and defence in the world have required us to rethink conscription and its role. We now recognise that there are many more ways in which citizens can contribute to their country. Moreover, technological advancements have long nullified age-old excuses about the division of occupations into "soft and feminine" and "hard and masculine". Over the past five decades, the increasing use of technology in warfare has changed the way countries train and organise their military. Further development in this area continues to undermine the argument that military service is too physically rigorous for most women and therefore should be mainly the province of tougher men.

In 2065, national service does not only involve military service but also other services that Singapore needs. *All* young Singaporeans now serve their country and community in ways that best suit their aptitude and abilities. Apart from serving in the military, they also staff eldercare and childcare facilities, or provide auxiliary services in hospitals and polyclinics. National service has thus become a more holistic and equal way for young Singaporeans to contribute to their community, and to help relieve stresses on infrastructure and social welfare.

The world has changed dramatically since the nation celebrated its 50ᵗʰ birthday in 2015. And the changes have not just benefited women but society as a whole. As we have learned to shift gears and stop 'pigeon-holing' people according to their race, ethnicity, gender or sexual orientation, we have opened up society to a broader range of experiences, perspectives and ideas, from which innovation and development can spring. Singapore in 2065 is truly a country every Singaporean wants to call home.

About the authors

Winifred Loh has been a leader in the non-profit sector for more than 20 years, working on projects for organisations that include Caritas, Singapore International Foundation, United Nations Institute for Training and Research (UNITAR) and the Institute of Women's Empowerment in Hong Kong. She is currently serving her second term as President of AWARE, Singapore's leading gender equality advocacy group. She is a speaker and trainer on topics related to gender at work and women in leadership roles. Winifred is a Director at the Centre for Non-Profit Leadership, where she works to deepen leadership bench strength and facilitate organisational transformation for greater social impact. Concurrently, she heads her own business practice as an independent organisation development consultant and executive coach.

Kirsten Han is a member of AWARE and a Singaporean freelance journalist and writer. Her bylines have appeared in Al Jazeera English, The Guardian, The Diplomat and Southeast Asia Globe, among other news media. She's also the Singapore stringer for Deutsche Presse Agentur. Kirsten has worked on documentary projects and stories that highlighted important social issues such as domestic abuse and labour exploitation. She completed her Master in Journalism, Media and Communication at Cardiff University in 2013. Since then, Kirsten has had an interest in covering social justice and human rights issues, and has written from and about countries such as Scotland, Greece, Hong Kong and Malaysia. She also volunteers with anti-death penalty campaign We Believe in Second Chances and migrant rights NGO Transient Workers Count Too.

RE-IMAGINING SINGAPORE AS A PROSPERING NATION
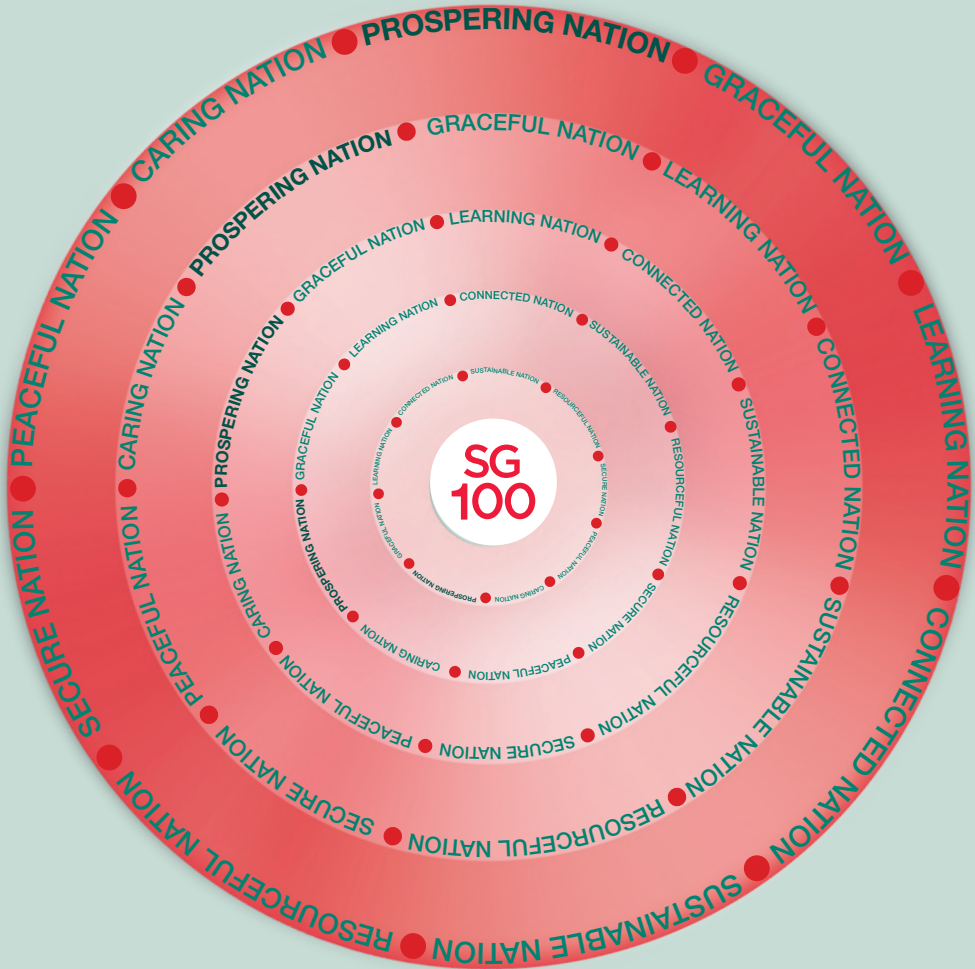
"The fact that we can survive for 25 years means that we had created an alternative to that hinterland. I think that is the biggest achievement. We have linked ourselves to the global economy and made the world our hinterland." (1990)

"As a nation, we must have other goals. Economic growth is not the end in itself. After the success of the economy, you want to translate it into high standards of living, high quality of life, with recreation, the arts, spiritual fulfilment and intellectual fulfilment." (1995)

"The economy is driven by new knowledge, new discoveries in science and technology, innovations that are taken to the market by entrepreneurs." (2012)

"In their fundamentals, neither entrepreneurship nor business leadership has changed. What has changed, and changed beyond recognition, is technology. Technology requires entrepreneurs and business leaders to think and act globally. They cannot avoid collaborating with, or competing against others internationally." (2012)

Lee Kuan Yew

How Work, Workers and the Workplace May Change in Future

Paul Heng
Founder and Managing Director
NeXT Career Consulting Group

When coaching senior leaders, who are mostly in their late 40s and 50s, we always begin with looking at things from 30,000 feet above – we begin with the end in mind, i.e. where they are going with their lives. We talk about what they have done, what they are doing today, and what they would ideally want to do. I use the word "ideally" deliberately as it may not be possible at times to go to where we want to go, and to do what we want to do. Many of my coachees do not have a life plan – they drift along, many of them live their lives going where their bosses want them to go, and doing what the businesses require them to do.

I usually challenge them – each of us has only one life, don't you want to live your life the way you want to, and to do the things you want to do? At the end of our lives, I assume most of us would like to have lived a life of minimum regrets. For this to have a better chance of happening, we need to plan. "It is an irony, isn't it," I tell them, "that you plan so well for your business, but you don't plan for your own life and your family?"

It is a fact that work and our careers take up a huge portion of our lives. We spend many hours each day doing work of some kind. For the majority of us, we would be working for someone and earning a monthly wage.

In the foreseeable future, I believe that work and our careers will continue to consume a large part of our lives.

State of our current employment scene

There are at least four key challenges that, I suspect, are keeping our Manpower Ministry officials up at night – the ageing population, under-employment, structural unemployment and the "foreign talent" issue.

The Straits Times reported on 21 October 2014 ("Graduate employment: degrees of relevance") that graduates in Singapore could no longer bank on a degree to guarantee them a good job, and the prospect of under-employment was going to be a problem our future generation will have to grapple with.

Perhaps intentionally or by sheer clever journalistic wisdom, the Straits Times editorial on the same page that day was on "Helping seniors to remain engaged". It reiterated, yet again, the lacklustre support of employers for the government's call to extend the employment of employees who reached the official retirement age.

We must have more women in our workforce, regardless of whether they are in business, self-employment, welfare organisations or politics.

In fact, we need to have a mindset change and see talent as just that – with no differentiation between genders. There will be no more talk about the 'glass ceiling', (not enough) women in senior leadership positions and in the boardroom, among others. Each and every individual will be valued. In other words, we will have gender equality.

On the home front, societal norms predominantly still see the male partner of the family as its head, whose key task is to put food on the table, and the female partner playing the role of caregiver. However, the reality today is that there is an increasing number of families where the female partner brings home a larger piece of the bacon.

My wish is to see a quicker evolution of gender equality – where both parents partake (equally) in the bringing up of their young ones and in the minding of their elderly parents. As a society that claims to be a progressive one, both parents should share equal responsibilities, on both financial and non-financial fronts. This joint responsibility is independent of their earning power. This will encourage and enable more mothers to return to the workforce and help to alleviate the challenges of an ageing workforce.

Many Singaporeans have publicly and privately expressed their disapproval of having too many foreigners working among them. The fact remains that Singapore has been reliant on and will continue to rely on foreign talent who bring a global mindset to doing business in Singapore. We do have our limitations – the key is finding the right balance in granting professional employment passes.

As Singapore's leaders, employers and workers look ahead confidently to the next 50 years, it would be appropriate to focus on a couple of key areas related to employment, talent management and employability, which are intertwined and overlap with all the four areas mentioned above.

New breed of corporate creatures

In future, the war for talent in Singapore looks set to intensify. The birth statistics do not seem to suggest that we will be having a baby boom anytime soon. Perhaps this is one of the challenges of a fast-developing country, with couples firmly fixated with climbing up the corporate ladder, and earning sufficient income to sustain their preferred lifestyles.

While this may be the case, workers should not rest on their laurels and wait for employers to come a-calling. They have to be proactive in managing their careers and do everything within their power to stay employable.

Some key attributes will help workers to survive the changes in the business world and workplace.

Flexible mindset

Increasingly, we need to have a mindset that embraces diversity and cultural sensitivity, continuous learning and upgrading, and being comfortable with ambiguity in a situation.

We live and work in a borderless world. Having colleagues from different backgrounds and cultures has become the norm. This looks set to continue. Those who will do well will be those who are able to set aside their preferences and accept others for what and who they are, warts and all. There are few jobs in the world that do not require you to work and interact with others. Having self-awareness and empathy for others is a pre-requisite for success in life. Working in teams, both real and virtual, will continue to be the prevailing mode of work.

Continuous learning

Most businesses have a budget for learning and development – this means there is always a cap. It will not be possible for every worker to be given a part

of this budget for continuous learning and personal development. Increasingly, workers will have to be prepared to fork out their own money. They will have to see this as an investment in their future employability and not as an expense.

Virtual learning has taken over many aspects of training and development. The Khan Academy, for example, offers over 3,500 educational videos online globally. Some renowned universities such as Princeton University of Pennsylvania, Stanford University and the University of Michigan are providing online courses.

According to Peter Cappelli, the George W. Taylor Professor of Management at the University of Pennsylvania's Wharton School, there are two main reasons why companies are facing a shortage of skilled workers. First, the tendency for companies to (try to) hire key talent who possess specific skills and experience, and secondly, they rely on just training and development strategies to close the skills gap.

He says that companies should help workers build those skills and gain experience not just through training and development, but also by creating project roles and experiences, and providing on-the-job-training and mentoring.

Adversity quotient

It is relatively easy to manage in a business that is moving northwards. However, given the fast-paced and ever-changing world, those who are able to manage adversities well will also be in demand.

We experienced a national crisis in 2003 when SARS (Severe Acute Respiratory Syndrome) struck our country and the region. Businesses and our daily life were severely affected. Some businesses had to cease operation. The leaders that succeeded in overcoming the unprecedented challenges could not rely on their past experiences, as there was none of the same magnitude to fall back on. One thing is for sure though, those who had managed to pull through that crisis emerged stronger, more resilient and better able to manage adversities, in their careers or life in general.

Technology application

Technology rules the world. There is no running away from it, and the only way we can continue to do well is to embrace it with open arms. The banking

sector, for example, has continued to evolve, and technology is in the centre of it all. "Digitisation" is the keyword here, and we even have supercomputers that can 'think' like humans. I can think of two big companies that have partnered with IBM to use Watson, IBM's big-data service.

DBS Bank has invested in Watson to better understand its customers' behaviours, and to introduce cutting-edge banking products and services to better serve, attract and retain customers. In the health science industry, Johnson & Johnson is using Watson to discover new drugs. What is next is anyone's guess. However, one thing is certain – ignore technology, for fear or whatever reason, at your own peril. You are very likely to be left behind in the dust.

Issues for Singaporeans to ponder over

Types of employment

Increasingly, I see two different types of workers. One is the traditional worker who still sees these job characteristics as important in their careers - career path, job security, predictable income and a "work hard" mentality. When I begin working, I will find a good job, work hard and be loyal; in return, I will be paid a decent wage, enjoy job security and have a good work-life balance. I will retire when I reach the mandatory retirement age. This pretty much sums up what used to be the mindset of a worker.

The business world has become a lot more complicated. Changing business needs, increasing customer expectations and other changes require companies to be agile and nimble to react to them. More often than not, their responses result in job losses. Life-long employment or the 'iron rice bowl' has been a thing of the past, and I don't think it will ever return.

A new breed of workers is emerging – I call them the portfolio professionals. They are self-employed and offer their expertise and services to whoever wish to engage them. This pool of workers will eventually constitute a large proportion of the local workforce.Self-employment – be it by those who provide services to others or entrepreneurs who manage their own businesses - will increasingly be the norm.

Resumes will become redundant. More "LinkedIn"-type networking platforms will come into being. Besides a summary of a person's key competencies, each profile will come with a video clip of him or her doing a self-marketing pitch.

Technology-based tools will be used to evaluate the suitability of candidates for jobs. For example, sophisticated – it may be more of a norm in future – assessment tools will be used to make a hiring decision by evaluating the candidate's level of motivation, skills set and even personal values. Social media platforms like Facebook and Twitter may become primary sources of information about candidates.

The days of the recruiters and head-hunters may well be numbered.

Workplace

Going to the office to work will increasingly be the exception rather than the rule. Work will be done from home, at the cafe and anywhere instead of the office. With rewards and compensation being based on KPIs (key performance indicators), this workplace will increasingly be common. This likely change calls for a mindset shift and supervisors need to 'let go' and be much more trusting of their staff. In any case, the 'checks-and-balances' are in the deliverables.

Massive rental savings will be possible from relatively smaller-sized offices. Landlords of office units will have to deal with this major shift.

Vanishing jobs

Two Oxford University professors, Carl Benedict Frey and Michael A. Osborne, recently published a study report, which predicted that up to 50% of jobs in the US might become redundant. I am unaware of any similar study in Singapore. However, I am sure there will be jobs here that will vanish in future.

Massachusetts Institute of Technology economist David Autor suggested that jobs that consist of tasks that are repetitive and routine in nature are the ones most at risk of disappearing. While I agree, I am also of the opinion that some of the "repetitive and routine" jobs will be around for a while longer in Singapore at least.

Three examples I can think of are the 'kopitiam' table cleaner, road sweeper and personal assistant/secretary. Logically and objectively, the last role should have been made redundant, given that most bosses now write their own emails,

buy their own drinks and make their own travel bookings. The only reason why such a job has survived all these years is perhaps status symbol. "My PA Sherry will set up a meeting for us to discuss further" conveys a 'higher status' than "I will send you an e-meeting invite".

About a decade ago, many businesses stopped employing a receptionist to greet visitors. Instead, they provided a phone and a list of staff with their extension numbers. The visitor dialled the number of his host, who came to greet him at the door. The day will come when the receptionist, along with the secretary and personal assistant, will also disappear from the payroll.

Want to watch a movie? You go online to book your tickets and receive an email to confirm your booking, together with a digicode. You scan the code when you enter the cinema hall. The days of the ticketing staff at the counter and even those who help you scan the code will also disappear.

Bank counter staff will also be at risk, given the advent of digitisation.

What other jobs are at risk? It may be a shorter list if we prepare one with the jobs that are unlikely to disappear. Executive and career coaches could be included, along with doctor, dentist, lawyer and other professional jobs. But you will never really know. Not so long ago, recruiters were a panicky lot, wondering if their jobs would be taken over by online job portals. Fortunately for them, it turned out to be a false alarm.

Perhaps John Maynard Keynes' quote – written in 1930 – is apt here:

"We are being afflicted with a new disease of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come – namely technological unemployment. This means unemployment due to our discovery of means of economising the use of labour outrunning the pace at which we find new uses of labour."

On the flip side, new industries will emerge and have emerged. An example is that of "teleradiology", where radiologists receive digital images of X-ray and various test results, analyse them and provide diagnostic support to their counterparts and doctors, who may be located anywhere in the world and working in different time zones.

Challenges for Singapore

Unless we suddenly discover oil underground, human resource will remain the key resource that Singapore can depend on.

With an ageing population, Singapore will face unprecedented challenges, not just in business, but socially as well. Employers will have limited options that make business sense – they will have to extend the employment of qualified workers who have reached the statutory retirement age. I foresee that the government will have to introduce legislation to make this happen, which may not be a good thing for Singapore as this will dampen the spirit of a free economy that hitherto we have been operating under.

The possibility of Singapore having a relatively larger pool of workers who are structurally unemployable is real.

Knowledge and skills sets that are deemed relevant in the current business world may not necessarily be true given the constant changes. And technology will be the main cause. Structural unemployment happens when knowledge and skills set gained from past experiences become redundant and are no longer applicable. For example, the ability to write code syntax for creating Android apps is very likely going to be irrelevant at the wink of an eye – the job may well be taken over by computers.

From a business perspective, a visit to the ninth floor of Orchard Cineleisure will provide ample proof of this new reality. There rows of LAN gaming machines sit idle – the result of much faster Internet download speed available through optical fibre in homes – as fewer people now need to patronise such gaming outlets.

Workers must embrace the concept of investing in their personal development. Employers would have to continue to be creative in introducing schemes to support those who may not be able, due to financial or other legitimate reasons, to make such an investment. Co-payment of course fees could be one possible option. Other avenues, such as mentoring and on-the-job training, could also be considered. The problem is time – board members and shareholders are usually an impatient lot.

The NTUC has recently called on the government to consider the concept of a portable worker-owned training fund. With the government continuing to

play a key role, Singapore should have an adequate number of skilled workers (both local and foreign) to drive the much-needed productivity and GDP growth required for our economy. Bite the bullet it must, the current furore of "foreign talent taking away our rice bowls" will not go away. The challenge, therefore, is to strike a balance between locals and foreigners, failing which the added challenge of under-employment will worsen.

At the other end of the spectrum, the Economic Development Board (EDB) will experience challenges in creating sufficient number of jobs for the low-skilled and unskilled workers. New industries will have to be created – akin to what we had done with the integrated resort concept. This is easier said than done. Tough decisions will have to be made – as evidenced by the colourful and passionate debates that surfaced after the decision was made. EDB has been reported to be targeting the advanced manufacturing industry next.

Wage disparity will inevitably be created, leading to social divide between the 'haves' and the 'have-nots'. This is another serious issue that needs to be addressed.

The Workforce Development Agency (WDA) will be further challenged in having to introduce more job-specific training for workers, especially those who are low-skilled. Due to the longer-term implications of employment-related challenges for the government, WDA may have to be spun off as a separate ministry to address them, and report directly to the Prime Minister.

Being successful

It is useful to begin with the end in mind whenever we set out to do something. At the end of the day, working to earn a wage is a means to an end. We want to live a good, meaningful and purposeful life. In many respects, this represents success in life.

Being successful should ideally be defined by oneself. Having said this, however, societal expectations and pressure are inevitable. As far as possible, we should seek happiness in whatever we do. To attain this, we need to be passionate about what we do. In the years to come, my wish is for more Singaporeans to be able to take charge of their careers, and to live their lives the way they want to, as practically as possible.

For this to happen, we have to plan for our lives. The worst thing that can ever happen to any able-bodied person is to live a life that is of no consequence to others – I dare not even imagine how that might feel.

Experimenting with lab worms, lead scientist Dr Pankaj Kapahi from the Buck Institute of Age Research, Novato, California reported a synergistic five-fold increase in their life span. If human genes were to be similarly tweaked, we are potentially looking at a life span of over 500 years! This may be a far-fetched possibility, but looking at 150 years might be a real possibility. The implication here is that we are looking at extending the tenure of our active life span.

Many of us plan ahead as part of our corporate jobs. It would be really ironic if we do not plan for our own lives.

About the author

Paul Heng has been managing his boutique career and executive coaching services firm NeXT Career Consulting Group in Singapore for the past 16 years. It provides support to corporate clients in Asia. Paul has a portfolio career that allows him to pursue business development, voluntary work as well as fun activities. He is a past president of the Rotary Club of Bugis Junction and an active Rotarian. He is also a supporter and fund raiser for the Care Corner Orphanage in Chiangmai, Thailand. Paul is an avid writer who contributes regularly to the press and is a published book author ('Jump Start your Career', Prentice Hall).

As a Singaporean, Paul shares his views and expert knowledge with fellow Singaporeans on topics related to professional human resource, life/career planning/management, leadership coaching and customer service through various media channels. Besides contributing his ideas to this SG50 book project, he has a cameo role in the SG50 movie "1965". He travels extensively for business and leisure. He and his wife Jane have two adult children.

Envisioning Singapore as an Innovating Society

Basskaran Nair
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An innovating society is one that will vigorously try out proposed solutions to recurrent and future problems, making hard-headed and multi-dimensional evaluation of the outcomes. An innovating society, if the policy options after evaluation shows that the solutions need to be reformed, will move on to try other alternatives. Such a society has an inspirational discontent with the status quo, given the highly competitive world.

Most societies stagnate as they are not organised to adequately evaluate outcomes, and so they generally continue to maintain status quo or let it lapse, often due to political predicaments. In contrast, innovating societies like innovators are venturesome, enjoying the cutting edge, making possibilities a reality with execution capabilities, and always eager to bring about a dynamic city. One strength of such a society is the organisational mindset, with the methodology to regularly evaluate the policy outcomes.

Given this attitude of constant and critical evaluation of policy decisions, innovating societies punch above their weight globally. They are recognised as models to emulate. Their policies are valued, because of successful implementation, for potential adoption by other nations. An innovating society actively pursue policies with the long-term survival of the nation in mind. International accolades often cite that Singapore has turned grandiose vision of a global cosmopolitan city into granular execution of the grand plans. It has become one of the most liveable cities in the world and continues to be regularly attuned to being future-ready at every turn of the decade.

For Singapore, the starting points of the vision were hygiene-focused growth of the city in two areas - living conditions being clean, convenient, corruption-free and pollution-free, and a city with greenery and fresh air. Added to these hygiene factors are: a well-built environment with respected legal system; economic opportunities; an education system that supports an aspirational

society; people who are financially and socially-independent; a good public transport system; and a safe and secure place for people, particularly women and the young, to move around freely. As a nation, we have leadership that focuses on national security, building a military capability without being antagonistic to neighbouring countries. Because it is an innovating society, our little Red Dot stands tall on this Blue Planet of ours.

Successful early decades

Singapore's success story in the first five decades can be divided into two halves. The first half was premised on survival, building a nation from a diverse population, and creating economic growth to strengthen the sinews of a new nation. In many ways, it was experimental in its policy formulation and implementation.

The first two decades in particular were spent on integrating the people to build a nation. The founding leaders encountered migrants from several countries who pledged allegiance to their respective countries of origin, poor migrants whose intention was to return to their home countries. In the course of the decades, as Singapore prospered, the migrants only remitted financial support to their home countries, which were doing poorly, with regular trips to see family members. But they decided to sink their roots in Singapore. The government embarked on a planned and sustained communication strategy. Aneka Ragam concerts, multi-racial, multi-ethnic, multi-cultural, multi-lingual and meritocracy messaging helped to forge the new nation. There were almost monthly campaigns on birth control, health issues, public behaviour, clean and green environment and other policy issues. It was then dubbed as a campaign nation. However, these national campaigns gave hope of the long-term prospects for the nation. People developed confidence that life for them and their children would be better in Singapore. Together the migrants, rough-cut cluster of human capital, founded, forged and formed the "Stand for Singapore" narrative.

Measurement of past and future opportunities

In Singapore, there are several measurements to benchmark progress, reflect on the past for lessons, and look forward to review, redo and recast the policies. One is the annual National Day Rally speech, started by the nation's founding Prime Minister Mr Lee Kuan Yew. It's an honest appraisal of national issues and

the way forward with solutions to manage the problems. Another measurement is the Budget statement, which articulates the way money will be disbursed for solving present and future challenges that the nation will face. In addition, Special Committees are formed to address specific issues, for example how to snap out of a funk about the future during an economic crisis or recession. Sometimes measurement comes from the ground, with an activist group challenging past assumptions. A high-level panel or committee of experts will then be formed to redress the past policies and address the future. The recommendations by the committee are further scrutinised for implementation after Parliamentary debates.

Another way is to take stock at celebratory events. The 1984 "25 Years of Nation Building" commemoration of self-government since 1959 would be an example of such a review of and reflection on the achievements of the early decades. It was a measurement of our success over the early decades. Mr Lee Kuan Yew said that our critical success factors were multi-racial harmony, system of meritocracy (rewarding capability and hard work), fair share of the economic cake so that no section of the population is disgruntled, and honest and efficient government. These factors were also the Holy Grail for Singapore, and became the template for its future successes.

Within three decades, the middle class' share of total wealth rose steadily, along with national wealth, thanks to broader home and equity ownership, rising rates of ownership and middle-income growth. Money was used to finance better infrastructure, education and healthcare, factors that boosted the country's growth rate. There were concerted efforts to attract private investments. The various regulatory authorities, in particular the monetary authority, kept a close watch on exchange and interest rates and the national debts, strengthened the banking environment and managed the future debts in relation to GDP. The government ensured that the small country without natural resources would continue to grow its national reserves, which often exceeded its own expectations.

Inflexion points

By the third decade, with increased confidence the leadership narrative changed unfortunately and the people were described in terms like horses taken through the paces. The dominant leadership mindset and instinctive desire were to control everything, everywhere. The government's manifesto of leveling up, using the Swiss style of living as a measurement of future

success, was premised on confidence, capitalism and commercialism. The government had grand ideas like creating a shareholder society, for example, equity ownership by listing its assets like Singapore Telecoms.

The leadership took pride in key performance indicator (KPI) successes that measured Singapore based on global rankings and, as an unintended consequence, was a "harvest while you can" strategy. KPIs drove bureaucratic leadership into a silo mentality. The "fish ball stick" story (narrated by the Prime Minister during his 2014 National Day Rally speech following an incident involving a fish ball stick that was thrown on a grass patch but not removed because each government agency said it was not within its area of responsibility) revealed the underlying fault line – an administration that's self-centred and territorial. "What is my career prospect?" seemed to be more important than "What is good for the people?"

Consequently, the grand ideas were often not translated into granular execution. Singapore Telecoms was listed with a significant portion of the public being given shares but without a trading account. There were glaring policy missteps in almost all areas of public life — housing, transport, healthcare costs, education policies, immigration and ageing society. The "harvest while you can" strategy was seen by the people as being led by a greedy, gobbling and GDP-driven leadership.

Favouring GDP-driven growth, policies were skewed towards favouring foreigners at the expense of local residents. As economist Tan Keng Yam observed, foreign employment growth rate rose from a negative 6.3% in 2002 to 8% in 2005 to 19% in 2007. Wage growth was significantly below even the modest growth in productivity.

Another measurement of an innovating society is the use of political elections by the people to express their feedback on the government's performance. In Singapore, the policy missteps and "harvest while you can" mindset created negative equity for the ruling party. Some people expressed their dismay through the ballot box, when no heads rolled or no leaders took responsibilities for policy failures.

Looking ahead into the coming decades

As befitting an innovating nation, the government addressed the issues, after an honest appraisal of its performance, with alacrity and focus. In fact, it has been

the default option for the government to always be a nation that does not repose on successes but to be a government of reform. In Singapore's Jubilee Year, the leadership has recognised that going forward, it has to rewrite the narrative in chapters and not as footnotes for future generations. What will be the steps for a future-ready red dot?

The 2015 Budget speech captured succinctly the heart of an innovating society: to constantly review public policies and their impact on the people. The speech used the language of an innovating society - "reach the next frontier", "need a different motivation in our society" and "make innovation pervasive in our economy" are examples. At the fundamental level, restructuring the nation's economy and the people's aspirations cannot be a purely economic exercise, but a highly political process that involves a significant redistribution of wealth among various groups in our society.

There were creative solutions such as Workfare and the Pioneer Generation package, which is a comprehensive coverage of healthcare costs announced earlier. Silver Support Scheme, SkillsFuture and the gamut of policy inventiveness truly reflect an innovating society at its best. The policies paid greater attention to the poor to ensure economic equity and distributive justice, and to the lower middle class.

SkillsFuture could be transformational. More than two million people aged 25 and older will initially receive $500 in their SkillsFuture Credit accounts to spend on courses to develop their work skills. As individuals develop expertise and flair in their respective fields, it should engender a society that will make failure, getting up and going at it again acceptable. In this aspect, it is a "learning-trumps-knowing" approach since nobody can foresee the future. There was a focus on helping more voluntary welfare organisations (VWOs) to run their services.

A related perspective is that we must be prepared to put new technology into the hands of citizens, push the boundaries for innovation, and accept that the markets will continue to evolve and dictate the public's palate for technology and its use. In many ways, we are decoupling academic achievements to becoming a "un-college" nation. A country that pursues continuing education as a new way of managing continuous disruption, and for its people to manage their own careers, lifestyles and financial health.

In short, Singapore has, at the threshold of the next 50 years, started to think and plan for the "moon shots" as they are called in Silicon Valley. It is beyond the 10% increase. We are challenged to think of the ten times (10x) that requires us to do things in an entirely new way.

My wish list for an innovating society

One, *replace the Campaign Nation with a Nation in Conversation*.

In the past, persuasion to change, adopt and adapt to a new nation was necessary. For more than three decades, we were a campaign nation when government messaging management played a role in bedroom issues (like having babies) and boardroom polices (like productivity). Those core campaign messages also formed the Singapore core – law-abiding, implicitly absorbing meritocratic principles, strong sense of racial and religious bonds despite differences, and a melting pot that embraced core national norms.

Today, Singaporeans seek a richer public discourse and active popular participation. We expect policies to be crafted to benefit broad swathes of the public over time. We must, however, continue to confront as was done in the past the real problems and challenges the country faces. In place of the talk-down campaign strategies, we must have a nation in conversation; the policy makers and implementers in dialogue with their own diverse groupings. Our national conversation must be planned and sustained as was done for the national campaigns of the past; a new way of creating a Singapore core among new citizens and young citizens so that they too can "Stand Up for Singapore" emotionally.

Two, senior policy planners should know the groundswell.

In the earlier decades, feedback to the political leadership was from senior civil servants, politicians and grassroots leaders and there was an unstated intermingling between these 'feedback' groups. All saw the big picture of survival, and later significance, of Singapore in an ever-changing world.

Today, senior civil servants do not have the same connection and communication competencies as their former bureaucratic counterparts. Looking ahead, we should be governed along the lines of Swiss cantons or the Israeli kibbutz. Not the Swiss way of GDP growth but the canton style of governance, especially

on municipal issues for better and more granular execution. This also means engaging activism in Singapore. Activism is a worldwide phenomenon and has increased as a result of social media and a more vocal middle class. Senior civil servants, not just politicians, must learn to appreciate groundswell management of policies and proactively engage activists.

Three, step up the effort to integrate new citizens.

We accept that Singapore has been and will be a nation of migrants. Today, the profiles of the new migrants are no longer the same. They range from middle-class hardworking Asians from the region to tycoons and 'moneyed' professionals who are global in their outlook. Like our forefathers, they sought out Singapore for personal economic pursuits. The difference is that unlike the first-generation migrants, there has been little effort to integrate them before giving them citizenship. We must have a more vigorous programme to make the present new migrants think of Singapore as a home first. Instead, they have been tacitly encouraged to pursue their personal economic interests. Foreign talent, for example in sports like table tennis, have made no effort to know the lingua franca or be like Singaporeans – a people forged to be one nation through campaigns and continuous national education.

So the focus must be to integrate them first, otherwise they remain as economic entities to grow the economy but not as citizens. True, Singapore competes with other countries because the globalised world is being made up of "interconnected nodes" that include "elite" global cities like London, Singapore, Hong Kong and New York, and major national hubs such as Paris, Sydney, Frankfurt, Mumbai, New Delhi, Boston and Seoul. Yet Singapore cannot be compared to them because it is a global city-state that has three roles - a city, a state and a global entity - each merging with the other two to sustain the whole structure. Our Singapore core nurtured through the messaging of a campaign nation should remain the core focus of government policies and be central to the future chapters of Singapore.

Finally, we need a "What can I do for you?" culture in the civil service.

With innovation cycles being so short, we need a new breed of top management who not only should have a better ground feel but are also prepared to empower their staff to assess and meet the needs of citizens. Digital revolution is disruptive. Technology advances have encroached on tasks previously

considered too cerebral to be automated, including legal work and accounting. So the civil service should focus on service ("What can I do for you?") and less on authority ("How can I regulate?"), which can now be better managed through "apps" and other innovative ways. In short, top management must be thinkers and tinkerers, comfortable with real-time information to serve the people, meeting the demands of an activist citizenry, and be thought leaders for innovative ideas.

We all stand now at the threshold of history when the last of the founding fathers, Mr Lee Kuan Yew, left us. Our founding fathers left us with an innovating society. Against the backdrop of SG50, can we continue to be an innovating society, leaning on inspirational discontent for our nation's default options? Using the 2015 Budget as a guide, it is encouraging to see the younger leaders continuing to vigorously try out new solutions to recurrent and future problems, making hard-headed and multi-dimensional evaluation of the outcomes.

About the author

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Basskaran was conferred the Public Service Medal (PBM) by the President of the Republic of Singapore in 2010, for his distinguished service to the nation. In 1997, the Institute of Public Relations of Singapore (IPRS) nominated him as a Fellow. He was PR Professional of the Year 2004 and received IPRS' Lifetime Achievement Award 2008. His books include a series entitled 'From Main Street to Cyber Street – Changes in the Practice of Communication' that focuses on the role of new media in public communications. Besides his postgraduate education, he attended executive management courses, including those organised by INSEAD.

Singapore's Future Economic Landscape: Pursuing Growth or Protecting the Environment

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The pursuit of economic growth has always necessitated accepting some degree of impact to the living environment. Conversely, the preservation of the living environment will always involve forgoing some measure of economic growth. This is in line with the basic fundamental economic principle that every choice entails a trade-off, and the sooner and better a society understands this opportunity cost and gains, the clearer and easier for policy makers to make informed decisions. The tension between the two – the economy and the environment – often results in governments having to prioritise one over the other, and to allocate limited resources efficiently. Many would also argue that there is a clear limit to which natural capital, as in green spaces and forests, can be substituted for physical capital, as in buildings and infrastructure.

50 years of growth

In Singapore, economic growth has historically taken centre stage and has always been the backbone of the country's material progress. There were good reasons for this. In the early days of independence, Singapore faced existential challenges. There was no endowment of natural resources, the manufacturing base was small, the domestic economy was small, and the earlier-than-expected withdrawal of the British forces worsened Singapore's vulnerable position. At that time, the real income per capita, the amount of goods and services that could be purchased with the average income, was only about one-twelfth of what it is today. The unemployment rate was between 10% and

12%. That meant that for every 10 people looking for work, one (or slightly more) was unable to find any. The post-war population boom also meant that jobs had to be found for the growing number of young people. The late Dr Goh Keng Swee famously recalled: "In the first few years when I went home for lunch, I passed big schools and saw thousands of kids going home at 1 pm. I kept on worrying (about) where I was going to find jobs for them."

The emphasis on economic growth then can be easily observed from the policies adopted. In the late 1960s, Singapore shifted away from an import substitution strategy towards an export-oriented strategy. Doors were opened and red carpets were rolled out to attract foreign direct investments (FDIs). The Economic Development Board was set up and specifically tasked to bring in FDIs, a crucial mandate that has remained unchanged till today. Simultaneously, free trade agreements (FTAs) were actively pursued to expand Singapore's export markets. By the 1980s, unemployment was no longer a problem, wages were rising, and Singapore started restructuring the economy – from manufacturing of low-value products to developing higher-value knowledge-based industries.

Over the years of development, economic growth was, to a certain degree, achieved at the expense of the living environment. Rainforests and mangrove forests made way for industrialisation. Land constraints were alleviated through land reclamation. Rivers were dammed to create reservoirs. However, economic growth was not pursued with the complete abandonment of environmental concerns. Even then, it was recognised that Singapore's small geographical area meant that the living environment was interminably tied up with industrial activity. The Anti-Pollution Unit and the Ministry of Environment were therefore formed in 1970 and 1972 respectively. The broad paradigm was that while economic growth was paramount and had to be pursued, some consideration would be paid to the living environment. An example of this was the land zoning – into residential, commercial and industrial areas – that was carried out. More pollution-causing industries were located as far away as possible (Jurong and Tuas Industrial estates) from residential areas, to minimise and mitigate the impact of pollution. Also, standards on waste and pollutant discharge were enforced from the start, a policy directive uncommonly observed in developing countries. Other measures adopted include environmental monitoring, setting up of environmental legislations, developing proper solid waste and sewerage systems, and promoting public awareness. The planting of trees and the general greening of Singapore, which

earned it the reputation as a "Garden City", were also clear efforts to preserve the living environment.

Shifting paradigms

In more recent years, with Singapore's increased affluence, this policy stance seems to have become less acceptable to the population. There clearly have been calls to consider reprioritising growth and paying even more attention to the living environment instead. In 2010, a widely-debated joint study[1] by the University of Adelaide and the National University of Singapore reported that Singapore ranked the highest (worst) amongst 179 countries in environmental impact[2]. A series of recent public discussions[3] also highlighted the growing sentiments and concerns regarding green spaces, global warming, environmental preservation and conservation, and sustainable development. Generally, the non-material aspects of the quality of life have gained more prominence as comfortable income levels become the norm. To a large degree, this is unsurprising. As incomes increase, the marginal utility of income (the addition to welfare that extra income brings) decreases, which tips the scales in favour of non-income determinants to welfare, such as the living environment.

Envisioning the future environmental landscape

So what beckons Singapore's future environmental landscape?

'Economists' and 'predictions' are two words that, when combined, induce polite scepticism at best and outright cynicism at worst, the latter being the more common response in the post-2008 global financial crisis world. This current sentiment is very nicely captured by the late American humorist Evan Esar: "An economist is an expert who will know tomorrow why the things he predicted yesterday didn't happen today."

As such, it takes a certain degree of courage to try to envision what Singapore's environmental landscape would be in the far future. Fortunately, the far future is sufficiently distant for both not to be too bothered if the predictions do not pan out. This gives us courage to boldly make the following claims.

In the energy sector, three developments will converge to create two shifts in the way we obtain energy. The first shift will be in terms of the composition of our fuel mix. Currently, the bulk of Singapore's fuel mix comes from natural gas piped in from Malaysia and Indonesia. However, with improvements in

technology to harness and store electricity, we expect to see a greater reliance on renewable energy, specifically solar energy. Singapore is well suited for solar energy given the perennial sunny climate. Prices of solar panels have also fallen dramatically since China's entry as a producer into the solar panel market. The obstacle that has prevented thus far more widespread adoption of solar energy has not been that of price, but rather of dependability – the difficulty of storing cheap solar energy produced in the day for use at any time. Hence, as electricity storage technology improves, we foresee a shift away from natural gas towards greater use of solar energy.

The other development that will drive the shift in our fuel mix away from natural gas is advancement in clean technology regarding burning of coal and shale gas extraction. Coal and shale gas are very similar in that both are abundant and therefore extremely cheap. However, concern for the impact they have on the environment has limited their growth. For shale gas, the concern is over the pollution caused (such as ground-water poisoning) in the extraction process known as 'fracking', as well as recent scientific findings that the process may increase the probability of earthquakes. For coal, the concern is over the release of large amount of carbon emission when it is burnt. With technology that mitigates pollution from fracking and other natural disturbances, and improvements in carbon-capture technology, the pollution-causing aspects of both fuels will be addressed and we expect to see a migration towards these cheaper energy sources. As things stand, Singapore is already exploring importing shale gas from the US.

The third development is the trend towards a more cooperative world as our neighbours become prosperous. As the region's growth accelerates from greater trade and investment links, friendlier ties will enable the full implementation of a smart energy grid with every ASEAN nation plugged in. This will allow for a greater stability in the electricity supply as energy deficiency in one country can be made up for by energy surplus of another, as well as greater efficiency as more energy will be produced by the producer with the lowest marginal cost. For Singapore, this will also mean a general shift in energy generation from internal to external sources.

Policy-wise, we expect a broadening of markets in which the economic principle of taxing negative externalities (costs to third parties that are unaccounted for) are applied. A good number of these taxes are already in place – cigarettes are taxed for the health cost imposed on passive smokers; road usage is taxed

(via the ERP) for the congestion caused; and there are taxes on car emission because of the pollution created. For some existing markets, the scope of these taxes will be expanded to include the whole market. For example, to deal with congestion, every road will be priced differently. Smart gantries will adopt dynamic pricing of roads where the price of using a particular road would depend on the level of congestion on it – the greater the congestion, the higher the price.

For other markets, taxes will be increased or introduced to correct for other externalities such as those related to water consumption, waste generation and possibly even noise creation. Amongst the new taxes, carbon taxes to mitigate global warming would have the furthest-reaching impact since it would be the first (and possibly only) tax on a 'universal' externality (all economic activities result in some degree of carbon emission). In summary, Singapore will move towards a state in which all externalities are internalised. Of course, taxes are not the only policy tool. Complementary policies will also be developed for better solutions to the problems.

In the case of climate change, while carbon taxes will help reduce the carbon emission and slow down global warming, adaptations will be made to accommodate the reality of an already warmer world. Existing policies such as increasing capacities of drainage systems, higher building bases to prevent flooding and regulation on coastline development will be expanded. Buildings will be built further inland in response to higher expected sea levels and land reclamation may be curtailed until it becomes clear that reclamation does not contribute to flooding.

Similarly, for waste management, policies will be developed to complement taxes. Aforementioned warmer relations with our neighbours will enable Singapore to lease land from Malaysia and Indonesia for landfills for non-toxic waste. Of course, the cost of leasing land will trickle down as higher waste disposal fees for consumers. This will, in turn, incentivise waste reduction and greater recycling. On a related note, new technology will allow the current offshore landfills that will certainly be full in the future to be developed as usable land for industrial or even residential purposes.

For water, higher taxes to reduce usage will solve the demand-side issue. On the supply side, improved desalination technology would make large-scale desalination feasible for Singapore. At the same time, NEWater technology

will become sufficiently advanced for NEWater to become a cheap and abundant water source. Between the two, Singapore will finally achieve 90% water self-sufficiency.

Regarding road congestion, expansion of the ERP will be accompanied by substantial improvement to the public transport system to encourage a further switch away from private car usage. Great investment will be pumped into developing a public transport infrastructure that is cheap, efficient and, most importantly, comfortable.

At an even higher level of policy making, there will be a fundamental shift in the way we think about balancing priorities. Instead of the past guiding principle, which sought to maximise economic growth within the constraint of not going below the minimum acceptable living environment, we will adopt a more holistic optimisation of welfare. This recognises that society's welfare is neither static nor solely dependent on economic well-being and therefore requires constant adjustment of policies to achieve the optimal combination of economic and non-economic factors to maximise overall welfare.

This fundamental paradigm shift will also influence Singapore's population size, in that policy will be guided by the concept of an optimal population that can maximise the quality of life. The size of the optimal population will be dynamic and change according to the contributions of material and non-material factors to the quality of life. The same thinking will also guide the amount of environmental goods such as green cover that is provided.

To facilitate the prioritisation of factors deemed important, systems will be established to elicit the public's preference for environmental goods. One part of this would be requiring all proposed public projects to be accompanied by environmental impact analyses (EIA). EIA has not been adopted thus far primarily because the valuation techniques used to put a monetary value on environmental goods have not been robust. Also, Singapore's early priority had been survival, which precluded 'wasting' resources on EIA. However, over the next 30 to 50 years, the combination of increasingly developed robust valuation techniques and the shift towards more holistic welfare optimisation will promote the use of EIA. We would also have had the chance to learn from the experience of other countries in the region that have adopted the practice.

Finally, since the potential haze season is still upon us perennially, we make a final tongue-in-cheek prediction about haze in the far future – it will definitely

still be around since fire during the hot and dry season is only natural as is the continued impact of the El Nino years. The only issue is whether man-made factors worsen or mitigate it. We would safely predict that because of all the earlier and ongoing efforts by the governments in the region, this perennial haze is bound to decrease substantially by the year 2065.

Singapore's environmental landscape in the far future may not be quite a different one from today, but certainly a dynamic and changing one that utilises modern technology and pragmatism as it has with its cost-benefit analysis (CBA) and efficiency-based decision-making encased within good governance.

Moving forward

The fundamental assumption underlying these projections, however, is that income levels in the far future will continue to be sufficient – the material aspects of life are satisfied, such that people have greater capacity and financial ability to care for the environment.

Singapore has no doubt come a long way from a backwater country very much dependent on entrepot trade and bounded by many constraints, to the modern metropolis and economic powerhouse it is today. Nevertheless, it cannot be taken for granted that Singapore will maintain this position into the future. This is because Singapore, with its very open economy, has to contend with the ever-changing external and internal environments. Competition from countries in the region, dynamic trade flows, and changes in the large economies of the United States and China will continue to impact Singapore significantly, especially given Singapore's small domestic market. Rising business costs (rents and labour costs) could potentially drive FDIs away from Singapore to regional countries. Singapore's role as a transportation hub might also be threatened – with increasingly lesser need for technologically-superior airplanes to stop over at Singapore, and with global warming opening new maritime routes that bypass Singapore. Should incomes start to fall, one may see a regression, whereby there might be a reduced impetus to protect the environment, and a returned focus on income and employment stability.

To ensure that Singapore will eventually have the necessary ability to repair and enhance the environment even in economically bad times, it is imperative to adopt and sustain sound and pragmatic environmental policies now. Such policies would include expanding the use of market solutions to solve

environmental problems, pursuing waste reduction, taking stock of used and the remaining environmental assets, pricing green goods, developing green accounting, employing appropriate and inclusive CBA, setting and re-adjusting environmental baselines.

In this era of diverse opinions empowered by the Internet and social media, working with stakeholders and making them part of the solution is another important characteristic of sound environmental policy. Even a well-intentioned and well-planned project can fall apart if it lacks popular support. Prior consultation with the general public can minimise the risk of ex-post unhappiness and increase the likelihood of reaching an acceptable and robust solution.

Lastly, innovating and adopting green technology is warranted in the long run. The endless possibilities of technological advancement has the potential to alter the current relationship and trade-off between the economy and the environment, freeing us from our past constraints, and propelling us in ways we would never have imagined.

(This chapter is an expansion of an earlier article in The Straits Times of 29 October 2014, entitled "Dynamic future in power generation".)

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Professor Quah is frequently invited to give keynote presentations internationally and his views are often sought by both local and foreign media. He advises the Singapore government on the environment, health, cost-benefit analysis and infrastructure project evaluation, as well as PricewaterhouseCoopers and Gentings International. He is also a Review Panel member for the Bill and Melinda Gates Foundation project hosted by the Overseas Development Institute, London and a Technical Reviewer for the National

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Endnotes

1 Bradshaw CJA, Giam X, Sodhi NS (2010) Evaluating the Relative Environmental Impact of Countries. PLoS ONE 5(5): e10440. doi:10.1371/journal.pone.0010440

2 These findings were based on a proportional composite environmental index. Regional countries such as South Korea, Japan, Thailand, Malaysia and the Philippines were similarly ranked among the highest.

3 E.g., Our Singapore Conversation for the Green Community (January 2013), Our Singapore Conversation on Green Spaces (November 2013), Singapore Sustainability Symposium (2014)

Singapore Technopreneurship Development in Next 50 Years

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with wife Loh Wan Fei and
daughters Hooi Ren Yi and Hooi Ren Syn

In the book 'The Grand Master's Insights on China, the United States and the World', Mr Lee Kuan Yew, who was born in 1923, related that as a young boy, it took him an hour to travel from Bedok to his grandfather's rubber estate in Chai Chee. Today, the Maglev train that runs from Pudong airport to Shanghai can take you to a destination that is 440 km away within an hour. If we think this is an amazing speed, we need to think again. According to a Discovery Channel documentary, if the Maglev train were to be put in a vacuum tunnel, without the drag and friction, its technology could enable it to travel at 15,000 km per hour. If such a tunnel were to be constructed between London and Singapore, an hour's ride would be more than sufficient. This is just an example of how amazing technology can develop. While changes in the last 50 years have been breathtaking, it is almost unimaginable to predict what the world will be like in 2065. However small an attempt it may be, it is better to try to envision what will happen over the next 50 years than to just put a blanket over our heads and hope for the best. This essay aims to look at not only the what, but also the why and how of Singapore technopreneurship (or technology entrepreneurship) – in the light of an ever-changing landscape, where the speed of change has already snowballed and will grow not incrementally but dynamically and disruptively.

"I was awoken by an alarm in a chip that was embedded in my body. Soon, a robot appeared with my face wash and oral care equipment. All I needed to do was to position my face on that device and open my mouth. Lo and behold, my teeth were flossed, brushed, rinsed and my face was cleaned with a cloth that was precisely positioned to ensure all parts of my face were covered. I quickly changed into my clothes, which were decided by an algorithm that selects my outfit based on the type of activities I had lined up for the day. As I engaged in

the various activities, I was mentally humming with the background music that was selected by my PAD (personal assistant device), based on my mood that it accurately detected at that point in time. [With all its technical perfections that sound just too good to be real, I'd rather go for my periodical concert performance where the once-in-a-while off-key human errors reflect a more down-to-earth reality]. My choice of breakfast had been decided by a system that was linked up with my medical records and the historical data of my food choices. The temperature of my coffee was fine-tuned exactly to my taste buds. I decided to go to my office this morning, notwithstanding that it is a Sunday (work days are not determined by the day of the week, but by the work patterns of the industry), instead of working at home. Of course, the office I will go to has already been decided. At a time when so many decisions have to be made on a daily basis, I like to skip making decisions on small matters such as the clothes to wear or the food to eat. I do not have one fixed office – but instead traverse between various places based on my meeting schedule. Of course, the meeting could also be facilitated by technology, but this morning, I decided that a face-to-face meeting would be the most effective. I will meet my business associates at an alfresco café, since its high-speed wireless connection enables me to access all the documents stored on the cloud. At night, I will wind down the day with music chosen according to my mood, with the goal of helping me relax into an undisturbed sleep."

Welcome to Sunday, 9 August 2065. Although I am getting on in years, medical advances have enabled me to keep my body in good working condition, aided by various equipment that allow me to have an adequate level of mobility and flexibility. Convenience and efficiency have become the fundamental basis of all activities, paving the way for more time to be spent on innovative design and creative thinking. The push for disruptive activities is prevalent; no longer are we focused on simply pushing boundaries. Instead, we strive to change them.

What is technopreneurship?

Imagine how the above scenario could happen if not for technopreneurs – the innovators and catalysts of such changes. They are the ones who are able to identify or create technologically ground-breaking opportunities, source and manage resources to execute on ideas, and create value for customers over their competitors. They may be the technologists who invent the products, processes and information technology, which enable various possibilities to

become reality. They may also be the non-technologists, the business people who are able to cleverly leverage on technological innovations or market technological services and products built by the technologists. They could also be both - technologists with an eye for business opportunities, or businessmen with a background in technology-related fields.

In short, technopreneurship is entrepreneurship on steroids – entrepreneurship infused with technological innovations that can leapfrog existing business products, practices and processes.

Why is technopreneurship important for Singapore?

Of all countries, those without the endowment of natural resources will need technopreneurs even more, for there is no other choice. To ensure its very survival as a country, let alone growth, Singapore has to leverage on whatever it can. Since independence, it has continuously transformed itself to anticipate and respond to changes in the environment. As what former CEO of General Electric Jack Welch said: "If you are not one step ahead, you are two steps behind." This rings true for any city-state. Amongst various reasons, what Singapore has achieved today is an amalgamation of attentive economic policy and its move to rise up the value chain of production and services. What Singapore needs for tomorrow, however, is to push the boundaries of its productive capacity, and this is where technopreneurship comes into play.

Singapore's demographic composition for a small and ageing population has forced it to rely heavily on foreign immigrants and expatriates who contribute to the society at all levels, from lower-skilled workers to top-tier talent. As the country strives towards achieving high economic growth, choices have been made to continue to increase Singapore's immigrant pool, with the aim of helping it to reach its growth targets, among other goals. This has led to much public debate regarding the trade-offs between economic growth and other issues like infrastructure constraints. While technopreneurship may not deal directly with political matters, it can play a role in solving related problems and improving the standard of living of a society as a whole. The recent introduction of taxi-booking mobile applications such as GrabTaxi, as well as those by foreign players like Uber and Hailo, is just one example of how technology start-ups are helping to improve processes and increase the efficiency of the transport system. Such innovations and new players challenge

conventional practices and norms and no doubt generate various controversial issues that need to be addressed. Other examples include websites that help users to make reservations in advance and avoid waiting in long lines at popular dining places, such as Chope and Hungrygowhere. The inevitable challenges that plaque a continuously developing society cannot be ignored and technopreneurs have already recognised this.

Being a tiny country that has to plug itself into the regional and global networks, Singapore's size is a double-edged sword to its success. Its small size has enabled it to appear non-threatening to most other countries, and has facilitated the willingness of other countries to effect a continuous transfer of skills and technology. On the other hand, being small and externally-dependent, it is also highly vulnerable to global and regional economic shocks. Building up self-reliance is especially important to Singapore with uncertainty in the global economic landscape, and one way for Singapore to do so is to continuously innovate and adapt to changes. Technoprenuership, with its emphasis on disruptive innovations and agile processes, will help in the push towards an adaptive economy.

While the challenges that Singapore faces now and in future have defined a need for technopreneurship, the country also has certain advantages that can justify its role as a technopreneurship hub. Technological hardware and software change at a rapid and dynamic pace, which is in line with Singapore's focus on continuous learning. With a disproportionate share of the country's leaders and citizens educated in the best institutions in the world, Singapore is well poised to learn and innovate within the technopreneurship landscape. In fact, it may be argued that developing a strong technopreneurship sector is nothing short of critical for engaging and retaining top talent who would otherwise leave the country for the greener pasture of the likes of Silicon Valley. Socially and culturally, being at the crossroad of the East and West, Singapore has a society that fosters diversity of ideas. It can capitalise on the superior technological strengths of Asian giants such as Japan, South Korea and China, while leveraging on the Western outlook of fostering open idea generation and entrepreneurship. In fact, its strategic positioning has attracted and will continue to attract foreigners who are likely to contribute to the technopreneurship scene in Singapore. They include Skype co-founder Toivo Annus, who has already made notable investments in Singapore-based start-up companies, and Eduardo Saverin, co-founder of Facebook.

Singapore as a technopreneurship hub

As a forward-looking nation, Singapore has long appreciated the need for developing a vibrant technopreneurship scene. Back in 1991, the National Science and Technology Board (now the Agency for Science, Technology and Research) had a US$1 billion Technopreneurship Innovation Fund to push for Singapore's technopreneurship initiatives. This interest has continued to the present day, as seen in government-led initiatives such as the commitment to invest $16.1 billion in research, innovation and enterprise (RIE) from 2011 to 2015, with this sum likely to increase further. In addition, numerous start-up grants and schemes are available, including the Early Stage Venture Fund run by the National Research Foundation to partner with venture capital firms to invest in start-ups on a one-to-one basis, and Accreditation@IDA, which aims to help start-ups to obtain contracts with bigger companies. Most recently, a new start-up facility named BASH (Build Amazing Startups Here) was launched to serve as an integrated start-up space, boasting a prototype lab and community networks.

No government can, nor will want to, claim all the credit, as the private sector has also contributed immensely to the development of technopreneurship. There is a growing number of highly-active venture capital firms and start-up incubators such as Rakuten Ventures and JFDI, which not only provide the funding and mentorship required to groom technopreneurs but also help to increase the interest in start-up companies among Singaporeans as a whole. Local bank DBS has also launched a venture debt for technopreneurs to provide financing for technology start-ups in their growth stages. Consequently, the number of technology-related start-ups has also burgeoned, and a handful of technopreneurs have already managed to clinch international deals. In 2013, venture capital deals for Singaporean technology firms amounted to a total of USD 1.71 billion[1], placing the country ahead of Hong Kong, Japan and South Korea.

While local companies might have been associated with traditional family-run businesses in the past, such a perception is changing. Hence what we see today may well be just early signs of a Singapore technopreneurship volcano. In 2014, Singapore had around 160 Internet-related firms for every million inhabitants, putting it ahead of countries such as Spain and Netherlands[2]. At the rate that interest in start-ups is growing in the country, complemented by the increasingly profound impact that technology has made, it may not be overly ambitious to say that the technopreneurship volcano could erupt within the

next 10 years. Which industries within the technopreneurship ecosystem will experience a larger ground-shaking effect may be less predictable. Two of the largest venture capital investments made in 2013 were in e-commerce fashion start-ups Zalora and Reebonz[3], reflecting the huge potential e-commerce has. The e-commerce trend is likely to continue. For example, SingPost has set up SP eCommerce to provide integrated e-commerce solutions. Other industries likely to flourish are those that are able to capitalise on Singapore's social, geographical and cultural comparative advantages. Start-ups related to big data are already discovering the value of applying analytics insights to various industries that have a high growth potential in Singapore, such as healthcare given the country's ageing population. The country's strategic positioning between Western and Asian markets will also allow data analytics companies to play an integral role in providing insights into Asian markets that are of value to Western companies, and vice versa.

Sustaining technopreneurship

It cannot be assumed that the changes seen in technopreneurship development in Singapore today will continue in the future. In order to ensure its continued development, it is essential for Singapore to nurture an internal technopreneurship sector akin to the Silicon Valley in the US.

This will require three key factors: engaging and retaining top talent; supporting the technopreneurship ecosystem; and changing mindsets.

Engaging and retaining top talent

At present, a key barrier to attracting technopreneurship-related talent to Singapore is that the technopreneurship environment is still at a relatively early development stage. While echnopreneurship giants like Google and Facebook have offices in Singapore, their key product development work remains centralised in Silicon Valley. This means, for example, that many bright software engineers who graduated abroad may not come here to work because they can't find sufficient opportunities that provide the level of intellectual challenge and growth they are looking for and which may be available in the US or elsewhere. If Singapore can shift towards becoming a more significant hub for programming, product design, branding and other key areas, talent who come to Singapore to work are likely to develop their own technopreneurship ideas in the country later on. Given that great ideas

and innovations may be stimulated at the crossroads of various disciplines, talent to be attracted and retained should not just be confined to technology but other fields such as the arts.

In addition, Singapore should continue to nurture and grow talent through education and training. Investing in education, such as through the setting up of the Singapore University of Technology and Design as well as the introduction of entrepreneurship-focused programmes in local universities, has been a good start. It will be important to ensure that the quality of education is top-notch and that students are able to follow up to develop the advanced skills they need. While Singapore has some specialised educational institutions that provide a good array of options to cater to specialist interests, including the Sports School, School of the Arts, School of Science and Mathematics, School of Science and Technology, and NUS High School of Mathematics and Science, it may want to consider establishing a School of Creativity, Innovation and Enterprise or even up to the university level, like the Singapore Management University for management and business.

Another consideration is that given the recent backlash on gender inequality within Silicon Valley, perhaps a different approach Singapore can take is to nurture more female technopreneurial talent.

Supporting the technopreneurship ecosystem

Beyond talent development, Singapore should continue to further support other key parts of the technopreneurship landscape, including idea incubation, funding, training and mentorship, which it has already done. Such hard and soft infrastructural development not only includes the business aspects of the ecosystem, such as securing interest from angel investors and venture capitalists, but also ensures that technological innovation is strengthened by access to information, product support and feedback. Just as how a substantial amount of effort has been placed on attracting foreign direct investment from large multinational corporations, Singapore needs to ensure that the effort to attract international venture capital and incubators is sustained so as to build a stronger technopreneurship network system.

Changing mindsets

It is more likely for Singapore technopreneurship to have an enduring success if, at the start, an endearing culture can be imbued that will motivate its

population to want to develop an enterprising mindset. This involves moving away from the traditional focus on job security and wealth accumulation, and creating a hunger for innovation and impact.

The four 'Ps' of the entrepreneurial spirit would be a helpful driver and these are:

- Purpose – make a meaningful difference to humanity;
- Passion – do what you love to do, love what you have to do;
- Perseverance – when the going gets tough, the tough gets going; and
- Principles – without integrity, all else falls apart.

Hopefully with these, the new generation of Singaporeans will grow up aspiring not only to be doctors, lawyers and bankers, but innovative technopreneurs who will help to create not just a better Singapore but a better world for all.

What the future of Singapore technopreneurship could look like

What the future of Singapore technopreneurship could look like will depend on various factors. Not least of all will be the changes in the technological landscape. Based on the Chua Thian Poh Public Lecture that was organised by the Nanyang Technopreneurship Center in March 2015 and delivered by two eminent Korean speakers, Professor Lee Sang-Moon, University Eminent Scholar at University of Nebraska, Lincoln and Dr Lee Sang-Chul, Vice-Chairman of LG Group, changes in technology in future will be mind-boggling. According to Professor Lee Sang-Moon, the evolution of human development has seen a movement from a hunting and gathering economy to an agricultural revolution to an industrial revolution to a digital revolution and to a convergence revolution where economics is now more of a 'convergenomics'. In Dr Lee Sang-Chul's view, the network of information and network of machines we talk about today may soon be displaced by a network of thinking machines and later in the future by a network of brains where machines may well dominate man.

With such rapid changes taking place, the goals for the next 50 years of technopreneurship development in Singapore should not be limited merely by its current trajectory. If a small country could have evolved from a trading port to a developed nation regarded highly by the international community, a vision to become one of the top three technopreneurship ecosystems in the

world to leverage on continuously transforming technologies should not be dismissed as an idealistic dream. In a study on the most innovative countries in the world conducted by INSEAD in 2014, Singapore ranked seventh, trailing only four places below the top three countries, which were Switzerland, UK and Sweden. In a rapidly growing Asia, where consumers are leapfrogging to mobile phones without first having land lines, Singapore's position as one of the most developed nations in the region will allow it to capitalise on its geographical proximity to these countries and provide products and services that can reach about three billion people. The next 50 years hold immense potential for Singapore's technopreneurs not just because technopreneurship is becoming ever more important in Singapore, but because it will matter a lot to the world.

Although it is currently not surprising to see many technopreneurs from anywhere in the world, including those from Singapore, deciding either to uproot to or stay back after their overseas studies and begin their ventures in countries where the technopreneurship scene is more developed, Singapore should aim towards capturing this trend in the next 50 years. In the future, it should no longer be a surprise to find not only Singaporeans prioritising to start off their ventures in this country over others, but also more technopreneurs from other countries establishing themselves here. While the ecosystem will perhaps still consist of a mixture of foreign and local resources, investors and mentors, it should no longer be so reliant on foreign talent to sustain the system due to a lack of interest among Singaporeans. Instead, the reason why Singapore is reaping the benefits of a diverse pool of individuals, both from within and outside the country, should be because its technopreneurship ecosystem has been designed in such a way that cross-cultural fertilisation of ideas gives the ecosystem its unique advantage over other countries.

Fifty years from now, technopreneurship should not be seen simply as a government-led and policy-driven approach to the nation's economic development, nor should it be viewed as an exclusive sector of the economy where a few passionate innovators converge to commercialise their ideas. Instead, it should become embedded as a way of life amongst all and as a form of disruptive thinking that is prevalent among both technopreneurs and consumers of technopreneurs' products. Technopreneurs now and in the future will constantly engage in thinking beyond the boundaries of frameworks and structured processes. What is more, they will not take success for granted but instead recognise that being successful once is just one of the many steps in

building a sustainable company. Consumers, on the other hand, matter more than ever in contributing to the improvement of technopreneurship. With social media and crowd-funding tools, consumers are no longer just targeted objects but voices that shape the ecosystem in a continuous feedback loop. In 50 years' time, consumers can also be the ones who are leading change and disruptive thinking,

Conclusion

With rapid and dynamic changes not just in technological fields but also in the demographic, economic, political and socio-cultural areas, no country, and more so a city-state that is somewhat hampered to a large extent by a lack of land and resources, will be able to survive, let alone grow, in future if it does not take the necessary measures to adequately face such realities.

For Singapore in particular, a question is whether it will still be around in 2065, let alone whether it will continue to remain as a role model for other countries' development. Its very survival and success will have to hinge on many dimensions, not least of which is its economic status and standard of living.

To survive and to thrive, there is no option for Singapore but to leverage on technopreneurship to be a key, if not the key, pillar of future growth. No doubt Singapore can expand in other ways, such as growing through an external wing or possibly acquisition of land use rights from other countries. However, when even large countries need to turn to technopreneurship, more so for a country like Singapore where the longest distance between any two points is no more than 50 km.

About the authors

When the author was invited to contribute a chapter on Singapore's future technopreneurship development for this SG50 book, he thought that it would be more meaningful to do so with his family. Whether it is Singapore 0 or Singapore 50 or Singapore 100, technology will always change, but he hopes that some fundamental human values such as the family as a basic human-socio unit will remain. Though none of them is an engineer or technologist, they recognise that no one can ignore technology and its significant impact on our lives in many ways. Collectively, coming from two different generations with diverse disciplinary backgrounds and with some experiences unique to each of the co-authors, writing a book chapter together has

provided yet another rich opportunity for the family of four to interact and understand each other better. Sharing their ideas about our nation's future in an area that is important to Singaporeans is the family's way of contributing back to Singapore and, through Singapore, to the world.

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Endnotes

1 http://www.dbs.com/newsroom/DBS_launches_venture_debt_for_tech_start-ups_in_Singapore

2 http://pivotal.vc/densest-startup-ecosystem-world-singapore/

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RE-IMAGINING SINGAPORE AS A GRACEFUL NATION
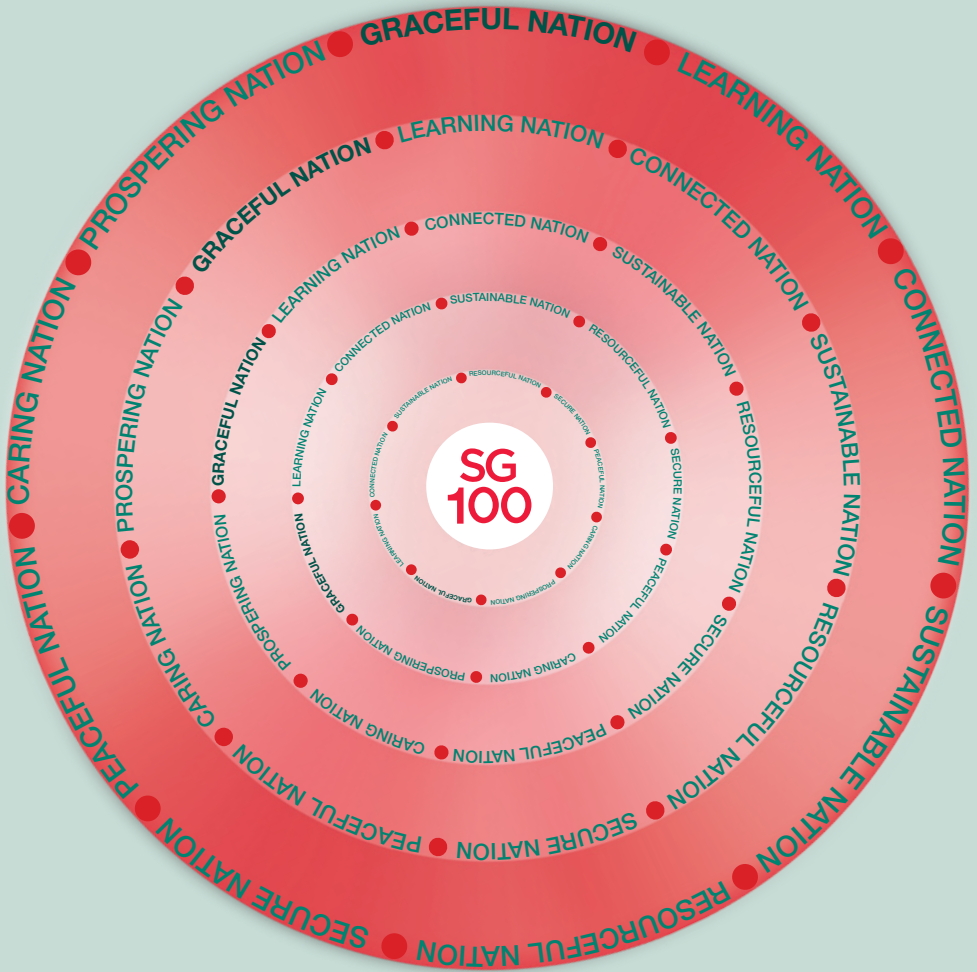
"We are also spending considerable sums for the arts, which will create a more gracious society." (1995)

"'Ping-pong' (table-tennis) is very good. It demands a quick eye and a quick reaction. But other things are also necessary – gymnastics, weight-lifting, boxing, basketball – all the things that make for a nation with vitality and with the grit and the mettle to fight for its survival…. They are good for Singapore, for you, for me, for they will breed a rugged generation to ensure our survival." (1965)

Lee Kuan Yew

Evolution of the Arts and Singapore's Soul

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In the decades of rapid economic growth following its political independence in 1965, Singapore was often described as a cultural desert, a soulless city that housed an industrial society of docile citizens preoccupied with economic production and consumption. They valued conformity, stability, order and then – as they entered the ranks of a lifestyle-focused middle class – material comfort and a narrow range of personal accomplishments. A paternalistic, administrative and often harsh state protected, provided and decided for this depoliticised citizenry in a relationship that was transactional (and some might argue infantilising), rather than transformational in nature. Though clearly a one-dimensional caricature, this image of Singapore was not too far away from the truth.

In such circumstances, it is not surprising that the state regarded the arts in at least one of three ways: as a potentially useful vehicle of socialisation and nation-building; as a radical kind of activity that could subvert the status quo; and as a luxury that vulnerable and still developing Singapore could not yet afford. These were very limited and limiting visions. Since the late 1980s, however, Singapore has witnessed gradual liberalisation in social, cultural and – to some degree – political terms. Singapore was undergoing transformation from a global city into a creative city, and now a smart nation with technological and sense-making sophistication that would rival the very best in the world. While these developments have opened up many new possibilities for a flourishing of the arts, they continue to be limited and limiting visions.

In this essay, I use the metaphor of the "soul" to think about the arts in the national context, focusing specifically on film and theatre. I highlight certain facets of the arts and what they have come to mean in and for Singapore. The metaphor also helps me to point to what I personally wish for the arts in Singapore as we move from SG50 to SG100.

The Singapore soul

The arts, like the soul, can be thought of as the nation's essence. The arts can and often do consider and express – among other things – questions of who we are (identity), what we hold to be important guides for making choices in our lives (values), and where we want to go and what we want to become (purpose). Through the arts, these questions can be presented and addressed in all their glorious variety, scale, contradictions, mutability, figurations and slipperiness.

In this way, the arts are to be contrasted with propaganda, which seeks to express a singular, totalistic, collective and inflexible account of national identity and purpose that is reductive, unreflective and instrumental towards such social, political and economic goals as unity, mobilisation and growth. As the essence of the nation, the arts can instead sustain a vital and abiding tendency to question, search for answers and pose new questions, thus avoiding the kind of stasis that really amounts to a cultural and moral death. By challenging orthodoxies and conventional wisdoms that result from cowardice, insecurity, laziness, prejudice, hubris, groupthink, contentedness, superficiality and habit, the arts – like the soul – can keep us alive. In this sense, the arts are the animating and life-giving principle of the nation.

Against vulgar materialism

Just as the soul is often contrasted with the body, the arts can be contrasted with the material reality and necessities of life that tie us to hierarchies, rules and the compulsions that limit what it really means to be free, thoughtful and autonomous selves. In some philosophical and metaphysical dualistic traditions, where the soul is not only regarded as absolutely distinct from the body but also superior to it, an obsession with the needs and gratification of the body – and by extension the material world and its distractions – is a debased aspect of human activity, which attentiveness to the soul can rectify. If we think in this way, attentiveness to the arts can help us to rise above base desires directed solely at the simple satisfaction of basic material needs, including nutritional and sexual desires.

The body and material things change and decay, while the soul and the arts, immortal and transcendent, are timeless and valuable in providing orientation in a world where we naturally crave material satisfaction and fetishise

impermanent and inconsequential things. The soul, glimpsed through the arts, affords a transcendental vantage point in the changing and often obfuscating world in which we live. It questions our impulsion, obsession, pretention and hypocrisy.

Singapore's official history – often referred to as The Singapore Story – recounts how the post-colonial leadership was determined to overcome the nascent nation's vulnerability so that Singapore could survive and then prosper, but always abiding by the cautionary knowledge that its success remained fragile. The determination to survive and succeed amidst conditions of permanent threat, and the public discourse that has evolved out of this strong sentiment, have arguably created a culture of anxiety, fear of failure, competitiveness and material possessiveness. At the peak of Singapore's survivalist-developmental stage in the 1960s and 1970s, the state focused on modernisation, industrialisation, urbanisation and the socialisation of a people into a workforce that was conducive to the needs of multinational corporations and foreign investors Singapore was trying to attract.

At this time, the state regarded the arts as a non-essential luxury that Singapore could only afford once it had firmly laid its economic foundation on which a critical mass of middle-class Singaporeans could thrive with life-styles that included the consumption of the arts. Clearly, the arts were not a priority in national development. The professional state-funded Singapore Symphony Orchestra, for instance, was only instituted in 1979. And most of the important arts-related state agencies responsible for funding, infrastructure, promotion and regulation were only set up in the 1990s.

For the most part, the state viewed the arts as useful for socialisation and nation-building (a propagandistic function), as aspirational for a near-future middle-class society (a consumerist life-style function), and as dangerous (a radical-critical function) when artists attempted to critique norms or destabilise belief in conventional wisdom, particularly when these norms, values and beliefs served propagandistically in the singular interest of national development, nation-building and the government's centrality.

Artists in Singapore have not shied away from performing this critical function. The most strident among them – those whose practices shaded easily into political activism – were dealt with quite harshly through rather draconian laws, mostly inherited from the colonial government. Many artists,

for instance, who had been inspired by a progressive politics of the left, were arrested under these laws, accused of being a threat to public order. Others had their works proscribed and effectively banned. The less strident were tolerated during these harsher times and we continue to see critical strain in the work of artists, even those in the commercial mainstream, who challenge the assumptions and values of the status quo.

The commercially successful film maker Jack Neo, for instance, has been making an average of a film every year since the late 1990s. These films have enjoyed not only popular appeal and box-office success, but also the commendation of the government. Most of his very topical films criticise aspects of Singaporean culture, such as money-mindedness, familial dysfunction, excessive competitiveness, foreigner worship and addictions such as sex and gambling. They also criticise policies of the day and ridicule the behaviours and folly of politicians and government officials. However, the critique is performed through comedic jibes and slapstick humour that acknowledge the problem by making fun of it, but quickly retreat from provoking action or even offering alternatives. Neo's critics point to the essentially conservative function that his films actually play, not only because of the cathartic effect of providing cinematic experiences for the masses to purge their critical energy and frustration, and get on with life, but also because of the simplistic story-telling, melodramatic devices and rampant product integration that reinforce and support the vulgar materialism and excessive commercialism of life in Singapore that his films purport to criticise.

Even though the soul and the arts can rise above the body and material obsession, they are always susceptible to being corrupted by exactly the same things that they seek to criticise. The arts, as much as commercial films, can easily slip into complicity.

Against amnesia

Singapore's development has also been a story about rapid and extensive urban redevelopment. From the resettlement of slum residents into massive public housing projects throughout the island, to the shaping of an iconic skyline that is the proud external face of the global city, to the transformation of disused commercial buildings into culturally vibrant districts, the Singapore experience has been heroic.

However, in the rush to replace the old with the new and improved, and the pragmatism that informs policy on what to build, demolish and rebuild, many Singaporeans have become concerned about the kind of indiscriminate development approach that ignores the often intangible and thus less calculable value of heritage. They regard existing top-down efforts to preserve monuments and buildings as inadequate for protecting places of authentically popular value. The government's decision to pull down the old National Library building in spite of heartfelt public protestation, the plan to build over the rich biodiversity of Tanjong Chek Jawa on Pulau Ubin, and the move to build a highway through the Bukit Brown cemetery that members of the public value for its rich heritage and biodiversity, seem to confirm their fear. As Singaporeans become more aware of the fast disappearance of meaningful places in their lives as a result of rapid urban redevelopment, we see a rise of emotional attachment to places that is not only about self-indulgent nostalgic pleasure, but also an impetus for heritage activism.

Singapore artists, particularly film makers, have been especially sensitive to the threat of indiscriminate urban redevelopment, the loss of personal and collective memories, and their role in motivating questions of identity and belonging. Some film makers simply respond to this mood, riding the wave of nostalgia that is not unusual in a thoroughly urbanised society that has undergone rapid development and growth. In this, they share with their audiences that "pleasure" of consuming the past by remembering it in a certain way, often excluding the less palatable parts of this memory. Kelvin Tong's romantic film *It's A Great Great World* (2011) tells four stories set in a popular amusement park in the 1940s and 1950s. Blending together recreated sets, archival photographs of iconic places in Singapore's past and televisual footage marking significant events in Singapore's history (such as Lee Kuan Yew's tearful press conference announcing the separation from Malaysia), the film connects the nostalgic sense of Singapore's past with The Singapore Story. Two nostalgic documentaries by Royston Tan, Eva Tang and Victric Thng – *Old Places* (2010) and *Old Romances* (2012) – feature interviews with ordinary Singaporeans on their very personal memories and anecdotes of places that urban redevelopment is likely to demolish in the very near future. These documentaries evoke a sense of loss, but they do not seem to go beyond the point of nostalgic pleasure.

Much more confronting are the documentary films of Eng Yee Peng, *Diminishing Memories* in 2005 and its sequel in 2008. In these films, Eng

returns to the site of her birthplace, a farming village that was demolished to make way for new developments that included the building of military facilities and an "agri-tainment" centre. Through interviews with her family members and other former residents, she reveals mixed feelings that range from gratitude for the convenience of modern life in clean and safe public housing estates with high-quality amenities to a yearning for a simpler time when life was less stressful, community more neighbourly and the environment fresher. The films, even in their more indulgent moments, at least sensitise the audience to what may have been lost in the relentless drive to progress and prosperity.

Tan Pin Pin's films are also challenging in this respect. Her short film *Moving House* (2001) is based on the experience of a family that had to exhume and relocate the remains of its ancestors so that cemetery land could be freed for urban redevelopment. Members of the family seemed helpless as they expressed regret at the loss of tradition, ceremonies that reflect filial piety and opportunities for family reunion. Her film *Singapore Gaga* (2005) features diverse voices in Singapore that The Singapore Story and its focus on narrow material success have in some way or other silenced, discredited or ignored in its more reductive and elitist account of national identity and values. Her film *Invisible City* (2007) features an archaeologist, a documentarian, a photographer, a former student activist and a Japanese reporter who struggle, often with some urgency, to engage or re-engage with a past that is slipping away.

These films, like the arts more generally, can reconnect the audience with a past that is lost, disappearing or simply forgotten. Whether for nostalgic pleasure or to reclaim critical voices smothered over time by the victors' chants, the arts can extend consciousness beyond an obsession with the moment.

From national conscience to collective ritual

The soul is also a helpful metaphor for the arts when it is associated with ghosts and haunting. In one sense, things of significance that disappear as a result of progress and development never really leave our consciousness entirely, but continue to haunt the world of the present, never really letting us forget. The arts may be seen as the channel through which the ghosts of things past are summoned and reincorporated into the present.

But ghosts are also manifestations of our deeper fear and guilt, which we try to repress in order to forget. However, the harder we try to repress, the more they

resist going away. The more repressive we are – that is to say, the less open we are to confronting in order to reconcile with the objects of our fear and guilt – the more these ghosts threaten to return and sometimes to return violently.

Once again, Singapore films provide numerous examples of this. Ong Lay Jinn's film *Return to Pontianak* (2001) features the mythical pontianak as a silently violent symbol of primal Southeast Asia that sinicised, westernised and ultra-modern Singapore has disavowed as its "third world" past. However, just as the pontianak beckons seductively and dangerously to the film's Singapore characters who are unavoidably drawn to its call, Singapore's Southeast Asian "past" always threatens to return and bring disorder to the controlled, efficient and orderly administrative state that Singapore has become. In Kelvin Tong's film *The Maid* (2005), the ghost of a murdered Filipina maid vengefully haunts her Singaporean employers, symbolising the return of middle-class Singaporeans' repressed guilt and fear. These repressed emotions originate from a system, accepted by Singaporeans as necessary for their economic and social well-being, where structurally powerless third-world women are exploited for live-in domestic service in Singapore households and at the same time feared as strangers who intrude into respectable middle-class homes. In Eric Khoo's bleak film *12 Storeys* (1997), a "spirit" – the ghost of a young resident who committed suicide – witnesses the dysfunctional lives of three families who live in a public housing building. By directing the audience's gaze towards these lives, the ghost reveals the repressed secrets and desires that continue not only to haunt us but also to destroy us in a slow process of suffering and helplessness.

The metaphor, however, is not only useful for thinking about art that features "ghosts", but also for understanding the ritual function that art can play in "exorcising" the ghosts of our repression. Here, the experience of art is itself a ritual summoning of the objects of fear and guilt that we have repressed – raising the spirits as it were – so that we can collectively confront, acknowledge and perhaps make peace with them. Art can thus serve not only as a national conscience but also as a ritual for collectively acknowledging our faults so as to move ahead.

Forum theatre, a participatory form of theatre introduced in Singapore in 1993 by socially-conscious theatre company The Necessary Stage (TNS), has exactly such a ritualistic character. After the performance of a short play that ends in tragedy, the play is performed again, but with audience members

invited to take the place of the protagonist to suggest ways of averting the tragic outcomes of an oppression or repression. The first two forum-theatre performances by TNS were on male chauvinism and racial prejudice respectively. Through facilitated dialogue and performance, the community rehearses solutions against oppression and repression, preparing them for dealing with similar situations they may encounter in real life. Thus, forum-theatre self-consciously raises the spectre of repression and provides a safe space to collectively work out ways to exorcise it. By thinking together in this ritualistic arts space, the community is collectively enlightened and empowered. Tragically, forum-theatre was proscribed in Singapore for about a decade just after its introduction, presumably because of its Marxist origins and the fact that its mostly unscripted nature made it difficult to regulate. Once the proscription was lifted, forum-theatre started to gain in popularity, decoupled from its Marxist origins and now associated with expressive spontaneity much valued in the creative city that Singapore aspires to be.

On the subject of ghosts and exorcism, there have been a number of films in the last decade that feature Singapore's political dissidents and exiles, the "losers" of Singapore's official history who have paid or are paying the heavy price of their convictions. Martyn See's film *Zahari's 17 Years* (2007) is about Said Zahari, who was arrested in 1963 under the Internal Security Act and served 17 years as a political detainee. In 2005, See made *Singapore Rebel*, a documentary about opposition politician Chee Soon Juan. Boo Junfeng's feature film *Sandcastle* (2010) tells the fictional story of a young man who learns of his father's detention and then self-imposed exile for being a left-wing student activist in the 1950s. He discovers that his mother, who had also been a student activist, took the pragmatic decision to embrace the government's ideology to secure a comfortable life in contemporary Singapore. She forced herself to forget the past. In 2014, Tan Pin Pin made *To Singapore With Love*, featuring different generations of political exiles living in Thailand, Malaysia and UK, some for as long as 50 years. *To Singapore With Love*, *Zahari's 17 Years* and *Singapore Rebel* have faced what amounts to a ban in Singapore.

These political dissidents and exiles, whatever the historical truth surrounding their motivation and circumstances might have been, were the casualties in Singapore's material progress and development in a direction that many Singaporeans in hindsight today appreciate and enjoy in a blissful state of amnesia. Their ghosts will continue to return and haunt the present, unless the nation confronts the past, comes to terms with them, and finds peace and

reconciliation. Censorship, which merely represses these endlessly returning objects of fear and guilt, is therefore not the answer. SG50, Singapore's jubilee year, is an ideal time for reconciliation. The jubilee, after all, was traditionally the year when debts were forgiven and prisoners and slaves set free.

Against hubris

The soul is often also contrasted with the spirit, which is associated more readily with the desire for affirmation, recognition, prestige and glory. As Singapore transitioned from survivalist-developmental preoccupation to a focus on becoming a global city in the 1990s, it aspired even more aggressively to mimic the image of leading global cities. The homogenising tendencies of globalisation reflect the cosmopolitan city's need to be "plug-and-play"-ready for the flow of capitalists, talented class and visitors. Today, neighbourhoods are becoming gentrified and other parts of Singapore are reserved as playgrounds for the super-rich. For many ordinary Singaporeans, these developments have accelerated even more the feeling of loss, at least where a sense of place is concerned.

But this has also meant that Singapore as a global city seems to focus more on spirited extroversion than soulful introversion. In order to be attractive to foreign powers, investors, talent and tourists, Singapore seems to be paying more attention to its external face and the cultivation of soft power than to its internal social fabric. In this context, the arts are deemed valuable as a grand decoration that befits the rise of Singapore in the global imagination. In this regard, the good news is that the state has been very generous in providing funding and infrastructure for the arts. The bad news is that the commercial and administrative impulses within the arts may start to dominate and overshadow the increasingly fragile but necessary critical impulses. Ostentation, glamour, global affirmation and profit-making may become the primary drivers and goals of the arts establishment in Singapore, eager to ingratiate itself with state funders, corporate sponsors and staid institutions of the arts world. However, the neglected soul, and the "soulful" arts by analogy, finds purpose in this context by insisting on the importance of critical self-awareness over the achievement of external validation and recognition. This is a productive tension that will always help keep the Singapore ego in check and balance.

So as we celebrate Singapore's 50th year of independence and anticipate the next 50 years, I hope the arts will evolve more deeply and widely as

a soulful activity that will not only reflect and be buoyed by our material accomplishments as a nation, but also help us to ask difficult questions about what we have lost and neglected, who and what we have harmed, on our journey to survival and material success. I hope that we as a nation will not put too many debilitating constraints on the arts that would place unfortunate limits on their power to be our national conscience. I hope we will be strong enough as a nation to value not just the nice things that artists produce for our enjoyment, but also the inconvenient and uncomfortable messages that they bring into our otherwise convenient and comfortable lives.

About the author

Kenneth Paul Tan has written widely on: principles of public policy and administration (focusing on meritocracy, pragmatism and public engagement); liberalisation, democracy and civil society; Asian creative cities and the culture industry (focusing on film, television, popular culture and theatre); race, gender and sexuality; nation branding, soft power and nation-building; and politics, society and culture in Singapore. His books include 'Renaissance Singapore? Economy, Culture, and Politics' (NUS Press, 2007) and 'Cinema and Television in Singapore: Resistance in One Dimension' (Brill, 2008).

In 1995, Kenneth received a Lee Kuan Yew Postgraduate Scholarship to read for a PhD in social and political sciences at the University of Cambridge. In 1994, he obtained First Class Honours from the Joint School of Economics and Politics at the University of Bristol on a Public Service Commission Overseas Merit (Open) Scholarship. He is a member of the Arts Advisory Panel of the National Arts Council (Singapore). He served on the committee of Our Singapore Conversation, a year-long national public engagement exercise that began in 2012. He is the founding chair of the Asian Film Archive's board of directors, sits on the board of theatre company The Necessary Stage and has composed music for some of its performances. He is an avid runner who has travelled to a number of cities to run marathons.

The Seven Habits for Living Better through Sport

Lim Teck Yin
CEO
Sport Singapore

Introduction

As Singapore celebrates our first 50 years of nation building, it is only natural that we ask ourselves some tough questions about the next 50 years — questions that take us beyond the economy and hardware that have defined our cityscape. What kind of society will we become? What characteristics will define us as Singaporeans? How will we as individuals and as a society dream and work collectively to realise our aspirations in the face of new challenges?

The macro forces impacting us are already well-known – an ageing population, changing demographics, blurring cultural values and an increasingly competitive economic environment. The complex inter-play of disruptive technology, the Internet, transnational threats to domestic security, and newfound regionalism and nationalism raise other challenges that should remind us of our early sense of vulnerability.

Looking back to the early years of independence, Singapore presented a harsh, Third World landscape. Government leaders were grappling with healthcare, housing, education and national security – issues that were critical to our survival. Yet the value of sport to Singapore didn't go unnoticed by our founding Prime Minister Mr Lee Kuan Yew. Against the backdrop of these challenges facing our fledgling nation, Mr Lee drew on sport to help forge a rugged and resilient society.

During one of his addresses to Tanjong Pagar constituents in 1965, he commented: "'Ping-pong' (table-tennis) is very good. It demands a quick eye and a quick reaction. But other things are also necessary – gymnastics, weight-lifting, boxing, basketball – all the things that make for a nation with vitality and with the grit and the mettle to fight for its survival….They are good for Singapore, for you, for me, for they will breed a rugged generation to ensure our survival."[1]

At its heart, Vision 2030: Live Better Through Sport was designed and developed with similar considerations and principles. It was an in-depth study of how sport could be best deployed to serve our nation's interests – to create resilient people, strengthen communities and ignite a sense of pride and determination to succeed in the next stage of nation building. In a rapidly changing and complex environment, it is not just pride at a national level that matters. It is pride in the team, in the organisation, the community and the people that needs to be harnessed to inspire us to surpass ourselves.

To chart a new era of growth and improvement in the quality of life, and the resilience of our people and our nation, the government needs to partner with the people and society to imbue in our psyche strength of mind, body and spirit, and in individuals and the community to impact the ways we work and live, and how we feel about our society.

Here's what we confirmed during our eight-month exploration with people who were enthused to deploy sport as a strategy for Singapore: sport engages our body, mind and spirit; it challenges us to think and learn; it stirs our emotions and spurs us to action; it gives voice to our passion; it binds us as communities; and it makes us proud. Designed with purpose and intention, sport can bring to bear the values needed to empower people to meet the demands and challenges of the future. Viewed in the right context, sport is a metaphor for life.

Vision 2030 provided a timely platform to imagine the next 20 years, but its underlying purpose was something grander – it encouraged us to find what inspired us and to follow our aspirations. We can change our present and create our future by challenging ourselves to aspire to something better. The traditional pursuit of the four 'Cs' is giving way to more enduring goals. Even in its simplest form of play, sport asks us to pursue a greater good and to enjoy the pursuit as much as the final prize. A "sporting culture" as defined under Vision 2030 was intended to help nurture an inspired community and nation to lead purpose-driven lives for the betterment of society and ourselves.

Sport Singapore has been entrusted with the responsibility to partner other agencies in the public, private and people sectors to activate strategies and plans to implement Vision 2030[2]. In this essay, I would like to discuss the habits of sport people, how they define our attitude, behaviours and approaches to daily life — and how they can help us envision a future through life-long participation in sport.

I will share how experiences from a life in sport can provide meaningful advice for living better overall. The sporting community already uses these principles as the foundation for designing and delivering challenging and enjoyable sport activities, programmes and events in Singapore. As individuals, companies and communities, we can also practise and ingrain the seven habits to enhance the lives we lead and the work we do.

Habit 1 – Let aspiration define your journey

In the pursuit of elite sport performance, only a few achieve world-class mastery. While many are blessed with talent, the greatest achievers are driven and fuelled by aspiration. They possess a clarity and commitment to the choices they have made in pursuit of their purpose. They have an unshakable discipline and belief amidst a highly-competitive environment. They are not afraid of failure and, indeed, are clear that the journey to their goals will be peppered with many such moments.

They accept failure as integral to learning – which is in sharp contrast to the way many people journey through life. In their attempts to avoid failure, people identify the scenarios and outcomes they most wish to avoid, and spend much of their energy focusing on things that they do not want as opposed to what they desire most.

This approach will prove self-defeating in an increasingly competitive world. The universe is not waiting on our convenience or on our capacity to change. If we are to thrive, we need to nurture aspiration as a deliberate choice.

World-renowned college basketball coach and author John Wooden dedicated his time to understand and advocate the role of sport in achieving success in basketball and in life. In a career that spanned over 40 years, Mr Wooden led the University of California Los Angeles (UCLA) team to 10 National Collegiate Athletic Association (NCAA) championships in a 12-year period, and was the first-ever inductee to the Basketball Hall of Fame as a coach and player.

In one of his most famous teaching frameworks – the Pyramid of Success – Mr Wooden said: "Success is peace of mind, which is a direct result of self-satisfaction in knowing you made the effort to become the best that you are capable of becoming."[3]

There is much that can be learned from the long-term development of competitive athletes, no matter what the level of competition is. Athletes know that learning, growth and, ultimately, fulfilment lie in the journey and not just the final result. Ambitious stretch goals and staying anchored on a meaningful vision fuel the sense of purpose along the way.

Ethan Lye, already a powerhouse in tennis at 13 years old, is a teenager living on the courage of his conviction. "I started playing at four or five, and by the time I was 10, I realised what it would actually take to make it happen," he said. "I have been encouraged by my coaches and family to dream big since then. And I have not looked back."

But Ethan's journey has not been without its challenges. He knows first-hand the hard work and commitment required to realise his dreams. To enable him to train full-time, Ethan's family moved twice in the past three years, before settling in Sydney with a scholarship from the Voyager Tennis Academy.

"When I had to give up the opportunity to move to the US in 2014, I was very disappointed. It seemed like a big setback to me at the time. But now, being here in Sydney and having the opportunity to work with my current team of coaches, it has shown me that setbacks can present other opportunities as well. What's most important is that I keep my eyes on my goal. I am now living in the former Olympic Village and my dream is to represent Singapore at the Olympics one day."

Ethan's story reminds us that achieving great aspirations never comes easily. However, the most successful athletes don't just overcome setbacks, they embrace them. A setback is an opportunity to be better.

Habit 2 – Practise discipline in thought and action

It has been said that there is no great art without rebellion. It can also be said that there is no great sport without discipline.

For athletes, discipline in planning and implementation determines outcomes. Competitive athletes know that without detailed planning, their own theory of success cannot be supported through the thoughtful deployment of resources alone. They know that their limited resources of time, money and effort need to be expended towards the most effective execution of strategies and plans.

For many people, the challenge lies in the behavioural discipline of study, deduction and execution. It is easier to "just do it", without the tedious process

of learning, applying and reviewing. At best, an undisciplined approach will cost more and take longer to reach the goal; at worst, nothing is achieved no matter how much is expended.

Regular competitive sport offers a field of practice for a cycle of strategic thinking, planning, executing, reviewing and adapting. In the pursuit of sporting excellence – regardless of ability or talent – consistency and the resolve to remain disciplined in thought and action is the hallmark of a true champion.

National swimmer Joseph Schooling, who broke an Asian Games record to deliver Singapore's first gold medal since Ang Peng Siong's 100-metre freestyle gold in 1982, said: "I was tightening up at the end, but if someone wanted to run me down, they would have to die trying. I believed that I could win…..That's what I think about every day in training – to achieve something special."[4]

Schooling provides a valuable lesson on building a champion's mindset. The words spoken after his victory betrayed a release of emotions built up from disappointing performances at the London Olympics in 2012, a mixed outing at the Commonwealth Games in 2014, before ascending on the podium victorious at the 2014 Asian Games three months later. If we allow ourselves to be at the mercy of our inconsistency, we limit our opportunities for success. If we embrace discipline in our daily thoughts and actions, success is inevitable.

Habit 3 – Practise active learning

For most of us in Singapore, our journey in sport begins in school. During PE class, we first learn the importance of commitment and discipline ("Try your best."), resilience ("It's not how you fall, it's how you get up.") and teamwork ("Talent win games; teamwork wins championships.").

As we grow older, where do we learn perseverance through adversity, adaptability and resourcefulness, strategic planning and thinking critically in real time?

We learn through sport.

The habit of "disciplined thought and disciplined action" implies the practice of active learning – a commitment to be conscious of one's goals and to a consistent cycle of review and reflection at each planned step on the journey to the goal.

Distance runner Soh Rui Yong is currently studying for a degree in business administration at the University of Oregon, and he trains with Team Run

Eugene. The 23-year-old Sport Singapore scholar is driven by two ideals: serve Singapore society through sport; and be the best distance runner he can be. In 2014, he broke a 41-year-old record in the 10,000-metre event.

Rui Yong knows that blindly pushing to catch or surpass competitors will not be enough. "While I might use my competitors and teammates as gauges to measure myself against, I prefer not to set my goals based on what another person has achieved," he said. "Goals should be realistic yet ambitious. There is a very fine line between ambitious and far-fetched."

Active learning calls for deep self-knowledge. The journey begins by defining a vision of who we wish to be and setting meaningful goals. "As an athlete, I set my goals based on one ultimate dream of realising my full potential," Rui Yong added.

Active learning makes the most of new and sometimes unanticipated conditions – bad weather, rough terrain, twisted ankles, inflamed Achilles tendons and competitors who play dirty. "In distance running, and in many aspects of life in general, it is virtually impossible for everything to go according to plan," Rui Yong lamented. However, he learns from past experience to refine his goal-setting.

Great athletes don't just get better. They understand why change is taking place, and they take care of the details. They learn, apply their new knowledge and refine their plans as necessary. Thus, they can replicate success at multiple points in the journey.

"No matter what level of an athlete you are, you will have good days and bad days, and what ensures success in the long run is the ability to ride the rough times and come through as a stronger person," Rui Yong shared.

Habit 4 – Join a team that pursues excellence

In sport, the pursuit of excellence is not the pursuit of perfection. High-performance sport teams will always be a work-in-progress as the benchmarks of athletic performance continue to be raised. High-performance teams seek to be outstanding through the improvement of individual technical skills, the enhancement of team discipline and communication, and the overall application of game strategy through great teamwork.

The high-performance sport team offers many lessons for the corporate world, where companies pursue excellence in employee development, product innovation and customer service. Such a model also has relevance for schools, grassroots groups and social development programmes seeking to achieve their objectives for community impact. The SportCares Foundation, which uses sport for social good, has recorded significant traction with vulnerable youth with its Saturday Night Lights football programme. This layers a high-performance model that focuses on aspiration, discipline, active learning and a community framework to provide a holistic team environment for the youth.

Working within a team has exponential advantages and benefits. Among the highlights, the sharing of knowledge, diversity in ideas and a critical support system of like-minded individuals. Through interaction with our teammates and opponents, we develop a network of successful pathways; we become stronger than our individual selves.

We gain encouragement when we feel defeated. Conversely, we learn how empowering it is to give encouragement. In the face of individual hardship, we find the support to keep moving forward. We discover solutions by brainstorming with our teammates. In every respect, successful teams demonstrate the ability to build on the strengths and weaknesses of all its members.

Hadi Sufian Bin Zulkaffeli was an active sport enthusiast until he suffered a traumatic brain injury in a road accident. A former member of the Republic Polytechnic's dragonboat team, Hadi was left with limited use of the left side of his body after the accident. He could have been tempted to withdraw from life. However in June 2014, Hadi joined the paracanoeing programme run by Singapore Canoe Federation (SCF).

Working with the team from SCF, Hadi had improved his physical fitness and learned to better manage the lingering impact of the accident. Canoeing at MacRitchie has become a form of physiotherapy for him. Although Hadi is unable to twist and rotate normally on his weaker left side, the canoeing has strengthened his core muscles and balance.

Moreover, training with the team at MacRitchie has renewed his appreciation of the environment. He has learned to enjoy the calm of the water and the sun on his face as he manoeuvres the boat across the reservoir. Recently, he took part in the Singapore Canoe Marathon where teams paddled a combined distance of 50 km to celebrate SG50.

The coaches and volunteers helping the paracanoeing team share a vision for its members. Realising that vision, however, would require every team member to adopt the first three of the seven habits – let aspiration define your journey, practise discipline in thought and action, and practise active learning. These individual habits then need to be harnessed through team processes to make the team vision explicit.

Every team member needs to be assured that his teammates share his willingness to make sacrifices, his willingness to put his best effort in every training session and, most importantly, his willingness to consider putting the team's interest before his own. Communicating at this level of purposefulness eventually enables a team to exhibit the direction, discipline and energy for team learning and performance.

The exposure to competition in sport provides the context to help us better understand ourselves and the team. As the competitiveness increases, there will be a greater need to draw on our teammates for inspiration and support.

Our organisations, communities and nation are reinforced or weakened by the quality of our teams. Well-designed competitive sport, at any level, can be a powerful channel for organisations and institutions to develop teams that pursue excellence.

As we look towards the next 50 years, from sport to the business world to every facet of daily life, the seven habits can form the basis for building powerful and quality relationships and teams capable of innovating, adapting and thriving in an increasingly complex and changing environment.

Habit 5 – Motivate people through constructive feedback

We are not a society that traditionally practises constructive feedback. However, team managers, psychologists, doctors, coaches and captains in sport succeed on their abilities to bond with and motivate the people in their teams.

Motivation is more than doing a 'rah rah' before the big game or a rant after a loss. Creating quality relationships requires meaningful and caring communication through constructive feedback and effective listening. Former Olympic bronze medallist and current head coach of the Singapore Swimming

Association, Sergio Lopez regards feedback as one of the most critical habits for achieving success. He shared: "Feedback is a great learning tool, but as a coach, beyond just providing information to my athletes, feedback enables and empowers them to take ownership and responsibility to perform better."

Feedback can take place during practice, and during or after a competition to enhance team self-awareness. As coach Sergio illustrates, giving and receiving constructive feedback is an essential habit that is practised among members in high-performance teams. It should be viewed as providing people with valuable data to improve performance. "Feedback also serves as a driver to help athletes better understand their issues and at times, through their reflection and conversations, they uncover the solutions to their issues," he added.

The team habit for feedback is not just the responsibility of officials, coaches or captains, but of every member of the team. You may be tempted to hold back information to be kind, especially if the team member is struggling.

But to be constructive, feedback must contain more than platitudes (or scolding). Constructive feedback must review the current outcomes versus the planned goals; it must address what the individual is doing well and what needs further improvement; and it must contain practical advice on how to improve performance.

In his five years as coach to Joseph Schooling, Sergio attributes the practice of feedback towards making him a better coach. "There have been times, through my interaction with my athletes, when I realised that I had to change my approach. No coach has all the answers and it is through feedback and reflection that we improve and achieve new breakthroughs. The key is to eliminate an environment of fear, and create one that embraces support and the freedom to express."

Giving feedback is not an end in itself. When handled well, it will fortify the trust between all members in the team.

Habit 6 – Celebrate your successes – big or small

Nothing boosts the unity of a team more than the celebration of success – no matter how big or small. Praise will invigorate the team spirit and build a sense of camaraderie, confidence and identity.

Among community teams or young recreational teams, the celebration may be something as simple as being named "man of the match". It could be a certificate, an impromptu meal, praise during the post-event review or the pre-game cheer as anticipation of victory on the back of a great effort.

These acknowledgements will help sustain the team members as they move towards the next milestone of their journey. Athletes are trained in cycles to peak at specific competitions. The process can be long and arduous and peppered with recurring injuries, plateauing success and fluctuating motivation. Becoming a high-performance team can be even more difficult as individual personalities make way for shared team interests.

However, a celebration at each victory habitually forces a timeout to take perspective of the journey so far. The team grows in confidence. Evidence of progress instils a sense of belief. Most importantly, the team re-affirms its shared aspiration and wholeness.

Habit 7 – Become a fan of your team, organisation or community

Great fans are optimists. They always have hope, and they believe that the best is yet to be. They are experts in the history of the team and its players. They are advocates for the cause. They are loyal even when things are at their worst. They are always ready to invest their time, energy and faith that things will get better. They speak the same language that transcends boundaries. They create the ties that bind us to one another, breaking down self-interest and social barriers.

Nelson Mandela, then the new President of South Africa, had the formidable task of trying to overcome the country's divisive and bitter past. He looked to sport to unite his racially-divided countrymen.

"Sport has the power to change the world. It has the power to inspire. It has the power to unite people in a way that little else does. It speaks to youth in a language they understand. Sport can create hope where once there was only despair. It is more powerful than government in breaking down racial barriers."[5]

Mr Mandela understood the willingness of the sport fans to put aside differences on both personal and national levels. On 24 June 1995, the South

African rugby team played against the tournament's favourite New Zealand in the final match of the Rugby World Cup in Johannesburg. In a capacity-filled Ellis Park Stadium, South Africa defeated New Zealand 15-12, but the greatest victory was measured by the impact it had on South Africans. Across the nation, communities divided by decades of violence barely a year earlier rallied together to cheer and celebrate. They shed their differences to stand united as one people with one common identity. It was South Africa's epiphany.

What was rugby but a game? In the end, it was so much more. The events leading up to that match brought out the fans amongst the people – people who were able to see beyond their ethnic differences and their painful history to believe in something more powerful – their common humanity, and love and pride for their country through sport.

Conclusion

Singapore is a young country. By any measure, we have grown rapidly and well. We have realised our early economic promise, developing from a Third World state to a First World nation. We are fortunate to have been spared the hardship of prolonged crises even though we have had a taste of danger and difficulty. However, the times are changing and we must not assume that we can repeat the successes of the past.

Our individual habits and those of our teams, organisations and communities are all shaped by our experiences and attitude. As our society continues to evolve, sport can be a language to carry us forward and through difficult times. The seven habits of living better through sport can help shape the future for our country in the decades ahead. When we re-imagine Singapore, "we envision a Singapore where individuals and communities are strengthened through a lifetime of sporting experiences. Sport becomes a journey and celebration of our people and places, uniting the nation and inspiring the Spirit of Singapore."[6]

Through sport, we will ignite pride in our people, strengthen our communities and define us as one Team Singapore.

About the author

Brigadier General (NS) Lim Teck Yin was appointed CEO of Sport Singapore in April 2011. He brings with him 30 years of experience in the Singapore Armed Forces, where he contributed to its strategic visioning and planning, leading and managing

units, operations and projects, and developing people and multi-disciplinary teams. At Sport Singapore, Teck Yin spearheaded the development of a new master plan for Singapore sport Vision 2030, which set the strategic direction for Sport Singapore's future work plans and organisational development. He also leads and manages its other major projects, including the delivery of the Singapore Sports Hub, the 28th SEA Games and the 8th ASEAN Para Games in 2015.

An avid sportsman since his school days, Teck Yin was a member of Singapore's water polo team, representing the country at both the Asian Games (bronze medallist in 1986) and the Southeast Asian Games (consecutive champions from 1985 to 1995). He has also volunteered his services to the Singapore Swimming Association and was Vice-President responsible for Singapore Water Polo from 2006 to 2008.

Teck Yin holds a Graduate Diploma in Leadership and Organisational Development from the Singapore Civil Service College, a Bachelor of Business Administration from the National University of Singapore and a Master of Science (Management) from the London Business School, University of London (UK). He attended the German General Staff Course at the Fuehrungsakademie of the Bundeswehr in 1993 and the SAF Senior Commanders' Course in 2005. In recognition of his dedication and professional conduct, Teck Yin was awarded the Public Administration Medal (Silver) (Military) and SAF Long Service & Good Conduct Medal (25 Years). He is married with four children.

Endnotes

1 Transcript of Prime Minister's speech at Tanjong Pagar Community Centre, 30 October 1965, National Archive Singapore.

2 Sport Singapore, formerly known as the Singapore Sports Council, is a statutory board that was enacted through the Singapore Sports Council Act of 1973. It is mandated through the Act to lead, direct and shape all national efforts to nurture sport participation in Singapore.

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5 Mandela, Nelson. *Notes to the Future: Words of Wisdom*. New York: Atria Books, 2012.

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RE-IMAGINING SINGAPORE AS A LEARNING NATION
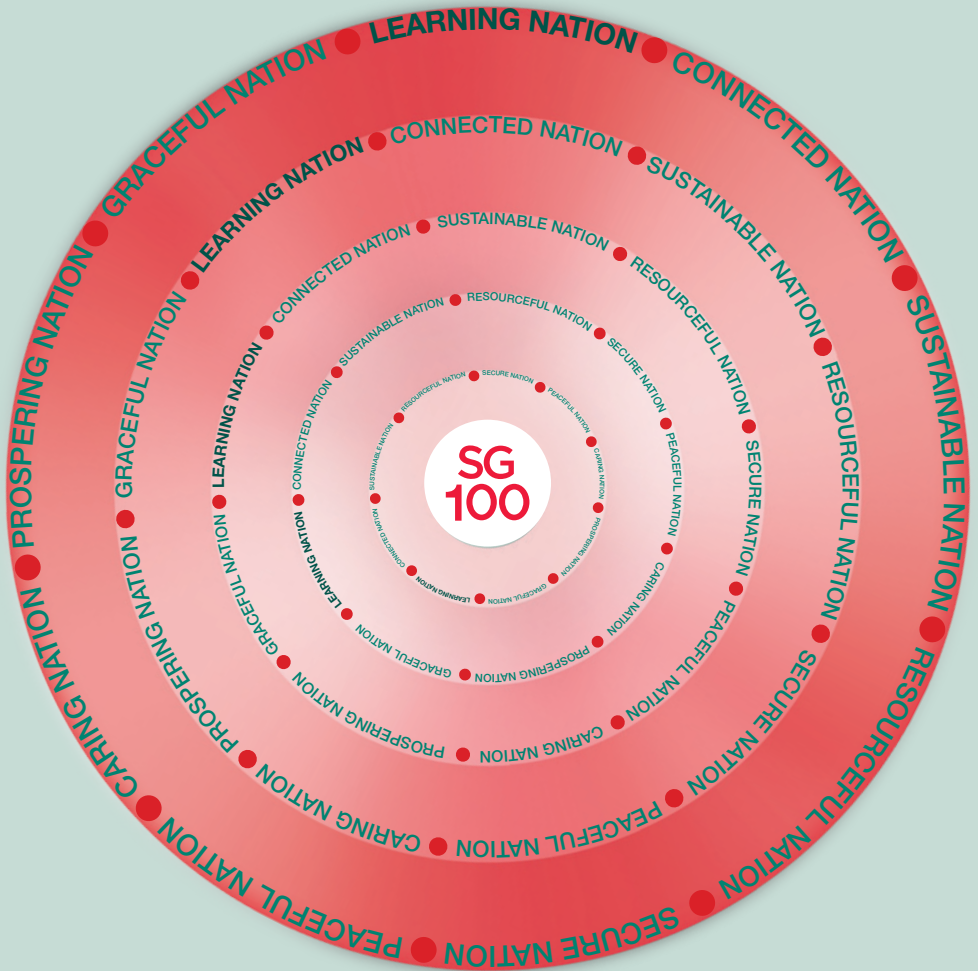
"The purpose of education, of sending a boy or girl to school, is to give that boy or girl the kind of training, the kind of knowledge, attitudes, values that would enable him or her to face the challenge of making a good life and making a contribution to his or her society in the years ahead." (1967)

"My definition of an educated man is a man who never stops learning and wants to learn. I am not interested in whether a man has a PhD or not, or an MA for that matter, or a diploma." (1977)

"In the 1990s, it will be more on service-orientated industries, the so-called 'brain services', engineering and professional services, computer software, communications and transportation. To manage this kind of economy, Singaporeans must be trained and educated to achieve their maximum potential. They must always remain adaptable and ready for retraining to meet changes in economic conditions and the requirements of new technology." (1980)

Lee Kuan Yew

Living the Pioneering Spirit: Learning for Life

Heng Swee Keat
Minister for Education
Ministry of Education

Education has enabled generations of Singaporeans to build a better life and a nation. In 1965, education meant 读书 or 'study book'. Our pioneers had a sense of where they wanted to be in the future, where they were, and worked hard to bridge that gap. The big gap then was basic literacy and numeracy skills – so 'study book' made sense as they learnt the three "Rs" or Reading, 'wRiting' and 'aRithmetic'.

Many became literate and numerate. We then built on this education system, year by year. At critical points, we made important choices to adapt and change. Educators, parents and students responded with spirit, and each wave allowed us to make further progress with purpose. We built a good education system, developed our people and grew our economy. But there were also inadvertent negatives. In our minds, 'study book' became increasingly about examinations, grades and qualifications.

A strength – focusing on academic grades – can be over-done and could become a weakness, as we leave little time to develop other attributes necessary for success and fulfilment. The chase for better grades has fuelled a tuition industry. It created a vertical stacking of qualifications, and a 'tiering' of schools in the minds of parents that's based mainly on academic results – a hierarchy of grades.

We are not unique. The same 'study book' culture that enabled the other East Asian 'dragons' – South Korea, Hong Kong, Taiwan – to make great strides is also generating the same if not even greater pressure in their societies.

Pioneers for the future

Like our pioneers before us, we have to ask anew: where do we want to be in the future, where are we today, and how do we make the leap? The future will be more uncertain and volatile, as the global economy and political order change in unpredictable ways. Political and religious developments elsewhere can strengthen or weaken our social cohesion.

An ageing population will create challenges that we cannot totally foresee. A younger generation that is digitally connected can either be more united or more divided. The nature of jobs will also change. For a start, many existing jobs will disappear. Smart machines and lower-cost workers elsewhere will take these jobs. So we have to change jobs, maybe several times over our lifetime. But jobs that need uniquely human qualities cannot be displaced by machines and will become more valuable. Even the same job will look different. Traits like creativity, inventiveness, adaptability, socio-emotional skills, and cultural and global awareness will give Singaporeans an edge. New, interesting and diverse jobs will be created. Some of us will be self-employed. Some of us will create jobs for others as entrepreneurs. And if our economy grows well, more jobs will be created.

All this presents new and multiple pathways to success.

Crossroads

Faced with such challenges and opportunities, we are at a crossroads. We have two options. We could continue with 'study book', with a narrow focus on grades and examinations, and descend into a spiralling paper chase and expanding tuition industry.

- Employers choose not to invest in employees, relying wholly on academic qualifications to determine who gets the job.

- Educators drill and test, and see their duty as helping students obtain the best possible examination grades.

- Parents obsess over grades and spend ever-increasing amounts of resources to give their child an edge over other children.

- Students chase the next point, and spend most of their time going for more tuition and enrichment in very narrow areas.

- Stress level in society climbs, and it churns out students who excel in examinations but are ill-equipped to take on jobs of the future or are unable to find fulfilment in what they do. And unemployment or under-employment becomes pervasive. Everyone is worse off.

This is a grim road but, sadly, one which other societies have already trodden down.

Or, we can act with boldness and resolve to take another path forward and embark on a major transformation. We will need collective will and action by employers, teachers, parents and students, as well as society at large to take the path:

- Where employers look beyond academic qualifications in hiring or promoting the best person for the job, and bosses support employees in skill upgrading.

- Where educators focus on holistic education, building a strong foundation of values and the capacity to learn.

- Where our institutes of higher learning (IHLs) play a leading role in strengthening the nexus between learning and work, and in learning for life.

- Where parents recognise every child's unique strengths, and do their part to build their children's character.

- Where students flourish through a range of academic and co-curricular activities, and take different pathways to success and grow up to be well-rounded.

- Where the economy stays resilient and flexible, with high levels of employment and many opportunities for acquiring high skills, gaining high productivity and earning high wages.

- And where our society and our people continue to be caring, harmonious, gracious and cohesive, and we do not see education as a race amongst our children.

This is a path that no society has charted out fully yet. Charting this new territory will require us to be pioneers once again.

Here in Singapore, building on the many changes in our education system in the past, we have continued to make further moves in this direction.

- We have focused on values and character, strengthened holistic education, removed school rankings, and enhanced support for weaker and special needs students.

- We developed new ways of learning in our schools, made every school a good school, expanded applied pathways in tertiary education, and outlined a series of SkillsFuture initiatives that built on the recommendations of the Applied Study in Polytechnic and ITE Review (or "ASPIRE") Committee.

All these changes have laid the groundwork for a transformation to create a better future for Singapore, a future anchored by deep skills and strong values. But this future will belong to us only if we, as a people, shift our mindset about education. This is no longer about 'study book'. It is about learning in every domain, anytime and anywhere for a purposeful, meaningful and fulfilling life.

In other words, we need to live the pioneering spirit: beyond learning for grades to learning for mastery; beyond learning in school to learning throughout life; and beyond learning for work to learning for life. It is about a fundamental change.

Beyond learning for grades to learning for mastery

What is learning for mastery?

How do we develop mastery in our fields? When I was in the Police Academy more than 30 years ago, one of my pioneer instructors was Mr John Chang. He did not have high academic qualifications, but he was, in my mind, one of the best instructors – he knew the law, how to deal with tense situations and how to teach. After handling every case, he would reflect on how he could have done better. He studied on his own, attended classes and asked seniors at work. John was one of the few police officers who started as a constable, got many promotions, went all the way and retired as an assistant superintendent.

I learnt a lot from John as a very young officer about what it means to be an effective learner and how one achieves mastery:

- He was self-directed – no one told him how to learn, but he did so on his own.

- He was reflective – he thought through his own experiences and learnt from both mistakes and successes.

- He learnt in bite-sized modules, picking up what he needed when he needed.

- He kept an open mind – and learnt from everyone, everywhere and at any time.

- He was disciplined – learning was not left to chance, but built into his daily routine.

- And he was passionate – he cared deeply about what he did.

All this before we spoke about SkillsFuture.

Laying the foundation for mastery

We should aim to be a nation where Singaporeans develop mastery in every field, where Singaporeans are resourceful, inventive and capable of breaking new grounds. This will take collective effort across our schools, IHLs and industry.

In 10 years of basic education, we aim to:

- First, equip every student with a strong foundation in literacy, numeracy and thinking skills, whatever his or her starting point. This is vital as it enables them to keep learning and progressing. Rigour will be maintained and, where necessary, students can access levelling-up programmes to build their basics.

- Secondly, give every student broad exposure to a whole range of subjects and co-curricular activities to pique his or her interest in various fields, such as sports, arts and outdoor adventures.

- Thirdly, continue to improve on our teaching, stimulate curiosity and let every student put knowledge into action. This includes using information and communication technology to teach.

- And lastly, build in every student deep character. It matters in life and in achieving mastery, because mastery takes effort and perseverance.

Learning with interest and joy

An important aspect of learning for mastery is to match our students' strengths and interests with opportunities in our schools and IHLs, career opportunities and the needs of enterprises. We aim to stimulate curiosity in learning and provide plenty of opportunities to do so in ways that are meaningful for all our students in all schools.

A recent innovation is Applied Learning Programmes (ALPs) for almost all our secondary schools – this is part of our "Every School A Good School" movement. In fun and creative ways, our students apply various domains of knowledge to solve complex real-life problems in their fields of interest.

Mastery in whichever field

Different ALPs open up different possibilities for students to put knowledge into action and bring learning to life. Learning becomes engaging for every

student in every school. Deep skills acquired in one field can be transferred to another.

We are fortunate that our vibrant economy creates a range of good jobs. With more choices, we need good Education and Career Guidance (ECG). There are many domains and fields that students could explore and develop deep skills in – be it design, business, art, music or sport. By exposing students to possibilities, we empower them to make better choices and to choose suitable pathways. We will strengthen ECG at all levels. ECG curricula in schools, ITE and polytechnics will be enhanced. By 2017, we will have a core of professional ECG counsellors and an online ECG portal that will provide information on many exciting new opportunities that are enriched by our SkillsFuture initiatives.

Many meaningful and exciting things are also happening in our IHLs. Singapore University of Technology and Design (SUTD) students had applied their knowledge of engineering, design, arts and cultural awareness to create this year's Chinese New Year (CNY) light-up display in Chinatown. This is the fourth year SUTD students have helped to design the display for CNY light-up. Each time with a new animal of the horoscope, they learnt from the previous year, pushed themselves to think differently, and put all their skills and knowledge into a new masterpiece. They put their heads, hearts and hands into their creations. Indeed, our Institute of Technical Education (ITE) motto is "Hands-on, Minds-on, Hearts-on". It is not just in universities, but across our entire education system. Be it ITE or SUTD, this approach is important. This is what it means to go beyond learning for grades to learning for mastery.

Beyond learning in school to learning throughout life

Fifty years ago, Seletar was better known for the smell of pig farms. Fifty years on, I visited Seletar to witness the delivery of our first Rolls-Royce TRENT 1000 jet engine – made in Singapore for a Singapore company Scoot. What a world of difference now!

I met three Singaporeans working there – Ravinder, Cheria and Siti. Ravinder is a team leader with 24 years of aerospace experience. You would have thought that he knows everything, but he told me: "To me, every day is a learning opportunity". It turns out that his son was also interested in aerospace engineering, and he thought it would be better for him to return to school to pick up new skills, so that he could pass them on to the next generation. So he

enrolled in Temasek Polytechnic's Diploma in Aerospace Engineering course! All that, whilst working hard and mentoring his two younger colleagues Cheria and Siti.

Cheria is technically Ravinder's "schoolmate" in Temasek Polytechnic (TP), as she is also pursuing the same course in aerospace engineering. But she is one-third his age. As an intern, she is learning at the workplace, while Ravinder is learning at TP. Siti, an ITE student in aerospace technology, is a Rolls-Royce ITE scholar. She is thrilled to be helping to build an impressive and complex engine with some 30,000 parts as an intern! To her, it is not just about learning technical skills. She shared: "Rolls-Royce taught me to be versatile and assertive in order to keep up with changes in the aerospace industry."

Ravinder, Cheria and Siti are at different stages of life but all are actively learning to be better and to succeed at work and in life. I empathise with many Singaporeans who told me: "Once we start work or have family commitments, it is hard to set aside time to learn." Indeed, we have to address the practical constraints to empower them with life-long learning.

Our IHLs play a leading role

Our IHLs will play a leading role in empowering Singaporeans to learn everywhere throughout life. They will work with companies that are keen to make workplaces *great* places for learning. We will have more enhanced internships so that young people can learn and solve real-life problems, and acquire soft skills.

The IHLs will create SkillsFuture Earn and Learn Programmes. Students who take up such programmes are effectively enjoying one year (or more) of highly subsidised education. Beyond enjoying a blend of facilitated learning in our IHLs, they will benefit from structured mentoring at work. They acquire a higher industry-recognised qualification through this process. We will also create Skills-based Modular Courses. By the end of 2015, there will be over 300 modular courses in specialist areas offered by our polytechnics and universities.

In addition, the government will subsidise part-time Specialist and Advanced Diploma courses for all Singaporeans more generously, even for those who had received such subsidies previously, and provide the

even more generous SkillsFuture Mid-Career Enhanced Subsidies for Singaporeans aged 40 and above.

For a start, we will appoint IHLs as Sector Coordinators for 17 strategic sectors, which have been identified as future-growth sectors or those that will meet critical needs in our society. Besides engineering and manufacturing, we will also have early childhood education and healthcare, among many others. Republic Polytechnic (RP), for instance, is the Sector Coordinator for logistics. Leading industry players like DHL Express, YCH Group and Yang Kee Logistics will use RP's workplace training blueprints, so that learning at work and learning at RP are integrated for maximum impact. Students will acquire skills taught in RP's Specialist Diploma in Supply Chain Management – for dealing with complexity and scale in global flow of goods, handling data analytics, managing inventory and supply chains, and devising plans to optimise transportation – but they will do so on-the-job, be recognised for it and get paid in the process, without paying fees! When they show that they can apply new skills at work, they will take on bigger responsibilities and see a wage increase.

The IHLs will provide specialised training for industry mentors, to multiply our effectiveness and spread expertise in each sector. We will study different models of learning on the job, explore greater use of online learning and look at innovative approaches.

Using skills matters most

An OECD survey of adult skills found that workers in Japan ranked highly in skills but ranked lowly in how well these skills were utilised. At the opposite end, workers in the US ranked poorly in skills but ranked among the top in using skills on the job – so whatever skills they have, they use to the fullest! This study illustrates vividly that while courses for learning skills matter, what matters even more is whether workers use the skills learnt.

We must not end up using SkillsFuture Credit to chase another form of qualification. Courses are just the means. Our focus must be on the ends – acquiring, mastering and using deep skills. If workers or companies attend courses to meet quotas or because of incentives for attending, very little will be achieved. But if companies make the best use of workers' higher skills, it will lead to higher productivity and higher margins; in turn, they can pay higher wages. This is the virtuous circle that we must seek to achieve. To

realise this goal, companies play a critical role. I hope many more employers will develop and use their employees' skills as part of their productivity and innovation strategy.

Own unique skills map

With SkillsFuture, specialist and advanced diploma, and specialised bite-sized modular courses are even more highly subsidised. Opportunities for learning will be available in all IHLs, in Workforce Development Agency-certified courses or at the workplace. With such an array of courses, the system is even more open and flexible. Besides the multiple pathways in our IHLs, you can now create your own learning pathways – build a portfolio of skills, just-in-time, tailored to your needs and at your own pace. You can stack modules towards a qualification or just choose relevant modules. It empowers each of us to take charge, direct our own learning and build our own unique skills map.

This self-directed and independent learning must start young. Let us start early in our schools and encourage our children to be independent and self-directed learners who are skilful at figuring out their own way.

Learning as a habit of mind

Structured courses are very useful, but they cannot cover every learning possibility. Learning can take place in formal and informal modes, in the classroom or at the workplace, through online learning or self-reflection, and with friends or in groups. Life-long learning is a habit of mind, rather than a mere act of attending courses. We need to seize learning opportunities everywhere, from anyone, throughout life, and even on our own.

Learning as exploring and inventing

Finally, learning for mastery is not just about learning what is known. It is also about exploring the unknown and inventing new things by putting all of our knowledge to creative use. So let us nurture many more people who seek mastery relentlessly in their fields, are inventive and resourceful, and can make breakthroughs for Singapore.

Beyond learning for work to learning for life

Developing deep skills to succeed at work is important. But life is more than just work. Cultivating a lively interest in the world around us, in nature and culture, in sports and adventure, in having zest for life and concern for others are what make life purposeful and fulfilling.

Edward Chia is a 31-year-old entrepreneur who started his own business when he was 18. His Timbre group of restaurants is known for good dining and live music. Timbre restaurants have a social mission. Edward's restaurants champion Singaporean musicians and give them a platform to perform. His staff would applaud the performing bands and urge diners to do the same. Edward acknowledges that his early years were not easy. He gained respect from his team members, many of them older than him, by getting his hands dirty and doing everything he asked of his staff. He washed toilets, cleaned the office, ran the bar and helped in the kitchen. Through working with his team, he learnt from them.

Today, he pays that learning forward. His ventures provide jobs for budding chefs. He recently partnered Singapore start-up Infinium Robotics to develop drones that navigate their way around tables to serve food. What an exciting experiment! What it means is that waiters can work more effectively and do things that machines cannot. Edward embodies the spirit of learning for life, he is passionate and innovative in his field. He gives back to the community and creates new opportunities for others.

Holistic education

In Our Singapore Conversation, many Singaporeans shared their aspirations to live a life of purpose and spirit. They wanted a successful and cohesive society, one where Singaporeans lead fulfilling lives, each in his or her own way. Many expressed support for our student-centric and values-driven education to develop each individual fully, and inculcate in them a sense of community and a sense of personal and collective responsibility.

Students in our schools experience the arts, music, sports, outdoor activities and overseas trips. No other school system sends one-third of its students on overseas trips to gain overseas exposure. Students also lead and participate in a wide range of co-curricular activities. These experiences broaden their views of the world and help to develop them as rugged individuals, who are physically active and healthy, and appreciative of the finer things in life. We hope that they also develop a strong sense of purpose and a desire to help each other and give back to society.

Holistic education covers moral, cognitive, physical, social and aesthetic dimensions. I hope our students grow up to appreciate and contribute to the rich and multi-dimensional aspects of life, and grow richer in spirit and purpose.

This is how we build a vibrant, creative and caring society. To go beyond learning for work to learning for life, for a rich, purposeful and meaningful life.

Access to learning opportunities

We want every Singaporean to have access to learning opportunities, whatever his or her starting point. No child should be left behind. We are doing more to support students with a weaker start, be it in learning needs, special needs or financial needs. But to uplift our students, not just academically but also in social-emotional growth, we need both resources and "heartware".

"Heartware" comes from supportive parents, dedicated educators and a supportive community. Many educators and volunteers work doggedly with our schools, self-help groups and other voluntary welfare organisations, putting much time and heart into this important work. We must also make sure our students have a heart to give back to society.

Conclusion: Pioneering for the future

Our pioneers faced many crossroads in nation-building – each right decision helped us to progress. Today, we face a new crossroads. The path is clear. It is to do everything we can to become people with deep skills and strong values. We take the pioneering path to nurture Singaporeans who are inventive, resilient and caring. This path will have learning on the job, learning just in time and learning in the right place at the right time. It is learning without the boundaries of institutional walls, age, place or time.

We must take this pioneering path together as a whole society. We are not the only ones at a crossroads. Others are also asking: "What is the future of education?" I realise that much of what they envision in the future is what we are doing now. And what is special about our mission is that we are not thinking about the future of education in just one school or one university. We are thinking about the future of education for our whole nation. We are pioneering a path that will shape our whole society, one that will require the collective effort of everyone. Millions of individual actions and choices by Singaporeans will move our nation towards a brighter future for all.

Our students in schools today will be the Pioneer Generation at SG100. Will we be stuck with 'study book' that brought us this far in our first 50 years? Or will we relive the pioneering spirit and transform how we learn?

I am confident that we can succeed, as there are already many new pioneers in our midst. But we need many more pioneers, in every school, in every field and in every job. These are fundamental changes that will take time. But we need to take the first step now, and take it together. The journey of transformation will not be easy. But every decision and every action by everyone counts.

Learn for mastery. Learn throughout life. Learn for life. This must be our compass as we chart our way forward on this pioneering path and live the pioneering spirit together, to create an even better future in the next 50 years.

(This is an edited excerpt of Minister Heng's speech in Parliament in March 2015.)

About the author

Heng Swee Keat was appointed Minister for Education in May 2011 following his election as Member of Parliament for Tampines GRC earlier that month. The Ministry of Education (MOE) formulates and implements policies on education structure, curriculum, pedagogy and assessment. It oversees the management and development of government-funded schools, Institute of Technical Education, polytechnics and universities. MOE also funds academic research.

Prior to his present position, Mr Heng was Managing Director of the Monetary Authority of Singapore (MAS). MAS serves as the central bank of Singapore and an integrated supervisor of the financial services industry. He was named Central Bank Governor of the Year in Asia-Pacific by the British magazine 'The Banker' in 2010. He had previously served as Permanent Secretary of the Ministry of Trade and Industry and Chief Executive Officer of the Trade Development Board. Between 1997 and 2000, he was Principal Private Secretary to then Senior Minister Lee Kuan Yew in the Prime Minister's Office.

Mr Heng was awarded the Gold Medal in Public Administration in 2001 and the Meritorious Medal in 2010 for his public service in Singapore. He graduated with an MA in Economics from Cambridge University, UK and holds a Master of Public Administration from the Kennedy School of Government, Harvard University.

Raising the Bar, Extending the Reach in Singapore Higher Education

Professor Cheong Hee Kiat
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Higher education (HE, *referring specifically to university education in this essay*) is changing globally, and these changes have impacted and will have greater impact on Singapore's university system in the years ahead. One much-talked-about disruption is the advent of technology and its increasing impact on the delivery and consumption of HE – how it will change the behaviour of learning and liberate the manner in which learners acquire knowledge and skills. This aspect, which is discussed in the next chapter, is but one of many factors that will drive the way HE will evolve. Let's look at some other major ones.

The first is the rising cost of university education[1,2]. It is an issue dogging many countries, and though Singapore is generous in funding HE, there will come a limiting point when other competitive demands, like provisions for old age, healthcare and other social needs will require more funding. The sustainability of the present trend in HE spending should be of concern.

Next are the demographic shifts[3,4] that threaten to reduce employable manpower in many developed countries and will adversely affect economic growth and reduce the tax base to fund public expenditure in HE.

Yet, the demand for HE is increasing as more 'qualify' for university education[5,6]. In many under-developed and developing countries, there aren't even enough places for people who are eligible for HE, let alone the new students who are coming on stream. In Singapore, judging by the 2015 'A'-level results and applicants to the polytechnics[7], more will expect to go to university. However, due to cost, limited full-time places and the need for them to earn an income, many will not be able to pursue their degree qualifications right after school; many will have to start work and finish a degree programme on a part-time mode.

The emerging danger in some economies, including advanced and rapidly developing economies, is a glut of graduates[8]. The problem is not just the number of jobs not growing in tandem with the number of graduates, but also the mismatch between what the graduates are trained for and the expectations of employers. Many graduates are simply not equipped with the skills required by industry[9,10,11]. The growing ranks of unemployed and under-employed graduates in countries like South Korea, Taiwan, UK, EU countries and even China will pose economic, social and political challenges[12,13,14].

On the supply side, the HE system is set to become more disaggregated and loose[2,15]. Regular universities are entering each other's space, offering different delivery modes and learning pathways, and off-shoring their operations. New players that are not traditional education providers, such as corporate universities, publishers, knowledge aggregators, wiki-sites, MOOCs, learning consortia, as well as specialised service providers in the entire value chain, are also joining the fray. The disaggregation is occurring not just in programme delivery but in student recruitment and services, assessments and qualification top-ups, among others. The diversity introduces a new paradigm to the traditional universities, threatening to reduce their position as the sole providers of HE. It also gives choice to consumers. However, in liberating HE, it also causes confusion, raising issues like quality, credentialing and so on.

Although there are serious providers of HE, including transnational ones and off-shoring operations through third parties, the barriers to doing business at various levels of higher education are low enough, with potential financial gains easy and high enough, to encourage a proliferation of low-quality providers, paper mills and pseudo-education institutes, which could be blatant facades for other unsavoury activities. The issue of quality is an on-going matter of concern, and the comprehensive regulation of quality in HE is elusive, although in many other fields, this has been proven to be achievable and with positive impact.

The notion of a degree, what it constitutes, who can provide all or part of the training and credentials, its continuing relevance in a changing economic and employment environment, will all come under scrutiny. Technological advancement and the incoming Gen Z (the first generation never to have experienced the pre-Internet world) and the new Gen Alpha (those born after 2010) will force changes in how education will be delivered, how and when learning will be consumed, as well as the very process of learning and the

application of knowledge. These are challenges that traditional universities will have to face up to[2].

In the light of these recent developments, what will the future HE landscape of Singapore be like?

More comprehensive and diverse

In the last 50 years, we have seen the emergence of 'super' universities, those that are able to attract massive funding, the brightest students, the best faculty and even the highest tuition fees. These are largely research universities and many notable ones are private. In Singapore, the National University of Singapore and the Nanyang Technological University are two publicly-funded universities that are ranked highly worldwide. But there is room for the others to do well in their own way – Singapore Management University and Singapore University of Technology & Design as the Wharton and MIT of the East respectively, while Singapore Institute of Technology and SIM University (UniSIM) could become leading universities for an applied education. In time, the world university system will recognise universities that are good not just in research but also in teaching, social impact, life-long learning and cost efficiency or value-for-money for students. All our local universities can be good in at least one of these aspects, and they do not need to chase rankings to be well-perceived. However, the public and employers will need to learn to properly value each type of institution.

At present, the Singapore university landscape is almost complete. There is a mix of HE institutions: comprehensive research-intensive, specialist and mainly applied education universities; providers of full-time pre-employment education (PET) and part-time continuing education and training (CET) studies; and private institutions and foreign universities operating branch campuses here to complement the system. Perhaps we could have one more, a university or tertiary-level institution in the fine arts. As Singapore becomes a global city and as the region prospers, more people will come to live and work here, bringing a diversity of ethnicity, culture and language. A university of the arts will complete our offerings as a sophisticated economy. In fact, this new university should not function in isolation – there is much room for collaboration across various universities to bring synergy and cross-fertilisation in the areas of design, business thinking, entrepreneurship, cultural enrichment, art with technology, and others. Given the healthy state of development of the local arts and cultural

scenes and the development of the civic district, the establishment of such a university of the arts would be timely.

The diversity is significant not just in terms of the types of universities but the multiple pathways offered to a HE qualification. There will be a blurring between formal education at institutions and learning at work; there will also be a blurring between PET and CET, unlike the traditional sharp line between these two provisions. SkillsFuture[16], the bold 'skills development for all' national movement, will promote diverse pathways with a strong focus on fostering the deepening of skills rather than the striving for a qualification, and learning throughout life rather than dichotomising formal learning and work.

The change is not just in the number of new pathways but the timing of learning and skill upgrading. Just-in-time and on-the-move skill upgrading will become more prevalent. Learning will be a 'mix-and-match' from different sources and at different levels, yet enabling the learner to aggregate and synthesise what he has acquired. We will have 'stackable' courses that can be combined for a formal qualification and qualification 'top-ups', when additional courses combined with a qualification already in hand can be turned into a new qualification. Degree qualifications may no longer be the prerogative of universities. A learner can assemble a set of completed courses, taken from various providers in a coherent manner and graded with sufficient stacking of knowledge over several levels of difficulty, and present it to a university for a degree award. Or to a body of university faculty who serve as an accrediting agency. Or even to an employer who takes him on as an equivalent to a degree holder based on the knowledge and skills he has acquired. What is on a transcript, or a set of transcripts, matters rather than the degree title on a scroll.

However, there are hurdles. On the one hand, the challenge will be to get university faculty to accept that they don't have the monopoly for learning that leads to a formal qualification. On the other hand, it is to ensure that the learning done outside the institutions can be properly validated and that it complements the formal learning that forms the basis for awarding a degree. Practically achieved, this will open new ways to credentialing learning and attract greater participation of non-traditional providers. It will pave the way for the development of a new 'bespoke' university – one that partners specialist non-university providers who can deliver education to enrich what is available to the students. UniSIM is an example of one such university that can be further developed in this direction.

Another challenge is to get industry to recognise skills gained by the employee that are relevant to his work and, more crucially, to reward him for the 'up-skilling'. This will encourage industry to participate actively in preparing future employees for work and in their continuing training while on the job, thus ensuring not only graduates with skills relevant to work but that they remain relevant throughout their careers.

More open and inclusive

SkillsFuture will spawn different pathways for acquiring skills and qualifications, as well as more opportunities for continual upgrading throughout one's life. The focus of university education will also shift towards a more applied nature, producing graduates with skills needed by the marketplace and inculcating in them a spirit of life-long learning. Learners will loop in and out of courses, pacing their learning with their needs and aspirations at different life and career stages, and acquiring qualifications through a combination of university studies, workplace training, professional certifications, portfolio attestations and other options. We will have a more open university system that will give many, including late developers and learning enthusiasts, opportunities for upgrading and scaling the career ladder. What will be needed is a good system of career and skills advisories that will help the individual make informed, rational, realistic and timely decisions.

In the long term, a culture of life-long learning will be established in Singapore and university education can play an important role in supporting such a culture. With the concerted advocacy of the SkillsFuture and other initiatives by the Workforce Development Agency, Ministry of Education (MOE), Council for Lifelong Learning and other public and private agencies, this culture has the best chance to take root now.

But a life-long learning culture isn't just about learning for career advancement, nor is it just about formal learning. It is about learning at all ages, in both formal and informal settings. It is about having an attitude that is open and sensitive to the moments of learning that occur throughout a person's life on a daily basis. The universities can come alongside to cultivate this spirit by providing courses for the personal and social development of adults young and old. As more of our educated people enter their senior years, they will need more opportunities to keep engaged and mentally stimulated so that they can have an active, healthy and interesting old age for as long as possible.

Already, agencies like the Council for the Third Age (C3A) are working with universities like UniSIM to entice senior citizens to take up learning well into their retirement years. Universities can do more to bring learning closer to learners, through online learning or through the setting up of learning centres around our island-state, like in Hong Kong and elsewhere. Also, while there is a 'university of the third age' in Singapore, like those in developed countries, where seniors build communities for sharing of knowledge and experience, we could build this up and enlarge its work.

More technologically-driven

Online learning will become a normal mode of study, not as a supplement to face-to-face didactic teaching but as the main mode supplemented by face-to-face interactions. It is already happening in some universities, but increasing funding pressure, the quest for mobility and flexibility and, more importantly, its effectiveness in learning, will accelerate its role as the primary mode of delivery in mainstream universities[11]. The 'flipped classroom' will be a norm and its variants and alternatives will motivate self-learning and interaction. Other pedagogies and experimental modes are being developed by enthusiastic teachers and researchers in many places. A better understanding of the effectiveness of online learning can be gained[17,18]. Technological advances will make multi-media interactions easy and encourage active and quality sharing among learners. No one will be just a learner or just a teacher.

However, there will be a need for many adjustments, mostly by the university academia. For example, with the Internet and the pervasive use of technology, examinations will have to be re-designed to accommodate the use of multiple devices and online information search as well as interactions among learners, while maintaining the rigour of the assessment. New ways to replace face-to-face classes without the loss of that personalised social-emotional touch will have to be found. Teachers will need to learn how to be more of a facilitator of discussion and knowledge exchange, and not merely be the knowledge provider or focus of interaction.

More integration and collaboration

With the increasing realisation that universities cannot provide the complete education to enable a graduate to perform well when he enters the job market and throughout his career, the role of providing HE and CET will have to be more integrated and collaborative, involving multiple parties such as the

government, industry and employers. Such collaboration, especially among our local universities, can also help reduce costs and enhance services. Perhaps there can also be greater cross-fertilisation among our universities, helping one another to excel and viewing the competition as coming from the world outside rather than from within tiny Singapore. There should be a greater effort to encourage our students to take courses from local peer institutions and to recognise credits obtained through this avenue. To encourage this, there could be joint programmes, cross-university appointments, sharing of learning data and knowhow, and funding levers favouring collaboration. Nationally, there is great potential in mining MOE's data on institutional and student characteristics and performance, as well as employment movements and career upgrading, to give longitudinal knowledge that can inform strategies and policies.

More private sector involvement

Till now, the major providers of tertiary education for fresh school leavers are the state-funded autonomous universities (AUs). By 2020, 40% of each student cohort will have full-time undergraduate places at our local universities, and 10% will study part-time for degrees[19]. It is estimated that another 10% to 15% will study on full-time and part-time basis at foreign universities either at their home campuses or in programmes they offer in Singapore. The private education market in Singapore is expected to shrink in the future. With a smaller market, it is an opportunity to weed out the poor-quality providers and strengthen the capabilities of the few left. The private sector can play a recognised accredited role in university education by raising its quality bar and imposing rigorous graduating standards. With better control of quality and standards, we can still have the diversity that complements the role of the AUs.

The higher level of control over (and better quality resulting) the private sector can be compensated by greater concessions accorded to the private institutions and their students, such as special rates for land leases, grants for educational technology improvements, direct education subsidies to students and permission for students to work part-time or as interns. These will, in the end, benefit our students at these institutions. There is also room for growth in the private sector in the provision of learning services and other disaggregated services. Industry, publishers, global Internet providers, specialist knowledge companies, professional academies and non-academic service providers can bring economy of scale, innovation, new pedagogy and content, and end-to-end services to universities. Indeed, universities themselves should be looking

at not just outsourcing some of what they do traditionally to private providers, but privatising their own units to reap the benefits of market discipline and open new business streams by serving the larger education market. Already, we see this occurring in online learning[20].

More quality-conscious

Singapore's universities have attained a high reputation for quality. But as new learning methodologies are more widely deployed, and as a larger number of students with a greater breadth of abilities enter the system, and industry and other training agencies join in to provide HE, the pre-occupation with high quality must remain steadfast. Quality management will focus more on learning outcomes rather than input, and quality will not just be a measure of overall institutional standards but will need to be determined for various critical functions of the university – teaching, research, online learning, industry-readiness of graduates, continuing learning provisions, and so on. Apart from a whole-of-institution quality concern, industry-led reviews can in future be done for programmes in specific disciplines. For example, the engineering academic fraternity is well-acquainted with this approach and similar QA reviews in other disciplines can be helpful to raise standards and keep programmes current with industry needs. As for the private education sector, while the Council for Private Education has done a credible job of regulating the industry as a business sector, more can be done to ensure *academic* quality. Singapore's private university education industry may well benefit from the introduction of a rigorous academic QA that ensures every programme from every institution has the ability to produce good outcomes in their graduates. Hong Kong, which faces the same problem with inconsistent academic quality in the private education sector, has adopted a QA scheme that puts the onus on foreign universities to seek accreditation to operate in that city. Those that are so accredited may then be rewarded with concessions as described in the previous section. Such accreditation is not a trivial matter, requiring expertise and a proper workable framework, but can be considered together with the experience gained by such places as Hong Kong.

More cost-effective

The higher cost of university education will increasingly confound governments as they strive to find the right level of university funding amidst the rising demand for social and healthcare services and slowing economic growth. Singapore is no exception. Efficiency gains will have to be sought in

the running of our universities, from within each institution as well as from the industry as a whole. Eventually, one may see a greater sharing of courses, common curricula as well as teaching, research and infrastructural resources among universities, something that is not practised widely today and not too well-received by the institutions either. We may well see more outsourcing of services by the universities when strong providers are available in the market, and even pooling of services among universities to reduce wastage and take advantage of synergy. With e-learning, the scope for collaboration and sharing is wide. Even choosing to use a common learning management system will bring cost savings as well as facilitate a learner's reading of courses from different universities. One may see total funding increasingly dichotomised into what is needed for turning out well-trained graduates and what is needed for frontier research. Funding for the teaching function may still need a research component but this must be justified by real flow-through of research outcomes into the curriculum.

More innovative

The 21st century learner will demand new pedagogies and be given the ability to use and interact with data to keep pace with rapid information changes. We will see more experimentation with new approaches and pedagogies as universities find ways to harness online learning and to meet the needs for personalised and self-directed learning[18]. They will also need to optimally harness ICT not only as a tool for learning but also as a tool to capture data and provide analyses that can enable better understanding and interventions in learning. Universities will experiment more with both student and teacher learning spaces, and build a continuum of learning and credentialing that encourages seamless learning throughout life. They will create communities of learning and knowledge exchanges. Faculty will need to become more of facilitators of learning rather than communicators of knowledge. The question is, do we have the right skills to bring all this about? We need to urgently step up the development of skilled manpower - enlightened faculty and technically-able pedagogy personnel, instructional designers, learning analysts and IT specialists, among others.

More supportive of learning

Learning analytics will become a common application that can impact the entire spectrum of a student's ability and benefit all levels of education. The

potential of learning analytics to impact education and learning is vast - we will be able to get data on an individual student, a class, a cohort, and on the effectiveness of delivery, interactions, assessments and outcomes. It will enable the university to help vulnerable students more effectively and in a more timely manner, and enable each student to assess where he is in his own learning outing. Currently, however, we do not have a ready pool of expertise to do data mining, not to mention relating the meta-data to pedagogical principles and practices, and ultimately to proposing interventions to improve learning outcomes. Singapore must build up this capability if it is to maximise the benefits of learning analytics.

More to look forward to

In the years ahead, higher education in Singapore looks promising and exciting. The learning environment will be more inclusive and diverse to support Singapore's local needs and its global role. The existing six local universities will sharpen their distinctiveness and unique positioning, but we are likely to see more collaboration to synergise, economise and bring more benefits to their students. Quality will continue to improve and spread to other training providers. Our AUs will be globally known not just for traditional academic excellence and research prowess, but also for applied learning and strong partnership with industry and society. Technology will be harnessed more extensively and pervasively for online learning and learning support for student success, and for greater efficiency in the use of resources in an age of decreasing government financing – the 'best bang for the buck'!

Online learning will be the norm, replacing traditional face-to-face learning to a great extent, and spawning new pedagogies to cater to the post-millennial generation. Support for learning will be given higher priority and enabled by learning analytics. With the AUs making good use of outsourced services, the private sector will play a bigger role in tertiary education. There will be a smaller number but higher-quality private education providers, including foreign universities with branch campuses here, complementing our AUs within a more tightly regulated HE system, particularly in terms of academic quality.

There will be greater fluidity in how education and learning and, for that matter, when and how a degree is acquired. Individuals will take greater personal responsibility for their continuing education throughout their careers, aided by good access to career and learning counselling. Degree top-

ups may become acceptable and continuing learning recognised by industry for advancement. There will be greater cooperation between universities and employers in getting the right graduates with the right skills to the market. Society will be better served by the universities as they bring learning closer to the community and make learning a way of life. There is hope yet that a life-long learning culture will be entrenched in Singapore and our universities will be a leading agent to bring this about.

It is a bright and exciting future to work towards.

About the author

Professor Cheong Hee Kiat is the founding President of SIM University (UniSIM). He was Deputy President of Nanyang Technological University and dean of a school there before joining UniSIM in 2005. In academia since 1986, his experience covers teaching, research, international relations, leadership roles in undergraduate and graduate studies, continuing education, campus development and online learning. Prof Cheong has served on the boards of various institutions of higher learning and statutory bodies, and on local and international university accreditation and academic audit panels. For the past 10 years, he has been chairing the external panel that reviews quality assurance in the polytechnics and the Academic Advisory Panel of the BCA Academy. He is a member of the Engineering Accreditation Board of the Institution of Engineers Singapore (IES).

Prof Cheong was on the government committees that led to the creation of more publicly-funded university places and the focus on applied pathways in our higher education system. He currently serves the Singapore University of Technology and Design as a member of its executive committee, and the Singapore Bible College and Grace Baptist Church as a board member.

A civil engineer by training, Prof Cheong obtained his MSc, DIC and PhD from Imperial College, London. He is a registered professional engineer, a fellow of Academy of Engineering Singapore and Society of Project Managers, Singapore.

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Beyond 2015:
Higher Education Re-imagined

Dr Lee Kwok Cheong
Chief Executive Officer
SIM Global Education

You have just knocked off from work and hopped into the MRT train for a 30-minute ride to your friendly community football match. Luckily, you got yourself a seat. You pull out your mobile phone and log on to your degree programme learning zone to catch up with some coursework, which you have been putting off due to heavy work commitment. This is the final module you are doing for your business analytics degree. With this and all the other credentialed courses you had taken at two other universities, you will be able to present your stack of courses for the award of your degree.

Thankfully, your assignment won't be due in two weeks' time. You finish some reading of course and research materials that you have downloaded from the university's online library. You now have a plan for your task at hand but need to clarify and test your understanding. You get onto an online forum and are able to chat with your professor and some course mates who happen to be online. You are happy that you can share their perspectives and get some tips for your own coursework.

By the time you reach your stop, you have not only captured an outline and pointers for your assignment in your smart device but have also completed an online test that is required of your module. You vow to finish the first draft of your essay when you get home tonight. But first, there's the football match you have been training for and looking forward to.

Fast forward five years...

Armed with your degree and extensive experience in your technical field, you have advanced in your career and have made the bold leap to start your own business. You know winning your first big client is crucial in getting your business to a good start. You know you can offer your client a more personal and customised solution than your bigger competitors. To better

prepare for your presentation, you have over the last few weeks taken online modules from a couple of universities to gain deeper insights into the data analytics business of your client. You have also been engaging online course mates who are in the field, as well as several professors who have consulted with similar clients. You are confident that you will knock the ball out of the park with your pitch.

You know that building up your start-up is going to be a long journey, especially in the highly-competitive environment. However, you are confident that if you continue to learn and pick up deep, transferable skills, you will be able to take on the challenges ahead. Right now, you need to hone your business and management skills and put in place effective teams and processes to get your business to a strong start. To help you do that, you have recently signed up for an MBA programme, not just any MBA but one specially put together to meet your needs as a professional and entrepreneur. With the help of SIM's expert system on assembling a customised MBA course, you have registered for different modules from various renowned universities around the world. Learning in the digital age is something so familiar to you and a breeze in spite of your busy lifestyle.

Now on your way to meet the client, you are feeling positive about yourself and the future of your business. You decide to free your mind from the presentation and to review your plan to raise $5 million from crowdfunding. You touch your iWatch 8 and...

Education utopia

This reads like utopia in life-long learning? Probably not, if we fast forward 10 to 15 years from now.

In the last 20 years, advancements in digital technology have practically impacted every aspect of how we live, communicate and work, and dramatically changed our lives beyond our wildest imagination. Similarly, over the next 20 years or maybe much less, the way we learn and teach will also be radically transformed beyond what we know today.

The changes in the higher education sector will be reflective of how industries such as music, entertainment and news have been changed by technology. These changes are unstoppable and will continue to gain momentum in

bringing about a paradigm shift that will liberalise higher education and revolutionise the way we understand and acquire knowledge. The fact that many well-known institutions such as Harvard, MIT and Stanford are already making some of their courses freely available online as Massive Online Open Courses (MOOCs) signifies a move in this direction.

Just as how digital technology has impacted the recording, production and marketing of music in a revolutionary way, so will it change the way knowledge is created and produced, and how it is packaged and delivered. Given how digital technology has stood many industries on their heads today, it is not difficult to imagine that higher education in the future will be a totally different kind of experience: it will not only be richer, more accessible and more personalised, it will also be in the full control of the individual, and hence more useful and meaningful to him at whatever life stage he is at.

Education for anyone, anytime, anywhere

Today, the business of higher education lies in the hands of educational institutions with well-established campuses, structures and curricula that dictate how learning is to be experienced generally. Acquiring a degree is a covetous pursuit that opens doors to one's career, available to those who are assessed as deserving by traditional measurements of academic abilities. Historically, this has also meant a clear study-work divide: one finishes university over a fixed three to four-year period before embarking on a career. In future, this study-work divide will be increasingly blurred as further education is no longer confined to a fixed period in our youth but will take place as we work and learn throughout our life-time.

Neither qualification from nor achievement in higher education will be based on grades alone but will be considered along with our experience, knowledge and skill set. Higher education will become accessible to everyone, not just the elite few. We will not need to go to a university to get a degree. We can acquire a higher education anytime, anywhere and at a pace that works for us. This will be made possible as educators and education providers collaborate and compete to provide an ever-growing offering of college courses that anyone anywhere in the world with an Internet connection can access. We will have great flexibility to work and study at the same time as there is no fixed duration of study. In fact, there is no end-point as learning will be life-long.

Personal responsibility and control

What's more exciting is that we will be able to customise our own learning experience in more ways than one. Some education programmes today may be designed to allow some flexibility but there is almost no customisation to meet each learner's needs, given the rigid frameworks within which universities have to operate. Imagine the possibilities of being able to put together courses from a variety of universities and other providers, picking and choosing content that is most relevant and useful to us. We can pursue a full course or combine different courses, each requiring a different length of study to acquire the knowledge and skills needed, and earning different credit points, some of which can be built up towards a qualification or even a degree. Neither the courses nor the sequence in which we will take them will be constrained by the conventional definition of semesters.

We can also decide how we want to learn – online study, face-to-face classes or a hybrid of both. Although we will still have to read and do research, write papers, interact and exchange with professors and peers on what we have learned, what's different is that how we do these will be designed entirely by us according to our needs and preferences. With technology, we will have at our disposal a variety of platforms to engage in rich and vibrant learning communities of professors and peers with a wide variety of backgrounds from around the world. With advances in telecommunications and video technology, virtual interaction will more closely approximate the actual experience in traditional study groups. Indeed, they will form a diverse learning environment in its true and full form.

Individualised and real-time learning support

In the traditional classroom, a professor may understand a few students well, some students not so well and most students not at all. With advances in artificial intelligence and adaptive learning software, every student's abilities will be easily mapped, allowing lessons to be tailored to his needs. A digital record can be made of the learner's learning journey, his strengths and weaknesses diagnosed and his education customised accordingly. With a more accurate and continual assessment of his learning process and outcomes, timely feedback can be provided to constantly challenge and motivate him to push his limits. In fact, with the tremendous amount of data and metadata collected and analysed individually and collectively by sophisticated learning

analytics tools, education providers will be able to calibrate and improve on their contents while customising the learning environment to enable each learner to achieve the best learning experience and outcome.

Rich ecosystem with multiple choices

Eventually the sector will comprise specialised players handling different types or parts of course contents. The availability and accessibility of a vast pool of information will facilitate collaboration among providers, resulting in the best contents being offered. We can anticipate a thriving ecosystem, which provides a wide range of services that cater to every aspect of the learner's experience, from counselling, tutoring, networking and sharing platforms to learning aids, supplementary materials, and specialised assessment and accreditation services. In other words, no one institution will take care of your "end-to-end" education needs. The sector will have an interesting mix of public and private providers, even individuals and non-profit organisations. It will mirror the web where resources and information are distributed, some with free access by all. The onus will be on the learner to screen and collate what is most relevant and useful. A good analogy is the way we consume news today – instead of reading one newspaper, we now gather news from various sources delivered to us in the way we want.

Redefining qualifications and degrees

With these changes, a concomitant shift will occur with the way credits and degrees are awarded and valued. An unbundling of degree credits will allow the learner to accumulate them along his learning journey. These credentials will be considered together with work and life experiences and will be acceptable to employers in evaluating knowledge and skill set. There will be a need for a reliable system to ensure standards and integrity. And as a traditional degree becomes less important in getting a job or career advancement compared to experience, knowledge and skills, there will be a more level-playing field for many to prove their true worth. But this could be a double-edged sword – as almost everyone has access to higher education and a degree is no longer a big differentiator, the employee will have to stand out with extraordinary capabilities in other areas. Perhaps this will encourage the achievement of the real goal of education – instead of just being a paper chase, it can help individuals find their passion, talent and meaning.

Learning for a new economy

Will all these changes enhance learning? They certainly will mean that education will be more 'student-centric' and relevant. Learning will be customised with more timely intervention and help to ensure optimal learning outcomes. By putting control and ownership into the hands of the learner, he can take responsibility of his own learning as his experience, knowledge and skills change.

Will it drive up the costs of education? The costs may start high but as the number of learners increases, the cost to each individual learner could drop. With more providers, a healthy competitive environment can only be good for them.

Will this spell the demise of the traditional university or educational institution in Singapore? There is still an important role for these organisations to play not just in terms of research that generates new knowledge but also in educating and providing the physical campus experience that some may still value. But the role that these institutions will play will have to be responsive to the changes brought about by new ways of teaching and learning that are not confined by place, space and pace. Institutions will also have to embrace students of diverse backgrounds, not just those fresh out of high school but also those who hail from different life stages. For providers of higher education, business cannot be as usual and adjustments will be needed to ensure that they remain relevant in future.

On the whole, all these changes will augur well for Singapore as we move into a new phase of development. As a knowledge-based economy where hardware can be easily acquired and duplicated, it is the knowledge and skills of the human resource that will ensure our competitiveness and survival. The ability to optimally capitalise on our manpower is all the more critical in our tight labour market. This is the motivation behind our government's SkillsFuture initiative, which aims to equip our people with real-world applied skills for the job market through the acquisition of relevant deep skills rather than mere paper qualifications.

About the author

Dr Lee Kwok Cheong joined SIM Global Education (SIM GE) as CEO in 2005. Under his leadership, SIM GE has grown to become the largest private education institution

in Singapore, offering programmes from 12 leading universities from around the world, with 22,000 students currently enrolled and over 120,000 alumni.

Prior to joining SIM GE, Dr Lee was Chief Executive Officer of NCS Pte Ltd and Assistant Chief Executive at the National Computer Board. He sits on the boards of ITE Holdings, Inland Revenue Authority of Singapore and Nera Telecommunications. He is on the Steering Committee of the Infocomm Media Masterplan 2025 and chairs its Manpower Working Committee.

Dr Lee received Singapore's Public Service Medal in 2010 for his contribution to Nanyang Polytechnic and Institute of Technical Education. He was conferred the IT Person of the Year Award in 2000, Honorary Fellow in 2008 and Hall of Fame Award in 2011 by the Singapore Computer Society. He graduated from Massachusetts Institute of Technology and University of California at Berkeley. In 2014, he was awarded an honorary Doctor of Business by RMIT University.

SG50 'ImagiNation'

When the next bold ideas take wing in Singapore

RE-IMAGINING SINGAPORE AS A CONNECTED NATION
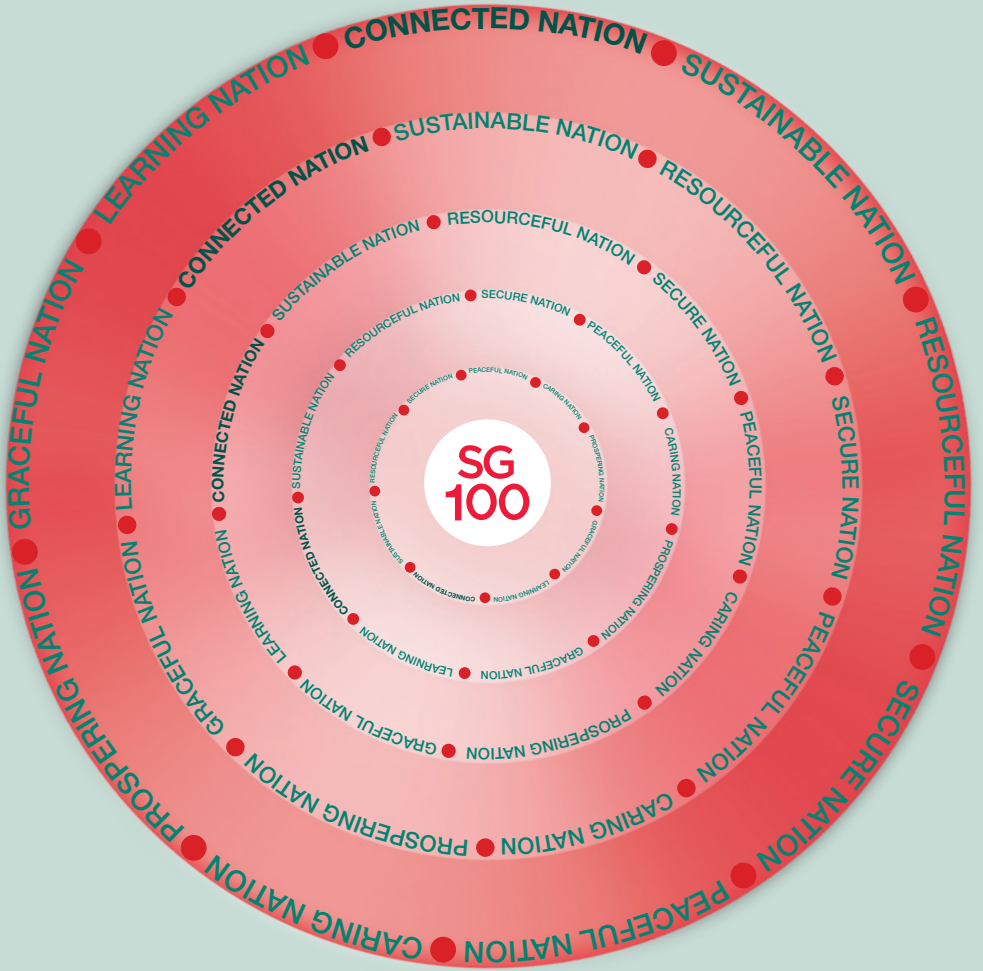
*"IT is transforming the way we work and live. It's creating wealth,
both for nations and for individuals. It will alter traditional culture
of societies, the way people interact with each other and the way they deal
with their governments or their governments deal with them."* (2001)

*"My primary preoccupation was to give every citizen a stake in the country
and its future. I wanted a home-owning society...otherwise, we would not
have political stability. My other important motive was to give all parents...
a stake in the Singapore their sons had to defend...
[otherwise, the soldier] would soon conclude he would be fighting
to protect the properties of the wealthy."* (2000)

*"It is worth restating the rationale behind our decisions to build the MRT.
We have only a limited amount of land on which to house our people,
build factories, hospitals, roads and schools, and train the SAF.
Therefore, we decided to give top priority to investments in public transport,
and to put private transport in second place. We do not have the land
to allow an unlimited growth of private cars. This means that we must put
the MRT to optimal use, and the bus services must dovetail and
complement the MRT. We must also keep improving the bus and
taxi services and keep the growth of cars to moderate levels."* (1988)

Lee Kuan Yew

Re-imagining Singapore as a Smart Nation of the Future

Khoong Hock Yun
Assistant Chief Executive (Development Group) and Chief Data Officer
Infocomm Development Authority of Singapore

Everybody, everything, connected everywhere, all the time. This is the premise on which we are re-imagining Singapore's future as a smart nation.

Picture this: A critically-ill person's vital signs are constantly transmitted to the hospital on-the-go as the person is brought from the home, to the ambulance and to the hospital. On the road, cars receive a warning signal that the ambulance on an emergency call is coming their way and they filter out of its way, allowing it to pass. Traffic lights are automatically synchronised to minimise the number of times the ambulance has to stop at road junctions, ensuring that the patient gets to hospital safely, in the quickest possible time.

In the hospital, cognitive systems process the patient data that is being received in real time, and analyse it together with details of the patient's medical history to arrive at a probable diagnosis. The doctor evaluates these findings and is able to narrow down the best course of action even before the patient arrives.

This is just one scenario in the whole spectrum of possibilities that make up the smart nation. It illustrates how connectivity, combined with sensor technologies and analytics, can help pave the way for more effective healthcare delivery and greater efficiency in our transport network.

Creating opportunities and improving lives

The focus of the smart nation is on improving the lives of citizens, creating new opportunities for businesses of all sizes, and building a more anticipatory government that uses technology to better serve citizens' needs. It is about solving challenges that confront Singapore (and other cities around the world) – urban challenges such as public transport, public safety and energy efficiency; demographic challenges such as an ageing population and related healthcare issues; and business challenges such as rising operating costs, manpower crunch and productivity.

Extrapolating from the earlier healthcare scenario, as we re-imagine Singapore as a smart nation, we picture the possibility of more and more people having their healthcare needs met in the comfort of their homes, with the support of the community.

For example, after a patient has received treatment in hospital, the use of sensors will allow doctors to continue monitoring the patient's key health indicators, such as blood pressure and ECG, and carry out visual assessment via video when the person is at home. There will no longer be a need for extended hospital stays to monitor the patient's condition, and this will help free up beds in hospitals and ease the pressure on our healthcare infrastructure.

From the comfort of their homes, for follow-up consultation, treatment or therapy, patients can be attended to by doctors and other allied healthcare professionals through video-conference and other supporting appliances, saving unnecessary trips to the hospital. In addition, the hospital may proactively request for additional consultation if an analysis of patient data indicates that medical intervention is required.

These different approaches to healthcare will make a huge impact as Singapore grapples with the problems of an ageing population. By 2030, some 900,000 people in Singapore will be aged 65 and above. Many of these senior citizens may want to live alone or in their own homes, giving rise to concern over their health and safety, for example, if they were to fall or come down with an illness. In a smart nation, smart monitoring and alert systems will be able to detect if something is out of the ordinary – for example, if the routine of the elderly person suddenly changes or if abnormalities are detected in his vital signs – and raise an alarm to alert family members or neighbours.

In the transport scenario, a connected transportation infrastructure with real-time intelligence will work hand-in-hand with connected vehicles and people to deliver a travel experience that is reliable, timely and convenient. Sensors on the roads will enable us to detect traffic build-up and prevent congestion by automatically adjusting the timing of traffic lights. Drivers will have better access to real-time information on traffic and parking conditions that will translate into less time spent on the road.

Video cameras at bus stops will enable us to gauge waiting crowds and the loading on buses so that additional vehicles can be deployed if necessary. From

the commuter's perspective, it will be possible to choose the most convenient or effective form of transport based on real-time data such as queue length at taxi stands, crowdedness of MRT stations and bus stops, and road and weather conditions. For the wheelchair-bound and parents with prams, it will be easier to get information on accessible routes while bus drivers could receive advance alerts on passengers who may need special assistance at bus stops.

As we re-imagine Singapore as a smart nation, we also see sensors and automation combining to help public agencies, businesses and other organisations increase their productivity and become more efficient in their use of manpower and other resources.

Agencies will be able to provide more responsive, even anticipatory, services and resolve issues even before the public raises them. For instance, the use of video analytics will enable agencies to identify areas with more litter and deploy cleaners more efficiently.

With better environment sensing, we can also have smart street lights that dim or brighten in response to ambient conditions to optimise energy efficiency. They will also send alerts to the service provider when light bulbs need to be replaced, again allowing for more targeted deployment of manpower.

There are also exciting new automation technologies in store as 'sci-fi' segues into smart nation. We have already seen prototypes of drones being deployed to help with serving food and drinks in the restaurant, alleviating the manpower crunch and allowing staff to focus their attention on front-end customer service. On a much larger scale, huge automated guided vehicles are on trial at our ports to handle the movement of containers. When fully operational, these are expected to be a huge boost for productivity and the overall efficiency of our port operations.

In a smart nation, there will be smarter ways to work. Instead of having to travel to and from the office, people will be able to work from highly-connected Smart Work Centres conveniently located near to or within residential areas. They will be able to access their corporate systems to carry out various work-related tasks, collaborate with colleagues online and attend meetings in realistic, intuitive video-conferencing environments. This highly-flexible iteration of the office-as-a-service concept will enable businesses to reduce fixed real-estate costs and to be able to provide for additional work space as their needs grow.

Laying the foundation

Connectivity is a key piece in the re-imagining of Singapore as a smart nation.

The vision of a connected Singapore itself is not new. We were among the first countries in the world to envisage the deployment of a nationwide network when the concept of a National Information Infrastructure was first articulated in 1992 under the IT2000 master plan.

Since then, the technology has evolved. The Internet has emerged as the de facto digital infrastructure for global connectivity. Copper, which was hailed as the new gold, has been supplanted by glass. Through the Intelligent Nation 2015 master plan, Singapore deployed a nationwide optical fibre network that delivers 1 Gbps connectivity and beyond, into homes and non-residential premises.

The deployment of the Next Generation Nationwide Broadband Network (Next Gen NBN) that began in August 2009 has taken Singapore a huge step forward in its plans to become a connected nation. As of mid-2013, we have achieved nationwide fibre coverage with more than 620,000 households subscribing to the Next Gen NBN today. In December 2014, Singapore became the world's fastest broadband nation, according to US-based Ookla's Net Index, a global speed index watched closely by many international authorities and Internet service providers (ISPs).

Complementing the wired network is the proliferation of wireless 'hotspots' across Singapore under the Wireless@SG programme and the use of 3G and 4G networks for the delivery of mobile data services.

A key principle that underpins the Next Gen NBN is "open connectivity". This is important in order to create an environment where innovation and services can thrive.

In rolling out the network, we wanted to ensure that there would be free and non-discriminatory access for players that wish to offer their services over the network. To achieve this, we introduced an industry structure that prevents conflict of interest between the company that operates the passive infrastructure of the Next Gen NBN, the companies that provide wholesale network services, and the retail service providers (RSPs) that offer services over the network.

The whole approach of ensuring open connectivity has led to the healthy proliferation of RSPs – 29 to date – offering a wide range of enterprise and consumer services and playing a significant role in driving down the cost of connectivity in Singapore.

Access to high-speed connectivity has reshaped the e-services landscape. No longer are we restricted to looking up information on the Internet or carrying out e-transactions such as booking tickets online, doing Internet banking, e-filing our tax returns or applying for passports, important though they may be. Today, in the context of our plans for a smart nation, high-speed connectivity allows for the delivery of many more bandwidth-intensive applications such as video-conferencing and the transmission of huge volumes of data, such as video and other sensor feeds for real-time analytics.

Going beyond Next Gen NBN

Impressive though its coverage is, the nationwide optical fibre network is currently deployed almost exclusively in buildings, whether it is to a home or a business. This is a limiting factor as we re-imagine the future of Singapore as a smart nation.

The fact is that the delivery of many government services takes place in public spaces – monitoring traffic junctions for road safety, ensuring smooth traffic flow on the streets, providing municipal services such as rubbish disposal, making sure street lights are working, ensuring efficient allocation of parking lots and so on.

To realise the vision of a smart nation, we will need to have pervasive connectivity in public areas as well. We are working towards this by developing a ready-to-use, common communications infrastructure that will enable all agencies to deploy sensors quickly and cost-effectively even in public outdoor locations that are not adequately covered by the Next Gen NBN. This infrastructure will take the form of installations known as Aggregated Gateway (AG) Boxes, which will allow various agencies to collect their sensor data and transmit it back to their respective systems for processing and analytics.

We will have AG Boxes located in common outdoor areas such as bus stops, parks and traffic junctions where there is demand for sensor-based technologies. The all-in-one containers will have power and fibre connectivity, reducing the

need for agencies to dig up the ground to install their own fibre each time they need to connect sensors to their systems.

More than 10,000 AG Boxes will be rolled out nationwide from 2016, and they will cover all major road junctions, all HDB void decks and a large number of bus stops.

Moving seamlessly between networks

As we work towards the creation of a nationwide sensor network, wireless and 3G/4G connectivity will also be an important part of the infrastructure.

Singapore has one of the highest smartphone penetration rates in the world, with 85% of people using their mobile devices to access apps and other data services. Of these, nearly two thirds of post-paid subscribers are using the much faster 4G network.

Under Wireless@SG, a wireless broadband programme introduced in 2006, users enjoy free wireless broadband access with speeds of up to 2 Mbps in many public areas. Once connected, they will be able to access Internet-based services such as instant messaging, voice over IP and email, and to make use of more bandwidth-intensive applications such as standard definition video-streaming. The number of 'hotspots' rolled out under Wireless@SG has grown steadily over the years and is projected to double from 10,000 in 2015 to 20,000 in 2016. Usage of the service has also increased six-fold since 2006. The number of users grew from 200,000 to 1.8 million, with average consumption ranging from 4 to 13 hours per month.

Wifi and 3G/4G have played an important role in complementing the Next Gen NBN to provide connectivity to end-users. Going forward, the smart nation will feature tighter integration of these technologies into a coherent and comprehensive whole to allow for more efficient use of these different channels to meet its connectivity needs.

For example, with the 3G/4G network, congestion will be a growing issue as more and more people make use of their mobile devices to access multimedia applications and highly-interactive contents. One solution to this problem is to offload non-critical traffic to local wifi networks such as Wireless@SG to free up valuable the 3G/4G spectrum for more critical applications. For

example, Wireless@SG could be used for looking up information over the web or watching video on demand, while the remote monitoring of critically-ill patients in a moving ambulance could be done via a 3G/4G or wireless network, with the application switching smoothly between the different channels, depending on which network offers better connectivity in a particular location at a particular point in time.

To enable this to happen, we are creating a Heterogeneous Network or HetNet that will enable the seamless handover of services between different types of networks run by different operators. This will allow for more efficient sharing of resources, greater energy efficiency and an enhanced user experience with better quality of service as they roam across different types of networks.

Beyond connectivity

The smart nation is a work-in-progress that involves many other moving parts. Beyond building connectivity, we are also rolling out a common technical architecture and operating system that will enable relevant sensor data to be anonymised, protected, managed and shared where appropriate. The data can then be analysed for better situational awareness and relevant insights to support forward planning and decision making.

Moving from public spaces to the private domain, we are working to enable seamless interoperability between connected smart devices in the home in order to create a true Internet of Things (IoT) and ensure end-to-end coverage for our smart nation vision.

Today, we see a growing number of smart devices such as wearables and home appliances that are designed for IoT applications. However, many of them do not work with each other and their functions are limited. Under our IoT@Home initiative, we are working with industry to identify relevant open standards and an open architecture for IoT, and developing and testing innovative IoT applications for homes, especially in areas such as wellness, active ageing, home-based care and sustainable living.

Another important thing we need to do is to equip Singaporeans with the right skills not only to use technology, but also to create the technologies of the future. We need to expose our children to programming and find ways to encourage students and the general public to get involved in technology. We

also need to build up technology start-ups that will create innovative services and applications for our smart nation.

One such initiative that we have introduced is IDA Labs, which provides physical space for individuals, companies and government agencies to come together to generate new ideas, develop partnerships and collaborate to co-create new solutions and test proofs of concepts.

At IDALabs@HQ, located at IDA's headquarters in Mapletree Business City, Singapore companies can work with IDA and government agencies on projects and products that have the potential to be used by the government. Another facility located at the National Design Centre, IDALabs@NDC, was set up in collaboration with the Design Singapore Council and serves as a meeting point for technology, media and design professionals.

There is even an IDA Labs on Wheels, an educational bus that features gaming technologies to attract students. The bus travels to schools and exposes students to the possibilities that can be created with technology through activities such as coding a game, tinkering with gadgets and programming robots. The aim is to interest them in technology and encourage them to pursue their studies or careers in this area.

To grow high-quality technology start-ups, we have also introduced an accelerator programme managed by IDA's venture capital arm, Infocomm Investments Pte Ltd, to help promising start-ups evolve into innovation-driven enterprises.

A glimpse of the future

Even as we re-imagine Singapore as a smart nation, many of the future scenarios that we have envisaged are starting to take shape at the Jurong Lake District (JLD). Slated to become the largest commercial and regional hub outside the city centre over the next 10 to 15 years, JLD will also be a living lab for our smart nation.

Connectivity infrastructure such as the AG Boxes have been deployed together with over 1,000 sensors to pilot a wide variety of solutions focusing on three main areas – urban mobility, sustainability, and improving sensing and situational awareness.

The Smart and Connected JLD Pilots and Trials initiative is a whole-of-government effort that involves IDA and partner agencies such as the Building and Construction Authority, Economic Development Board and Housing and Development Board.

Since 2014, we have been working with more than 20 companies and start-ups to progressively deploy and assess the use of various smart nation technologies at JLD.

Here, driverless buggies will ferry people around. Smart algorithms will determine the movements of vehicles and pedestrians at traffic junctions and make automatic adjustments to traffic light signals to ensure a smooth traffic flow. Advanced video-sensing technologies will detect people smoking in prohibited areas. Park lighting systems will adjust their brightness automatically based on the time of the day and motion sensors. Video analytics and smart bin technologies will identify public areas that require cleaning. Urban planners will be armed with real-time environmental information such as temperature, relative humidity and air quality to help them create comfortable outdoor spaces for social gatherings.

Conclusion

Singapore is firmly committed to collaborating with businesses and the community to make our smart nation a reality. As Prime Minister Lee Hsien Loong said: "The smart nation is not just a slogan; it is a rallying concept for all of us to work together to transform our future together."

The government is laying the foundation for this to happen. We are building the infrastructure – the Smart Nation Platform. We are creating the conditions for innovation to thrive through test-beds such as JLD. We are also creating the framework for everyone to contribute by opening up our maps and other datasets to encourage collaboration and co-creation.

Looking ahead from the vantage point of Singapore's 50th anniversary of nation-building, we see the various components of the smart nation coming into alignment to transform the vision into a reality. As we re-imagine the future, know that the future is limited only by our imagination.

About the author

Khoong Hock Yun, Assistant CEO (Development) and Chief Data Officer, joined the Infocomm Development Authority of Singapore (IDA) in 2000. He is responsible for IDA's 'Build' agenda to generate economic growth for Singapore. This includes developing and building the infocomm industry, infocomm manpower and critical national infocomm infrastructure, such as the Next Generation Nationwide Broadband Network (Next Gen NBN). His other transformational initiatives include Wireless@ SG, National Authentication Framework, National Cloud Computing Office, Singapore Internet Exchange, an upcoming Data Centre Park and Singapore's first cloud-based infrastructure implementation for the inaugural Youth Olympic Games in 2010. Hock Yun also oversees IDA's strategic and corporate planning, enablement of industry sectors with infocomm, as well as the mandate to develop the Smart Nation Platform (SNP).

Hock Yun had served at the Ministry of Defence as Programme Director, developing simulation systems as well as command, control and communications systems. He brings with him deep industry and technology experience, including more than 11 years at Mentor Graphics Corporation, where he was Strategic Business Group Director responsible for research and development, product engineering, marketing, business development and consulting services, and management of product development organisations in Singapore, Europe and the USA. A Harvard Business School alumnus, he has master degrees in engineering and business administration.

Rethinking Singapore's Asset-Based Welfare System

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This chapter examines some of the limitations of Singapore's public housing programme. We contend that while Singapore's approach of providing welfare through public housing has its merits, it also suffers from certain critical weaknesses. These weaknesses are likely to become more serious as policymakers grapple with an operating context quite different from the one they faced in the first five decades of independence.

In particular, we suggest that Singapore's asset-based welfare system may run into three structural problems. First, instead of collectivising risks as one would expect a welfare system to do, public housing as welfare privatises risks even for households that may not be well-placed to manage those risks. Secondly, and contrary to the government's stated intent, the public housing programme is not immune to the problems of dependency and entitlement that are said to afflict conventional welfare programmes. Thirdly, public housing may become unaffordable for societies to sustain in perpetuity and, in fact, relies on the same inter-generational transfers that are blamed for making pay-as-you-go pension systems unsustainable as the population ages.

Home ownership as welfare

Public housing in Singapore is highly successful on many dimensions. It accounts for about 76% of the country's housing stock, and provides shelter to 82% of the resident population.[1] Up to 92% of households who live in public housing are homeowners.[2] The home ownership rate is also high for households in the bottom income quintile with 82% owning the public housing units that they live in.[3] The state subsidises, and in most cases builds, a range of public housing flats sold at different prices to cater to the diverse preferences and budget constraints of the population.

Public housing has also performed well as an investment. By one estimate, the resale price index of public housing flats has grown faster than both the private property price index and the Straits Times Index over two time periods - 1990 to 1999 and 2000 to 2012.[4] In other words, during these two periods, an investor would, on average, have enjoyed higher returns by investing in a public housing flat than in private residential property or Singapore's stock market.

The high home ownership rate and the stellar performance of public housing as an investment may have reduced or even obviated the need for a cash-based welfare system. Instead, the government has institutionalised an asset-based welfare system founded on an unusually extensive public housing programme. The high rates of home ownership and the assurance of asset appreciation may also have muted demands for a more redistributive state that provides income support during unemployment and retirement.

Singapore is not unique in its efforts to promote home ownership. This is probably because home ownership can be a politically and economically worthy goal. On the political front, homeowners are likely to be better citizens than non-homeowners as measured by the former's membership in non-professional organisations, knowledge about local politics, and willingness to solve local collective action problems.[5] It is also plausible that political support for the protection of property rights, which is vital to a market economy, may require a critical mass of property owners.[6] In his memoirs, *From Third World to First*, our founding Prime Minister Lee Kuan Yew explained that home ownership was pursued from 1964 onwards to build a stakeholder society. In his view, property owners were more likely to defend Singapore's interests and to vote responsibly – both of which would lead to greater political and social stability.

On the economic front, economic theory posits that ownership creates stronger incentives to care for the asset; it also motivates work. Moreover, many treat their housing assets as a form of savings, albeit a rather illiquid one. In Singapore, public policy has been used to good effect to unlock the economic potential of home ownership. Between the 1980s and the early 2000s, citizens with the financial means were encouraged to sell their public housing units at market value and to upgrade to larger public housing units or to private residential property. The government has also emphasised the role of housing as a nest egg for retirement.

Given its role in supporting upward mobility and retirement financing, it is not surprising that home ownership is a key component of Singapore's welfare system. Its prominent role also reflects two important strains of the ruling People's Action Party's (PAP) ideology: self-help and ownership. In Singapore's asset-based welfare system, citizens accumulate assets to meet both their current and future needs. During their working years, they accumulate and fully own the compulsory contributions made to their Central Provident Fund (CPF) accounts. The large majority of the citizen population also owns subsidised public flats, usually paid for with their CPF savings. During retirement, citizens are expected to draw down on these self-accumulated assets, instead of relying on social transfers.

Consequently, policymakers have devoted a considerable amount of energy to ensure that as many Singaporeans as possible can participate in the ownership society, without eroding their desire to help themselves. Where public housing is concerned, the government has, over the past decade, increased the amount of housing subsidies provided to low and middle-income families to ensure that they too can own public housing and benefit from asset appreciation. Today, low-income first-time buyers of new public housing flats can qualify for up to $60,000 in additional subsidies over and above the already subsidised selling price of new flats. If they choose to buy from the resale market, they are eligible for up to $40,000 of additional subsidies, which is given on top of the housing grant for resale flats of $30,000 (or $40,000 if the buyers live with or close to their parents).

Though self-help and home ownership are useful features of a welfare system, our concern is that in Singapore's context, they have obscured the need for a guaranteed minimum for those facing income losses due to unemployment, illness or retirement. Over the past 50 years, the Singapore government has consistently characterised such income replacement programmes – which are the cornerstone of welfare provision in most developed countries – as expensive, detrimental to the work ethic, and likely to contribute to an unhealthy culture of dependency and entitlement among citizens.

An uncomfortable equilibrium

Despite its clear successes over the years, a number of aspects of the home ownership programme have been contested since its launch in 1964. These include the affordability of home ownership flats, their status as assets rather

than just consumption goods, the speculative investments in housing that a deliberate policy of promoting home ownership might encourage, and (more subtly) the positional competition that housing tends to generate. These contestations do *not* appear to have weakened the role of public housing as an asset of the masses, or the importance of home ownership and asset appreciation as critical components of Singapore's welfare system.

There could be many reasons why this is so. One possibility is that these concerns, though perennial, wax and wane in importance along with the fluctuations in property prices. During a property price boom, concerns over the affordability of public housing and the rate of price appreciation become politically more salient. But when property prices fall, these concerns fade away. Consequently, the volatility of the housing market has not gripped public attention for long enough to force a major rethink of Singapore's public housing programme and its approach to welfare.[7]

Nonetheless, the volatility of the property market is a major concern that merits serious policy attention. This is especially so when one places it in the context of Singapore's approach of making home ownership the centrepiece of welfare provision. In particular, home ownership as welfare suffers from three structural weaknesses: it individualises risks; it creates dependence and entitlement; and it may not be sustainable in perpetuity.

Individualised risks

The flipside of a welfare system that is so heavily reliant on ownership – whether of public housing or CPF savings – is individualised risk. Except for the very wealthy, most people buy their homes long before they can afford to fully pay for them with cash or their CPF savings. They therefore take out a mortgage loan, and spend the next few decades paying back both its principal and interest.

During this time, the households face multiple risks. First, the interest rate on their mortgage loans could increase, requiring them to channel a larger proportion of their incomes to service their mortgage payments. This can reduce their non-housing standard of living, or consume a portion of what would otherwise have been personal savings. Lower-income households tend to have less budget "headroom", and therefore face greater risks of default. Far from providing greater financial certainty to poorer households, housing as welfare might increase financial hardship for them.

Secondly, there is an ever-present risk of defaulting on mortgage payments due to an extended period of unemployment or illness. The absence of automatic unemployment or disability benefits worsens the risk of default.

Thirdly, because property market cycles can be highly pro-cyclical, homeowners who need to sell their flats to finance other needs may well have to do so when the property market is deflating. Again, this risk is likely to be greater for poorer households than households that have more resources for weathering economic downturns.

From a macroeconomic perspective, housing also does not possess the automatically stabilising properties of conventional welfare systems. In these systems, a fall in output and consumption spending is at least partially offset by an automatic increase in welfare spending. This helps to stabilise the economy and – automatically – ensures that the most vulnerable sections of society can meet basic needs. A housing-centred welfare system not only lacks such automatic stabilisation properties, but may even accentuate the shocks as the property cycle mirrors the real economy.

Dependency, entitlement and inequality

In Singapore's political lexicon, "dependency" and "entitlement" are usually used as pejorative terms. They bring to mind not just citizens who lack personal responsibility, but those who are also morally deficient from the standpoint of the conservative, hardworking majority. The pejorative usage is curious given that Singapore's public housing market leaves most residents with little choice but to *depend* on the state for their housing. This is because most residents, except the wealthy, are priced out of private property and private rental markets.

The issue of entitlement is less straightforward. To be sure, no Singaporean has a legal right to a public housing flat. But in reality, only Singaporeans who are excluded from the public housing market due to, say, their marital status or income, would appreciate that public housing is a privilege. For the rest, subsidised public housing appears more like an entitlement of citizenship. This is because the government's political commitment to ensure home ownership for the masses generates a demand for affordable housing that has to be met in order for it to maintain political legitimacy.

The blurred line between privilege and entitlement is, perhaps, best illustrated by the range of housing types targeted at upper middle income Singaporeans.

While these constituents do not face serious deprivation, some cannot afford private housing. The government has addressed their predicament by relaxing the income criteria for qualifying for subsidised public housing. More significantly, the government had also introduced various types of *higher-quality* subsidised housing to meet this group's higher housing aspirations – Housing and Urban Development Company (HUDC) flats in 1972, Executive flats in 1979, Executive Condominiums (ECs) in 1996, and the Design, Build and Sell Scheme (DBSS) in 2005.

We think the policy of providing higher-quality subsidised flats has been an unfortunate way of responding to citizens' demand for housing. This is because the policy demonstrates that an asset-based welfare system favours those with greater financial ability to accumulate assets; those buying ECs enjoy most of the amenities of private property, but at a subsidised price. A well-functioning welfare system is supposed to reduce concerns about the distribution of income and wealth. But Singapore's asset-based welfare system, by being tightly intertwined with one's income and wealth, tends to amplify these concerns instead.

Another problem with schemes like the HUDC, EC and DBSS is that they stymie social mixing because the flats built under these schemes are priced beyond the reach of lower and middle income Singaporeans. In fact, the HDB discontinued the practice of building exclusive HUDC estates in the 1980s to avoid the formation of enclaves. This concern appears to have become less important; since 1996, the HDB has been subsidising the ownership of ECs, which are essentially flats in gated communities.

More subtly, higher-quality subsidised housing can result in positional competition. Singaporeans may end up spending more than necessary on residential property just to satisfy their impulse to keep up with the Joneses.

Sustaining an inclusive asset-based welfare system

An asset-based welfare system is built on two main assumptions: property appreciation that exceeds the rate of inflation, and a widespread willingness to monetise the housing asset in time of permanent income losses, say, in retirement.

Investment in public housing has paid off. Between 1990 and 2014, the resale price index grew by 5.7 times, dwarfing the 1.6 times growth in the consumer price index.[8] While this has been great news for property owners who entered

and exited the public housing market at the right time, their gains have come at the expense of increasing prices for aspiring homeowners.

As property prices are more volatile than income, property price booms can take a significant toll on the affordability of housing for future generations. This negates, or at least reduces, one of the frequently cited advantages of public housing as a form of welfare - that it minimises the need for the inter-generational transfers that are inherent to welfare systems financed mostly by taxes on the working population.

The state has responded to housing price appreciation in two main ways: increase the amount of housing subsidies for first-time buyers of public housing; and provide larger discounts on the selling prices of new public housing flats. In effect, the government (or taxpayers) is providing an increasingly generous subsidy on the capital gains of owners of new HDB housing units.

Asset-rich but cash-poor retirees are another source of pressure on the public purse. An obvious remedy to their problem would be to generate an income from their flats. But, there is resistance due to factors such as the desire to bequeath the housing asset, the emotional attachment to the flat, or the lack of suitable housing to move to in the same neighbourhood.[9] Moreover, some cash-strapped retirees cannot monetise their flats. This is because their adult children, who may also have limited means, live with them. It is this latter group of retirees (who clearly require financial help from outside of their immediate families) that fuels political demand for pension payments.

Until last year, the government had resisted this demand. Instead, it had preferred policies that provided retirees with financial incentives to monetise their homes. But from 2016 onwards, low-income retirees will be eligible for a modest old-age benefit. To qualify, retirees must have had a low lifetime income, belong to low-income households, and live in five-room or smaller public housing flats. They must also demonstrate that they cannot derive retirement income from more traditional sources, such as their families and through the monetisation of their housing assets.[10]

To be sure, these policies provide an important boost to the standard of living of low-income retirees. But by doing so, these policies also demonstrate that an asset-based welfare system, even when supplemented by family support, might be an ineffective bulwark against old-age poverty. The public policy implication is that an inclusive asset-based welfare system would inevitably have to be complemented with traditional forms of redistribution.

Principles for the future

To recapitulate, we have argued that the primacy of home ownership, which is a consequence of Singapore's welfare ideology of self-help and ownership, individualises risks, engenders dependency and entitlement, and may be costly to sustain. Rethinking Singapore's housing policy for the future is all the more important in light of two long-term changes in the operating context.

First, in the context of rising inequality and slower income growth for the lower and middle strata of society, it is by no means clear that home ownership is an equitable or reliable way for the state to provide retirement security. The people who benefit the most from housing as a form of retirement security are those who have the means and risk appetite to accumulate more than one property. Rising income inequality is also likely to herald a growing gap in asset accumulation, and hence more disparate living standards in retirement.

Secondly, Singapore's population is ageing rapidly. In the coming decades, a surge of elderly households seeking to monetise their housing assets might cause prices to fall sharply, undermining the very premise of housing as a reliable source of retirement income. More generally, there is no assurance that the elderly would always be able to monetise their housing assets at the right time in the housing cycle. Given this risk, it appears imprudent for Singaporeans to lock up so much of their wealth in housing on the (questionable) assumption that they can easily monetise an illiquid asset at a time of their choosing.

We briefly propose three revisions to the principles that have underpinned public housing policies in Singapore so far.

First, while we do not deny the merits of home ownership as a policy goal, the state should also stop viewing home ownership through rose-tinted lenses. A policy that places home ownership at the heart of welfare provision and emphasises asset appreciation as an important source of retirement security is also a policy that increases individual risks. To mitigate this, the state should take the lead in expanding the range of affordable rental options, so that the lower income group – specifically the bottom quintile – have a genuine choice between owning a flat and renting one.

Secondly, home ownership for the masses is a fantastic political commitment. But this commitment should not entail building ever higher-quality homes

for the upper middle income. Rather, we think the government should focus on building no-frills public housing accessible to all Singaporeans (including singles). To keep the tax-and-transfer system progressive, those with very high monthly incomes, say above $10,000, can be sold flats without any subsidies.

We also think that it is time to confront the fact that a political commitment to enable home ownership for the masses creates dependency and entitlement. This is in spite of the considerable political rhetoric that has been invested in framing home ownership as a privilege. The public housing programme also demonstrates that there is nothing fundamentally wrong about dependency and entitlement except for potentially high costs. Hence, the debate over the expansion of welfare provision in Singapore to cope with unemployment and retirement should take as its point of departure the fact that the current housing-based welfare system *already* leads to dependency, a sense of entitlement and potentially high costs.

The third revision we propose is to diminish the role of public housing as an asset. The best way to achieve this is to reduce the importance of public housing in redistributing wealth and in retirement financing. This can be achieved by providing a minimum guarantee for those who do not have enough income when they retire or are temporarily unemployed. Only then would it be possible for the government to pursue housing policies that are economically sensible (such as dampening an overheating property market) without excessive concern about their political consequences.

About the authors

Donald Low and Alisha Gill study comparative welfare systems. They have a particular interest in well-intentioned social policies that produce consequences that are contrary to what the policymakers had intended. To many observers, Singapore's unusually extensive public housing programme is a phenomenal success and, arguably, Singapore's most important policy innovation. But as Donald and Alisha argue in this chapter, policy success requires constant rethinking and reinvention as the context changes. In a rapidly ageing Singapore, they are concerned that a longstanding policy that has enabled mass home ownership might become a source of insecurity for individuals, and of inequality for society.

Donald is Associate Dean for research and executive education at the Lee Kuan Yew School of Public Policy. Prior to joining the school in 2012, he served in the Singapore Public Service for 15 years. Alisha has worked in various ministries. She crossed paths with Donald when she was a researcher at the school.

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Future of Urban Mobility in Our Transport System

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In August 2012, some of us from the Centre for Liveable Cities (CLC) interviewed Mr Lee Kuan Yew at the Istana. We began by asking him how Singapore got itself on the right footing in terms of our urban development. "I learnt from negative examples," he replied. "I went to Osaka and I could smell chemical factories. I said no, we mustn't allow that. We are a small island; unless we protect ourselves by placing the right industries in the right places – taking into consideration the prevailing winds – we will despoil the city. This could easily have become an unliveable city."

Based on scores of such interviews with ministers and senior officials who served from the 1960s onwards, our researchers found that Singapore has focused on liveability and sustainability long before these words were coined out of necessity. As a city-state, our people have no hinterland to retreat to, away from city smog, crime or slums. Through our interviews, CLC researchers study Singapore's half century of urban transformation across various domains in our 'Urban Systems Studies'. By looking at present conditions as well as developments in other cities, we also explore how our city could continue to improve in future. Many problems stem from the gaps between organisational or disciplinary silos, so we try to traverse these in all our research.

A key domain that we have studied is urban mobility. We would like to share some of our findings and ideas in this area.

Brief introduction to transport in Singapore

Since its early days, our city-state has developed land use and transport systems with an eye to liveability and sustainability. Singapore's overall urban

development strategy has been guided by an integrated transport and land use planning approach. The 1971 Concept Plan – Singapore's first integrated land use and transport plan – provided a fundamental framework for physical development to cater to the needs of a population that was projected to reach four million by 1992.

To attract investors and residents, Singapore had to reduce congestion and provide roads that moved goods and labour efficiently. Singapore took strong early steps to slow motorisation rates by implementing high vehicular taxes and road pricing to manage demand. These measures were further enhanced when a vehicle quota system was put in place to control the vehicular population growth. These policies were world firsts, and widely regarded as policy successes – to stem the growth of private vehicles and prevent congestion.

At the same time, Singapore invested heavily in public transport. Truth be told, the government was divided initially, and there was intense debate about whether a cheaper all-bus system was preferable to a mass rail transit (MRT) system, which took massive capital investment. The turning point came with the renewal of our vision for Marina South as an extension of the existing Central Business District (CBD) area, where MRT access would raise land values and enable land sales there to subsidise MRT costs. The pro-rail argument prevailed and in 1983, we started construction for the first MRT system in Singapore. Today, life in Singapore would be unimaginable without the MRT system.

Over time, a comprehensive public transport network based on a hub-and-spoke model was developed, with buses and light rail bringing people to larger transport hubs. Singaporeans enjoy easy access to public transport nodes that are well integrated with retail, commercial uses and medium- to high-density housing, all shaped by that earlier vision. The public transport network has evolved over time to provide citizens with a sustainable low-pollution environment and a high quality of life.

Pause and re-think?

However, gaps remain in Singapore's provision and design of our urban transport systems. To ensure sustainability, liveability and equitability for their citizens, and to attract and retain talent from around the world, cities like Seoul, New York and London are planning and designing urban spaces

to focus on the needs of ordinary people. For space-and-resource-crunched Singapore, re-thinking the way we plan and design our urban spaces is just as – if not more – imperative. It is therefore timely to re-examine some of the key strategies and policies that have guided our transport and land use development to date.

For one, emphasising the smooth movement of vehicles around the city has served Singapore well in the past, but has contributed to an urban environment that is less friendly to pedestrians, cyclists and public transport users. Until recent years, non-motorised forms of transport such as walking and cycling – which play a critical role as the 'feeder' modes to public transport nodes – have not been given adequate attention. There is little dedicated cycling infrastructure. Many parts of the urban landscape are still dominated by pedestrian-unfriendly overhead bridges, narrow sidewalks and wide slip roads at arterial junctions. Even at major pedestrian thoroughfares such as the junction of Orchard Road and Scotts Road, cars are given absolute priority, while people are forced to make use of underground road crossings.

Secondly, the focus on road expansion to tackle anticipated traffic congestion does not necessarily optimise land and resource use, particularly in a city-state where space has to be carved out at great cost seawards, skywards and even downwards. Already, 12% of our valuable land has been set aside for transport-related use, of which a significant amount is for building roads. Furthermore, it has been well proven that no city can build its way out of congestion. Road projects are justified based on the projected number of vehicles, but when road capacity expands, so does the number of vehicular trips - an unsustainable, self-reinforcing upward spiral of demand for and supply of road space.

Meanwhile, Singapore's parking policies when compared with other metropolises like New York, London, Tokyo and Hong Kong appear to have over-provided for cheap parking, a perverse incentive that encourages drivers and seems to conflict directly with the goal of increasing the share of trips taken on public transport. Monthly season parking in the CBD area averages out to be a low S$10 to S$15 per day, cheaper than a one-way taxi trip from most housing towns during peak hours, while Singapore's conventional minimum parking requirement is intended to provide more than enough parking spaces to satisfy expected peak demands. Policies such as parking deficiency charges and gross floor area (GFA) exemption for car parks serving certain developmental uses are also poorly aligned with policies that support pro-sustainable transport modes.

Lastly, the potential of active mobility (such as walking and cycling) as an important urban transport option that offers significant benefits at both city and individual levels has not been adequately explored. For instance, despite being a socially-equitable and environmentally-sustainable mode of transport, cycling has been deprioritised through commuter choice and policy design over time. While cycling in Singapore was well-established in the 1960s, it began to decline as the pace of economic development rose and people's preference switched to private vehicles. By 1981, the Registry of Vehicles had stopped registering bicycles. Today, while there is ample infrastructure for recreational and intra-town cycling, there remain conflicts between vehicles and on-street cyclists, as well as between pedestrians and cyclists who opt to cycle on sidewalks for increased safety.

Looking ahead: what must be done now?

So to make Singapore a more liveable place despite a rising population and higher density, what must be done? In theory, our public policies are meant to promote more sustainable travel behaviours, but in practice, we are at risk of creating an urban ecosystem in which cars, instead of people, take the centre stage. Inevitably, to re-work this ecosystem will involve deprioritising some of the privileges enjoyed by car users today. There may not be an easy way out. The sooner we kick-start this process, the sooner we can get back on the right track.

Much effort has already gone into enhancing the attractiveness of public transport. With developments such as the planned ramping-up of new rail-line developments, the bus service enhancement programme, more premium bus services and other initiatives, the Land Transport Authority (LTA) and the Public Transport Council (PTC) have hastened the pace to significantly boost capacity, network coverage and service reliability of our public transport system. These are important steps. Commuters, especially those who own cars, also need to be convinced that public transport can be a fast, reliable and comfortable alternative to private vehicles. Reducing car dependency, however, is not a task for the transport authority alone. A multi-pronged approach will be needed to prepare ourselves for a 'car-lite' future in an increasingly complex and inter-dependent urban environment.

Land-use planning and development

One key pillar of this approach is to really focus on the impact of *land-use planning and development* on our public transport system to make sure that our

planning decisions contribute towards opening up opportunities to improve travel choices at all levels.

At the strategic level, striking a better jobs-housing balance has been a major challenge. While many more recent housing projects have been built in the north, northeast and east of our island, key employment activities continue to concentrate in the west and the city centre, resulting in spatial mismatch over time. This adds bottlenecks and stress to the road network and public transport infrastructure as people have to commute fairly long distances between their places of residence and employment. To address these issues, urban planners are pressing on with efforts to bring jobs closer to homes through the creation of new commercial centres outside the city centres, e.g. in the Jurong Lake District, Paya Lebar Central and North Coast Innovation Corridor around Woodlands and Seletar. But a wider range of strategies would be required to improve the jobs-housing relationship.

At the detailed planning level, urban structures (in terms of location, mix and density of land uses) and transport systems must continue to shape each other in ways that promote sustainable travel options. Besides locating high-density land uses around public transport nodes, compatible uses should also be co-located within the same development vertically to minimise the need to travel in the first place. For instance, 'Kampung Admiralty' in Woodlands, when completed, will house HDB studio apartments, a medical centre, childcare and eldercare facilities, a hawker centre and other commercial facilities all under one roof.

Finally, at the development control level, accessibility-based planning assessments could be used to support greater integration of land use and transport decisions. For instance, London has established a six-band accessibility assessment tool, more commonly known as the public transport accessibility levels (PTALs), based on walking time to public transport and the level of service provided – an easy formula to calculate the accessibility of a site on the city's public transport network. Accessibility scores could be tied to parking provision standards, for example.

Travel demand management

Secondly, *travel demand management* policies must contribute to rather than compromise sustainable transport objectives. For instance, the cost and

availability of parking have a strong influence on people's travel choices. Even with excellent access to public transport, workplaces that provide ample parking spaces at affordable rates will tend to prompt both staff and visitors to drive. Similarly, the generous supply of residential car-parking facilities (which have been steadily growing over time in HDB estates) could encourage car ownership and reinforce the notion of parking as an entitlement.

To encourage 'car-lite mobility', a more stringent parking provision framework, with a more responsive pricing scheme that varies according to timing and site context, may be necessary. New HDB developments that enjoy close proximity to the city centre and high levels of public transport accessibility and connectivity present good opportunities to prototype different parking provision approaches that can support a more multi-modal life-style. Rather than seeking to accommodate car-parking demand, future policies should take limited supply as a given and focus anew on effective demand management.

Active mobility measures

Thirdly, it is important to provide *a safer and more conducive ecosystem for sustainable modes of transport* (such as walking and cycling). The key word here is "ecosystem", because building cycling tracks or erecting covered walkways alone will not do the job. Rather, a holistic approach needs to be adopted. In such an approach, it would be important to address both "hard" and "soft" aspects of intervention – sensible urban design, effective stakeholder engagement and cultivating a pro-active mobility mindset can be some of the potential areas of focus.

Street and road design plays a critical part here. Unfortunately, our current traffic-planning approach, which prioritises the mobility of vehicles, does not make walking and cycling attractive. Today, Singapore's roads are ranked and categorised based primarily on their one-dimensional function as a "link" in the system. While such a hierarchical system provides a structured way of organising and planning roads from a traffic point of view, it fails to provide a robust way of factoring in other important objectives, such as vibrancy, safety, social equity and environmental sustainability. Hence, there is scope to apply more balanced approaches in street planning and design.

Pro-walking and cycling discussions are not necessarily "anti-car", but are more about what walking and cycling can do for a city. It would not be

necessary to set aside space for designated cycling lanes on every street; similarly, movement of cars need not be prioritised across the entire road system. Instead, key corridors could be identified, for instance within every housing town, for a network of 'community links' to key local destinations such as public transport nodes, shops, schools and other amenities. Land use planners might consider conducting an 'accessibility and urban design audit' for areas around existing and planned public transport nodes as well as key local destinations in each housing town. This would help measure the quality and extent of existing pedestrian and cycling networks, identify potential roadblocks, and prevent walking and cycling networks from being developed in a piecemeal manner. As a small and densely built-up city with a relatively flat terrain, Singapore, despite its tropical climate, offers good opportunities for test-bedding forward-looking urban ideas for promoting walkability and 'bikeability'.

Even as planners and urban designers forge ahead with ways of promoting active mobility, they should also actively *engage stakeholders* such as civil society groups, private sector businesses, government agencies and academics with the relevant expertise. In 2014, CLC organised two workshops with the Urban Land Institute and renowned Danish architect Jan Gehl - a 'prepshop' discussion on building healthy living environments and a full-day 'bikeshop' in Ang Mo Kio town for these stakeholders to experience the issues faced by pedestrians and cyclists there. In Ang Mo Kio, they found potential blind spots for traffic, unregulated turning speeds and slip lanes at arterial road junctions that facilitate car turning but compromise the safety of pedestrians and cyclists. These workshops also pointed to effective design measures as essential considerations for active mobility. Design measures might include safer at-grade crossings for pedestrians and cyclists, diagonal crosswalks such as those in Tokyo, consistent design standards like locating bicycle lanes on a consistent side of the road, and street or park-connector plantings in Singapore that provide shade from the sun.

Finally, *culture, behaviour and perception matter a lot in promoting active mobility*. If potential users still view walking and cycling as less desirable alternatives, the best planning and design can only go so far. In Singapore, cars remain an aspiration or status symbol, in part because of their high price tag engendered by the very measures introduced to slow the growth in car population. Meanwhile, motorists view pedestrians and cyclists as annoying encumbrances, and concern about safety and the weather still stigmatises cycling.

Some cities have framed cycling and walking as matters of public safety. Civic organisations in Amsterdam, for instance, ran a '*Stop de Kindermoord*' campaign to prevent child fatalities in traffic, successfully nudging the Dutch government to engage urban planners and invest in cycling infrastructure. Urban planner Steven Schepel, technical advisor to the campaign, said: "We never said don't drive a car; we fought the bad consequences of too much car traffic." Others, like New York City and Seoul, have carried out pilot tests of temporary new initiatives, then expanded these or made them permanent after a positive reception. For instance, Times Square and its surrounding streets were pedestrianised over the course of a six-month pilot project, which eventually gathered strong support from 72% of New York residents before becoming permanent. And Seoul seized the opportunity created by the demolition of a highway to test new initiatives, such as one-way streets, exclusive bus lanes, raised parking charges, campaigns for reduced car usage and downtown shuttle buses. If individual pilot projects succeed, many of the initiatives could then be adopted elsewhere in the city on a larger scale.

A better process

Then the big question now is how we can plan, design and work together better to develop an urban mobility system that serves people first and foremost? What does it take to achieve our vision for 'people-centric' urban mobility in Singapore?

Though the responsibilities of land use and transport planning reside with separate authorities today, the preparation of key plans and policies must be carried out jointly. Besides preparation of an integrated land use and transport plan at the strategic level, incorporating multiple perspectives and key technical expertise will also be essential at the level of individual projects. The integrated and innovative approach adopted by PUB, NParks and URA in transforming Bishan-Ang Mo Kio Park is an example of delivering an outstanding project with the desired outcomes. The same approach will be critical in realising new urban concepts such as "shared streets", where the physical boundary between roads and public space as well as the administrative boundary that tends to define the areas of responsibility of different agencies will no longer be clear-cut.

At the same time, a vision for the future of urban mobility will take strong leadership and political will, as well as earning the buy-in of Singaporeans. Can politicians convince their voters that a town with fewer parking spaces and

narrower roads is better for them? How do we shape behaviours and mindsets in favour of active mobility and reduced car use? Meaningful change on sustainable urban mobility will be driven by two key factors: whether our city's leaders walk the talk on 'car-lite' travel behaviour; and whether the vision is followed up by concerted efforts to drive and support this change. Plenty of tangible initiatives can generate constructive momentum towards a 'car-lite' future, from public road safety campaigns, car-free days and introduction of cycling training courses at schools to the laying-out of temporary cycling lanes and review of parking policies. But without an extraordinary level of determination and commitment from the top, and an awareness of the deep cultural shift needed, such controversial policy changes are likely to be piecemeal, slow and hampered by stakeholders' conflicting and short-term interests.

Last but not least, stakeholders and end-users ought to play a bigger part alongside the government in promoting sustainable travel behaviours. While each of us decides how we would like to travel as an independent 'agent', our collective travel decisions have a significant impact on our city's transport networks and urban environment. It therefore makes sense to give individuals and corporates a greater role in shaping our transport future together. The LTA's Travel Smart incentive scheme to shift commuting to off-peak periods is a move in the right direction. But for real impact, the public service should walk the talk. For instance, each government agency should take the lead in championing the cause by developing a travel demand management package. The package should incorporate "carrots" that promote greener, cleaner and healthier travel choices amongst employees (such as working from home, flexible working hours or company's bike rental scheme), as well as "sticks" that discourage staff from driving (such as increasing the costs of both season parking for staff and regular parking for visitors). The effectiveness of measures taken in bringing about positive changes in travel behaviours at the organisational level can also be monitored over time.

On a final note

Many believe that private transport is still a "need" today and that without good alternatives for car users, any sanctions against private car ownership and usage are not likely to be viable or politically palatable. Some argue that by allowing some time for the supply of public transport service to catch up, the 'need' for private transport would decline into an optional "want", and that is when Singapore will be more ready for major paradigm shifts in transport policies.

But cities like Seoul and New York are not necessarily more ready than Singapore. Yet with clear visions for their respective cities, backed by strong political commitment, they have achieved remarkable and exciting outcomes in their efforts to create safer and more attractive urban spaces for people. Improvement to public transport and other infrastructure such as cycling facilities will take some time to develop, but Singapore cannot afford to sit and wait for that to happen organically.

Rather, what we can do is to work gradually towards making travel by sustainable modes a bit easier while making driving and parking a bit more difficult. Initiatives such as demonstration precincts for public transport accessibility-based parking provision, pilot programmes for 'work travel plans' within government organisations, experimentation with the 'shared street', and temporary design intervention to support on-street cycling can all contribute towards acclimating Singaporeans to new ideas and concepts that support sustainable travel behaviours.

As Mr Brent Toderan, the former chief planner for Vancouver, once said: 'If you design a city for cars, it fails for everyone, including drivers; if you design a multi-modal city that prioritises walking, biking and public transport, it works for everyone, including drivers. It's not too late to change, but the longer you wait, the further down the wrong track you go, the harder it will be for you.'

The future of Singapore's urban mobility is not inevitable. It is our choice whether to henceforth build a city for cars or for people.

About the authors

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Teng Chye graduated with First Class Honours in Civil Engineering from Monash University, Australia. A President-cum-Colombo Plan scholar, he also holds a Master of Science in Construction Engineering and a Master of Business Administration from NUS. He is a fellow of the Institution of Engineers, Singapore and attended the Advanced Management Programme at Harvard Business School. Teng Chye was awarded the Public Administration (Gold) in 1996 and the Public Administration (Silver) in 1987 by the Singapore government. He was also conferred the Meritorious Service Award by the National Trade Union Congress in 2008 for his contributions to the Singapore labour movement.

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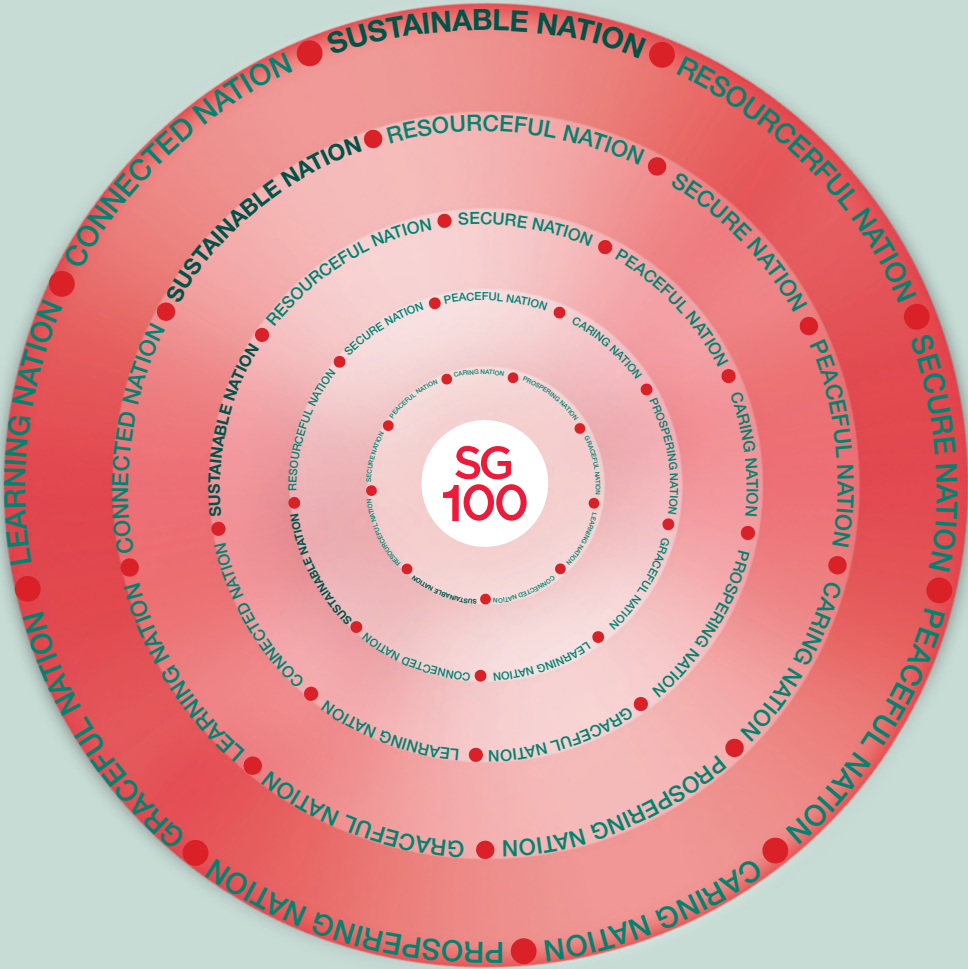
SG50 'ImagiNation'

When the next bold ideas take wing in Singapore

RE-IMAGINING SINGAPORE AS A SUSTAINABLE NATION

"After independence, I searched for some dramatic way to distinguish ourselves from other Third World countries. I settled for a clean and green Singapore. One arm of my strategy was to make Singapore into an oasis in Southeast Asia, for if we had First World standards, then businessmen and tourists would make us a base for their business and tours of the region... we set out to transform Singapore into a tropical garden city." (2000)

"Today, we are confronted with something much more serious…. Now, we are concerned about the consequences of CO2 emissions and climate change. We can try and be the greenest city in the world and not going to make any difference in the outcome. So, what's the point of it? Well, the point is if we don't do this, we'll lose our status as a clean, green city and we'll lose our business and we'll lose our extra premium for being an unusual city." (2008)

"History brought together Chinese, Malays and Indians in Singapore. We are proud of our own heritage. Sharing a common experience, we are developing a distinctive way of life. By geography, our future will be more closely interlinked with those of our neighbours in Southeast Asia." (2000)

Lee Kuan Yew

Eco-Nation of Tomorrow: A Developer's Vision

Kwek Leng Joo
Deputy Chairman
City Developments Limited

Mitigating impact of urbanisation on our environment

According to the United Nations' 2014 World Urbanisation Prospects, 54% of the world's population lives in the city, up from 34% in 1960. By 2050, the urban population could increase by another 2.5 billion, with close to 90% of the rise concentrated in Asia and Africa. This increase in proportion of city dwellers will inevitably result in higher resource consumption and greenhouse gas emission, which will have significant impact on the environment. The impact includes greater land use resulting in degradation of habitats for other species, more resource usage leading to changes in land cover, and increased pollution causing climate change and damage to human health and ecosystems.

Globally, cities today account for about 70% of greenhouse gas emission. About 80% of the world's energy is supplied through the combustion of fossil fuel that releases carbon dioxide and other pollutants into the atmosphere, leading to adverse effects on people and the environment.

Over the past five decades, Singapore has transformed from a Third World country to one of the world's most advanced economies. From being an undeveloped country in the 1960s, Singapore is ranked as one of the world's most liveable and sustainable cities today. Its rapid expansion, fast population growth and increasing affluence have put huge strain on natural resources, particularly energy and water, as well as the environment.

Singapore's plan to increase its population to 6.9 million by 2030 will undoubtedly lead to rising demand for energy and water, and a rise in greenhouse gas emission. In the World Wide Fund for Nature's (WWF) latest Living Planet Index, our country's environmental ranking worsened as the city moved up five places from 12th in 2012 to rank seventh-largest in terms of ecological footprint per capita in 2014. Ecological footprint is measured by the

population's demand for natural resources. Due to the island's limited natural resources, about 70% of its footprint comes from carbon emission within the city and indirectly through activities driven by Singapore's economy in other countries. It was also reported that the city-state is becoming the classic exemplar of high-income economies developing at the expense of resources. Given the demands of our growing nation, limited natural resources and the global challenge of climate change, Singapore must strike a balance between the needs of the environment and the economy in order to maintain a good quality of life for both present and future generations. As an international hub, Singapore can make a big difference through its responsible decisions that will reduce the nation's negative impact on the environment. Therefore, it is imperative that we act now.

Developing Singapore into an eco-nation balanced with art and culture – one that has heritage, soul, creativity and innovation – is a long-term commitment. In 2009, the Ministry of the Environment and Water Resources (MEWR) embarked on a mission to develop an environmentally-sustainable Singapore that not only protects the environment but also preserves our high quality of life without compromising the needs of our future generations. As a nation, we must develop new innovations in raising energy and water efficiency, technologies and outreach efforts to promote environmental sustainability. We, as individuals, can also play an important part by changing the way we live, work and play.

Building an eco-nation of tomorrow – engaging public, private and people sectors

I believe that it is possible to create a lasting and positive impact through sustainable development. The industry that I am most familiar with – property development and construction – has traditionally been seen as destroying the environment before it constructs. According to the UN Environment Programme, buildings use about 40% of the world's energy, 25% of its water, 40% of its resources and release about 30% of its greenhouse gas emission. In Singapore, the built industry is the third largest contributor of carbon emission[1].

It was fortunate that as far back as the mid-1990s, a couple of forward-looking corporations in the public and private sectors foresaw that it was not sustainable for the construction industry to operate using conventional methods, and we

have come a long way since then. This is but one of the many examples of the positive changes that we, as a nation, have achieved over the past few decades.

However, getting every stakeholder to agree on this vision of an eco-nation is no mean feat. This is why I believe in the urgent need for engaging the public, private and people sectors (3P) in building Singapore's eco-nation of tomorrow. I am confident that collaboration using our nation's unique 3P model will offer the best solution in realising this vision.

Government's efforts in forging a greener tomorrow – the 3P model

The government, through statutory bodies such as the Urban Redevelopment Authority (URA), Building and Construction Authority (BCA) and the National Environment Agency (NEA), has made tremendous efforts towards improving and sustaining a clean and green environment in Singapore.

BCA, for example, has spearheaded initiatives to shape a safe, high-quality and sustainable built environment. In 2005, BCA initiated the Green Mark Scheme to drive the local construction industry towards more environmentally-friendly buildings. Its intention is to promote sustainability in the built environment and raise environmental awareness among developers, designers and builders from project conceptualisation to design and construction. It has also introduced many schemes over the years to incentivise building owners and tenants to make energy efficiency a priority. In 2010, BCA set up a $15 million Sustainable Construction Capability Development Fund to develop capabilities of the industry in adopting sustainable construction methods and materials. In 2014, BCA launched the third Green Building Masterplan, which aims to green 80% of Singapore's buildings by 2030. In 2013, there were more than 1,600 green buildings, comprising about 21% of the total building stock. The government's target, while lofty, is not impossible to achieve.

Such government initiatives, together with the collaboration and capabilities of the private sector, have led Singapore to take a great leap forward in terms of sustainable building design, with the use of technology to reduce environmental impact during construction. For example, two innovations were introduced for the first time in Singapore during the construction of the BCA Green Mark Platinum-rated Green Gallery at the Singapore Botanic Gardens Heritage Museum. The zero-energy gallery was built with a fully-

completed prefabricated modular concept for clean and quick construction using the plant-based material Hempcrete.

To become an eco-nation, it is not enough to focus on greening our buildings. Responsible urban planning is also of paramount importance. URA's Concept Plan – a strategic land use and transportation plan that guides Singapore's development – ensures that there is sufficient land to meet long-term population and economic growth needs while providing a good-quality living environment for our people. With the successful implementation of URA's decentralisation strategy, new commercial hubs like Jurong Gateway will make walking and cycling to work a reality for more Singaporeans.

To achieve the goal of becoming an eco-nation, we need to rely on a well-informed group of wise custodians to protect the very environment that sustains us and our future generations, and there is no better way to start than through education. Much has been done to actively change mindsets towards environmental conservation, but we can certainly do more.

There are a number of initiatives by the government, in partnership with private and non-profit organisations, to educate the young about environmental conservation. The Ministry of Education ensures that environmental education is part of the school curriculum, and that topics such as recycling, energy and water conservation are integrated into formal subjects like geography, social studies and science. In addition, NEA has developed a Preschool 3R Awareness Kit to help teachers plan activities to introduce and reinforce the concept of the 3Rs to pre-schoolers. NEA also has other education programmes in place, supported by inter-agency partners. Through its network of Environmental Education Advisors, teachers and students are encouraged to develop their own environmental initiatives.

In 2013, the National Library Board (NLB) launched My Tree House, the world's first green library for children at the Central Public Library. This special library, a joint eco-outreach initiative by NLB in partnership with the private sector, aims to encourage children to explore, discover and challenge their curiosity in learning and caring for the environment through multi-sensory experience. While there has already been much collaboration, I hope to see even more partnerships between the public and private sectors to educate the young in future.

The government has indeed made tremendous efforts towards shaping and sustaining a clean and green Singapore. However, this responsibility cannot

just fall on the government alone. If companies and individuals fail to see the importance of environmental sustainability, it will be difficult for the government initiatives to succeed.

Our eco-nation – businesses playing their part

The private sector has been working closely with the public sector in our nation building. Indeed, businesses are in a position to contribute to the building of our eco-nation of tomorrow.

The building sector accounts for 40% of energy consumption and 30% of greenhouse gas emission globally. How buildings are constructed and managed can make a big difference to the environment. Not too long ago, prefabricated prefinished volumetric construction (PPVC) was almost unheard of in Singapore. In 2014, BCA strongly encouraged the use of the game-changing technology and a private developer took the leap to adopt PPVC for a large-scale Executive Condominium project at Canberra Drive. It is set to become the world's largest residential project to be constructed using this method. In the use of PPVC, prefabricated building modules such as rooms are built off-site, hoisted into position and assembled in a Lego-like manner. The stringent quality control in factories not only ensures uniform and superior quality of prefabricated modules but also reduces wastage of materials. Such eco-innovations not only promote faster construction time and improve construction productivity, but also encourage industry players to adopt a sustainable approach towards construction.

The government's contributions towards building an eco-nation are significant. Over the years, it has put in place many initiatives to encourage Singaporeans to reduce, reuse and recycle (3R). However, what I am most heartened by is the increasing efforts by commercial organisations to promote the 3R as well. NTUC FairPrice, for example, started their Green Rewards Scheme in 2007. Under this scheme, customers are given a 10-cent rebate if they bring their own bags and make a minimum purchase of $10. In 2013 alone, the scheme helped to save eight million plastic bags.

Meaningful partnerships have also been formed between the private sector and civic society. Project Eco-Office is one such example. A collaboration between a developer and the Singapore Environment Council, this project was launched in 2002, with the aim of helping businesses to go green by cultivating eco-friendly habits within the workplace. According to the National

Population and Talent Division (NPTD), we have some 850,000 white-collar workers and the figure is projected to reach 1.25 million by 2020. Project Eco-Office thus has the potential to change the behaviour of a large pool of office workers in Singapore. These eco-friendly workers in turn will drive change and contribute to a truly green nation.

In a rapidly growing economy, Environment, Health and Safety (EHS) issues should be a priority for all companies, regardless of sector. In addition to building a strong green corporate culture, businesses must also commit to resource conservation and pollution prevention, while keeping track of their EHS performance. However, companies must look beyond changing mindsets internally. They are also in a position to influence beyond the direct stakeholders of their organisations, having the capabilities to fund programmes that can change the mindset and behaviour of young people. Increasingly, many such environmental programmes are organised as a result of collaboration between public and private organisations, such as the CDL E-Generation Challenge, Tuas Power Green Programme and the NEA's Corporate Environment Champions programme.

With an increasing emphasis on environmental education, the latest Sustainable Singapore Blueprint (SSB) is most timely as people lie at its heart. Consumers are a key driver for a sustainable city. When more consumers demand for green products, more businesses will invest in reducing the carbon footprint of their products. Recent studies have shown that human behaviour is at least as important as the physical infrastructure of the building when it comes to energy usage[2]. While the government has put in place the infrastructure for building a sustainable city, its realisation calls for a collective effort by Singaporeans. As individuals, we need to make fundamental changes to our lifestyles and habits, and develop new norms in order to make our dream of an eco-nation come true.

My dream eco-nation of the future

As a firm advocate of corporate social responsibility (CSR), I believe that responsible business practices will not only deliver better financial bottom line, but also strong social and environmental performances that will help lay the foundation for long-term sustainability.

With higher take-up and adoption of sustainability over the years, the cost of various eco-innovations, more productive sustainable engineering solutions

and construction methods have generally seen a gradual improvement in their economy of scale.

Although the financial viability of incorporating sustainability into a company's business operations is often seen from a long-term perspective, the returns on a sustainability investment are manifold. Beyond savings arising from reduced utilities consumption, there are other intangible benefits to be derived, such as enhanced aesthetical appeal through the adoption of more greenery and a more comfortable living and working environment.

Holistic sustainability is a global trend and has proven to help some leading businesses achieve better performance, brand and product differentiation and most importantly, ensure long-term sustainability of the business. I am sure that over time, the value of sustainability to both the company and society at large will become even more evident.

In time to come, I believe that sustainability will become as important a consideration as productivity in most, if not all, sectors and industries given the resource- and labour-stretched environment. The call for better sustainability will be just as important as the call for higher productivity. We must have businesses on board to ensure the sustained development of our nation.

In the drive for an eco-nation, companies must constantly challenge themselves to do things differently and at the same time, reduce their operations' environmental footprint. Businesses must continuously evaluate, evolve and seek green innovations, sustainable engineering solutions and more efficient use of resources that will improve our environment. However, this cannot simply be a top-down approach. Employees at all levels must be empowered and encouraged to pursue initiatives which will help improve the company's environmental performance. Each and every one of us can play a part to 'future-proof' Singapore by working together to help the government to tackle urban challenges.

As Singapore's population continues to grow, the demand for housing, energy, infrastructure and water will consequentially increase. While Singaporeans often complain about how crowded the city is, what they fail to realise is that compact cities like Singapore use significantly less energy per person than cities with lower density like Los Angeles. One of the major challenges faced by growing economies like Singapore is traffic congestion. The rising affluence of citizens that accompanies stable economic growth has resulted in

an increase in car ownership. When we combine this with vehicle breakdowns and road infrastructure that cannot keep up with this rapid growth, chronic traffic congestion will be inevitable.

As Singapore establishes more decentralised towns away from the city, people will be in closer proximity to where they work, play and shop, and are more likely to reduce the number of long journeys. I hope that Singaporeans in future can enjoy a well-connected underground transport system that provides users with a seamless travel experience. Public transportation will become the main mode of travel, and all its systems will move towards zero-emission vehicles with MRT trains also using green technology. Roads will go underground, alleviating congestion and pollution in the city. There will also be an extensive network of cycling paths that not only supplements the public transport system, but also make a significant contribution to reducing carbon emission and enhancing air quality in the city. An excellent example is Copenhagen, where cyclists save the city 90,000 tonnes of carbon dioxide emission annually.

Ultimately, my wish is to see Singaporeans leading a more sustainable lifestyle. I hope that through years of education, Singaporeans will be ingrained to carry their own recycling bags, and that the plastic bag will be a thing of the past in the next decade or so. NEA statistics in 2014 showed that plastic ranks fourth among waste generated in Singapore, accounting for 10.6% of the total. However, only 11% of plastic is recycled, with the rest disposed of. Paper and cardboard, which rank third at 16.1%, have a recycling rate of 54%. The non-biodegradable nature of plastic means that it is simply not sustainable for us to continue using them at such a high rate. MEWR reports that 200,000 tonnes of solid waste and incineration ash are sent to our only remaining landfill on Pulau Semakau each year. At the rate we are sending waste there, MEWR estimates that it will run out of space by around 2035.

To extend the life of our landfill, I hope to see pneumatic waste disposal systems available in every household, in both public and private housing estates, in the near future. Most importantly, every household will have a chute for recyclable and non-recyclable items, with waste collection points stationed at every few blocks to facilitate the separation and recycling of waste. This odourless and pest-free waste collection system also enhances productivity by requiring fewer workers and improves their working conditions.

To address the problem of pollution, I also envisage recycling plants, incinerators, renewable energy storage facilities, waste water treatment plants and other unsightly utilities built on floating structures located away from the main island. Storage facilities, research centres and major roads will go underground, alleviating congestion and pollution while creating more space for Singapore's expansion on land.

The demand for resource consumption, especially energy, will rise with population growth. Therefore, the future Singapore should rely more on renewable energy. With our sunny all-year-round climate, harvesting solar energy will be a norm, providing clean, cheap and efficient electricity to power our city. Solar panels or surfaces will be commonplace, covering sidewalks, building exteriors and rooftops. In the next century, perhaps it would even be possible for our island to be shielded from direct sun ray by a semi-circular solar-surface membrane, where a cool atmospheric temperature of between 22 and 25 degree Celsius can be maintained. The solar energy collected from the surface membrane is then channelled to renewable energy storage facilities to generate electricity to power the nation. To support Singapore's economic growth and development, other sources of renewable energy such as wind and heat will also emerge to support the nation's resource consumption needs.

In our future eco-nation, there should also be a rapid rise in vertical gardens and farms, much like the green wall at the Tree House Condominium that clinched the Guinness World Record for the world's largest vertical garden in 2014. Such greenery will help to not only cool our city's skyscrapers but also enhance biodiversity. Like in New York, Hong Kong and other major cities, this growth in urban agriculture atop buildings will operate as an agricultural space for schools and groups for environmental and nutritional education. These gardens will also cool the buildings and provide fresh air to the residents. Skyscrapers and homes will also be energy-independent and will use green technologies to support their daily needs.

As we continue to make Singapore a City in a Garden, it is important that we continue to take steps to make the environment conducive for our people. Despite our small size, we should not confine our ability to source for renewable energy to support the needs of our people. I believe that eco-innovation will be the quintessential for economic development across the globe as we continue to respond to climate and environmental challenges, and to foster green growth.

Making our eco-nation a reality

"It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you'll do things differently."

These wise words of Mr Warren Buffet about reputation taking years to build and minutes to destroy resonate deeply with my vision of Singapore becoming an eco-nation of tomorrow.

With an estimated 6.9 million people living in Singapore by 2030 from the current population of 5.47 million, the impact of rapid urbanisation give rise to an urgent need to prioritise the use of the environment. As Singapore relies heavily on imported resources like water and energy, it is easy to forget that our earth has limited natural resources. As we continue to grow as a nation, we must not forget the need to conserve our environment. Green solutions and efforts must be increased to promote environmental sustainability.

For more than five decades, Singapore has undertaken extensive and meticulous greening efforts that have led to its international reputation as a tropical City in a Garden, something that has been sustained to date. Despite our rapid urbanisation, more than 50% of our country is still covered in greenery. It took great leadership and governance to develop Singapore into what it is today, and we must not take what we have for granted.

A study conducted by researchers from the Tropical Marine Science Institute at the National University of Singapore in 2010 showed that the average daily temperature in Singapore could increase by between 2.7 and 4.4 degrees from the 2010 average of 26.8 degree Celsius by 2100. Fast forward to 2014, it was 27.9 degree Celsius. In a short span of five years, our average daily temperature has climbed 1.1 degree Celsius.

Our environment is in a state of decay, and some may question if it is too late to turn things around. But there are plenty of examples to prove that humankind is more than capable of change in a short span of time.

Reducing deforestation has long been seen as an arduous task. However, Brazil has proven that this is possible. In 2005, Brazil announced a national plan to reduce its deforestation rate by 80% by 2020. Between 2005 and 2010, it nearly met its goal of reducing its deforestation rate – a full decade ahead

of schedule. An article by the Union of Concerned Scientists reported that this had led to an estimated reduction in Brazil's global warming pollution of nearly 1 billion tonnes, achieving a reduction comparable to the targets that the US and the European Union have only pledged to achieve by 2020.

To ensure that our environment sees positive changes, Singapore needs a strong citizenry to prepare for its future. It requires collective efforts from public and private sectors and non-profit organisations to "future-proof" the nation so that it can support the needs of future generations. As the Brundtland Commission puts it, it is about "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

Today, Singapore has experienced five decades of rapid development and become one of the most developed economies in the world. As we move to the next stage of economic growth, each and every one of us must not overlook the importance of conserving the environment. Without a healthy planet, there will not be any businesses or people. Sustainability is fundamental for the continued development of any country. It is hence crucial for everyone to contribute to the development of our eco-nation, because we build tomorrow, today.

About the author

For close to two decades, Kwek Leng Joo has been a firm advocate of corporate social responsibility (CSR). Under his leadership, City Developments Limited (CDL) has been recognised not only as a forerunner in CSR, green buildings and sustainability, but also a keen initiator of youth development.

Since 1995, Leng Joo's vision to "Conserve as we Construct" has led CDL to be recognised both locally and globally for its strong commitment to sustainability. It was the first developer to be recognised with the Green Mark Platinum Champion Award and Built Environment Leadership Platinum Award by the Building and Construction Authority (BCA). To date, CDL has developed over 70 BCA Green Mark properties, including 32 Platinum projects – the highest number amongst private developers in Singapore.

CDL is the first and only Singapore company listed on all three of the world's top sustainability benchmarks - FTSE4Good Index Series (since 2002), Global 100 Most Sustainable Corporations in the World (since 2010) and Dow Jones Sustainability Indexes (since 2011). It was also ranked as the top property developer in Asia and the top Singapore corporation in the Channel NewsAsia Sustainability Ranking 2014.

As the President of Singapore Compact for CSR, Leng Joo has been promoting the importance of CSR to the local business community and youth. Through initiatives such as the youth network within Singapore Compact and the Young CSR Leaders Award, he hopes to nurture a new generation of executives who will drive the agenda of responsible and sustainable practices in the business world.

Leng Joo is also Chairman of the Board of Trustees of the National Youth Achievement Award Council, the only Asian member of the Trustee of The Duke of Edinburgh's International Award Foundation, a member of the National Climate Change Network, Board of Trustees of Nanyang Technological University, Advisory Committee of National University of Singapore's Master of Science Programme and Advisory Group of Singapore Management University's Master of Tri-Sector Collaboration.

A philanthropist, volunteer and an avid photographer, Leng Joo has raised over $2 million through sales of his photography works and art books for various charitable and environmental causes. In 2011, he was conferred the Outstanding Volunteer Award by the Ministry of Community, Youth and Sports. For his contributions through his business and civic appointments, he was awarded the Public Service Medal in 2000 and the Public Service Star in 2005. He was also appointed a Justice of the Peace by the President of Singapore in 2013.

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Singapore's Geography Does Matter: National Embeddings, Global Aspirations

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Nature of Singapore's geography

Modern geography has largely been a product of the growing establishment of nation-states and states since the 19th century. While the world's population tripled between 1950 and 2010 from 2.6 billion to 7 billion, states doubled in number from 80 to 193 and Singapore was one of these new states in that 60-year time span. The formation of statehood was very much predicated on what Jurgen Osterhammed (2014:107) states as the progressive "territorialisation" or "production of territoriality" that was bound up with the projection of "imagined shapes of nations onto mappable space". Unlike other states, Singapore's geography is a lot more complicated. Singapore has a three-in-one geography – it is an island, city and state. This means that any government and political leader must get Singapore's geography fundamentally correct in order to understand the city-state's physical limitations, societal ramifications, political existence and geopolitical adaptations.

Singapore's statehood was unique – not the typical outcome of colonialism but a political abortion from Malaysia. Our founding Prime Minister Lee Kuan Yew noted in the early years of its political formation that "an island nation is a joke". Historians like Edwin Lee (2008) called Singapore an "accidental nation". This small island had no natural resources, insufficient water, no energy and no sustainable food supplies to feed its population. In short, all the factors that support a sustainable city-state were absent or in short supply. Times have changed but the geography of Singapore is a constant and requires each succeeding generation of leaders to understand the geopolitical neighbourhood the city-state is in and know how best to navigate and adapt to changing challenges. Like all state geographies, Singapore cannot change

its geography. Dealing with the future of any country let alone a small city-state like Singapore is no easy task – one needs to steer away from naïve optimism, blue-sky idealism, speculation, futurology and alarmism. Change takes place often incrementally and in linear fashion, and not by massive revolution except in times of war. Certainly, changes in geography are not going to be radical given its bedrock contextualisation. Rather than change the city-state's geography, the government will have to creatively adapt to Singapore's geography.

The future of the 21st century seems to be undergirded by four major revolutions. The first three are: rapid urbanisation process; boggling changes of the information and communication technology transformation; and the rapid and easy diffusion of peoples, cultures, ideas, materials and activities around the world that have been labelled variously as reflecting the 'borderless world', the 'flat' and 'curved' world, the end of geography, the death of distance and the disappearance of privacy. The fourth revolution, climate and environmental change, is cause for concern and can undermine all the other three revolutions. All four global revolutions are impacting Singapore and will determine the future sustainability of the city-state.

Adapting to geographical challenges

Singapore geographically is a small country both in size and population but this might not be obvious to Singaporeans because of its wealthy status. Hence many younger Singaporeans might overlook the disadvantages the country faces. The future challenges the city-state has are at domestic and international levels. Domestically, one might identify three – a rapidly ageing population, maintaining a competitive economy and minimising inequality amongst its citizens. Internationally, the city-state has also three challenges – maintaining its strong international profile, keeping good regional relations within the ASEAN community, and nursing and maintaining a correct relationship within the rapidly changing geopolitical relationships within Asia.

Domestically speaking, the nature of Singapore's maritime geography will continue to give it certain advantages – its strategic location at the Straits of Malacca, one of the busiest shipping channels in the world, has made Singapore an important port location. It is the second largest container port in the world. Besides the hardware of Singapore's expanding container port, the city-state still needs to maintain strong trading connections with other ports given the rapidly changing geopolitics.

With its rapidly ageing society, Singapore needs to build an infrastructure that is senior citizen-friendly. City planners should create the first comprehensive elderly-friendly city in the world. The Singapore of the future must not be customised for cars but for public transportation, bicycles, wheelchairs and pedestrian walking. There must be more public places where pedestrian walkways are developed even in key shopping and entertainment areas such as Orchard Road. Like in Chinatown, Orchard Road could be sheltered from the rain to make walking a comfortable experience. The government needs to wean Singaporeans away from cars as the mode of transport. Singapore leaders need to learn from public transport-reliant cities like London, Tokyo, Hong Kong and Paris. Given its small size and ageing population, Singapore requires a more comprehensive MRT system with closer station intervals. All MRT stations should be integrated with key buildings, public venues and major facility nodes. The overhead pedestrian bridges across roads and highways need to be replaced with pedestrian-friendly underground walkways suited for elderly citizens, children and wheelchair-bound commuters.

Currently, Singapore has 22 satellite towns. The idea of having towns spread over the island has increased transport between them and the city-centre, thus increasing the car population, travel time and carbon dioxide emission. The government should work to building a more compact city and freeing green areas for recreation. Since all the towns are repetitive towns in design, the city planners should be providing varied specialised towns – catering to different needs and specialising in different types of activities. Economic activities should be geared to employ elderly labour in each satellite town, given that Singaporeans on average will live another 25 years after the official retirement age.

As a small city-state of only 718 square kilometres with about 5.5 million population (2014), Singapore ranks amongst the smallest 40 of 196 states in the world. Since 105 of the United Nations' 193 states are classified as 'small', Singapore's successful adaptation is a lesson for other small states. As an island, Singapore faces new challenges with regard to climate change and global warming. Due to anticipated heavy precipitation in the coming decades of global warming, Singapore will face intense flooding if steps are not taken to manage drainage issues. In 2014, flooding across Asian states hit the news media headlines. But more worrying is the rise of sea level that could have a profound impact on Singapore's island geography. This is particularly important when over 25% of Singapore's sea coast has been reclaimed. While Singapore hopes to be self-sufficient in water by 2061 (last remaining water

treaty with Johor), the annual occurrence of prolonged drought is likely to unsettle with city-state's water footprint. The future adaptation of Singapore's island base to rising sea levels is to increase the height of its coastal areas – something the government is putting into practice with urgency to 2.3 metres above the highest sea-level waters. Such measures have to be taken in advance because building such massive higher land areas takes much time, effort and money. Even if sceptics think climate change will not have devastating impact, it is better that the government follows the dictum that "prevention is better than cure". Given that climate change weather problems (increased precipitation, flooding, prolonged droughts and rising sea levels) will be increasing temporally and spatially in Singapore, the 'City in a Garden' emphasis might need to be tempered with more infrastructural changes to meet these environmental challenges. The government will certainly need to develop more comprehensive drainage and underground water storage systems to take in increased water from the rainy season and save water for the drought months.

Singapore's other adaptations to its limited small land area over the last 50 years are seen in how the island has expanded space through horizontal means (reclamation), vertical measures (high-rise buildings) and below the land area (underground). Despite expanding cultural landscapes, Singapore still maintains a high degree of greenery – nearly 50% is covered with greenery. For a small island-state, Singapore has an estimated 23,000 to 28,000 terrestrial species (Ng, Corlett and Tan, 2011:24), a figure much higher than many countries around the world. The biodiversity of Singapore covers about 56% of its land area in 2011, and mainly in 29% of landscape termed "spontaneous vegetation" (Barnard and Heng, 2014:281). The rest of Singapore vegetation is what Timothy Barnard (2014) calls "nature contained", such as lawns, gardens and parks, which covered 27% of the city-state's land area in 2011. Singapore's greenery has three outcomes – it is an important catchment for water, it prevents the city-state from becoming a concrete desert and it helps to serve as a touristic attraction.

Singapore's future windows: social transformation

Cities and towns today are the centres of creativity, the benchmarks of quality living, the paragon of cultural and religious diversity, and the receptors and initiators of innovations (Glaeser, 2011). Cities transcend xenophobic nationalism, religious bigotry, linguistic monotones and cultural purity.

Singapore's city-state has a head start in urban management and change. In many ways, Singapore's city-state has been both a competitor and co-operator with other global cities. Its urban management system is the model for other cities around the world aspiring for global significance. Our global city is as much a product of hardware infrastructure and cultural and social transformation.

Singapore needs to sustain its competitive edge globally by opening up, accepting skilled migrants from all over the world to invigorate its creative and innovative society. To develop a 'cosmopolitan' mindset, opening to the world would be the right response given the nationalistic policies over the last 50 years. Creativity can come from all sectors of society and can be initiated and managed by government agencies as well as private corporations. In South Korea, private corporations like Samsung are credited with driving national creativity, but in Singapore it has been government-led. Singapore needs to attract more R & D enterprises and creative people to sustain its momentum in innovations. While the city-state can take pride in being ranked eighth in the world in Bloomberg's rankings for innovativeness (Bloomberg Businessweek, 2015:50), it certainly can learn a lot from private sector-led countries like South Korea (ranked first) and Japan (second).

The 'new' Singapore needs to be initiated to develop a generation of citizens who are IT-savvy, creative and independent thinkers. While the government has created Block 71 at Ayer Rajah Crescent with 200 formal and informal start-ups, Singapore needs probably an open and conducive environment for budding entrepreneurs. Not just in Block 71, but the whole of the city-state needs to become like Block 71 where many ideas can be floated and many initiatives can be experimented with. This means a creative educational environment to produce Nobel laureates as well. While the National University of Singapore (NUS) and Nanyang Technological University have been rising in world university rankings, they still have not produced a Nobel Prize winner. In the end, the acid test will be whether NUS has come of intellectual age in producing not just Tier One journal articles but creating breakthroughs in science, technology, medicine, economics and literature.

Cities like Singapore remain the custodians of cultural creativity, technological innovations and stimulus for new economic activities and a fermenting ground for social change. Singapore has been the test bed for cities of tomorrow as many multinational corporations (like Panasonic, EDF and Veolia) use our

HDB public housing estates as 'reference markets' and 'sustainable places' for 'urban planning', testing solutions and creating smart sustainable cities. Put in Singapore terms, Prime Minister Lee Hsien Loong advocates that the island republic needs to become a "smart nation". Small nations like Singapore can use its geographical nodal advantage by plugging into the global IT network to tap information, select pertinent knowledge and operationalise highways of data exchanges. The IT transformation has both merit and demerit – it has devoured labour as well as created labour opportunities. IT is the 'new industrial revolution' and Singaporeans need to tap on the many new opportunities. Unlike the industrial revolution of the past, the IT revolution is not capital-intensive, not location-specific and not labour-intensive, thereby putting Singapore's geography at some advantage. It depends on individual creativity, its appeals to young entrepreneurs and it has almost instant global applications. In the next 50 years, Singapore cannot be a city of emulation (Reinhard, 2004) because it has reached First World development standards; it needs to lead by example, innovation and creativity to remain a global city.

Singapore's education system is often seen as a global benchmark in education – globally, its school children rank second in mathematics scores and third in science and reading scores. Tony Wagner (2010) in his book, *The Global Achievement Gap*, credits Singapore's education system of "Thinking Schools, Learning Nation" as the pathway to nurturing creative students with an emphasis on innovation, experimentation and problem solving, quite different from the American recipe with knowledge emphasis. Can Singapore's education system provide a creative and innovative workforce? Will Singapore's political environment need to be more liberalised to ensure that creativity is spontaneous and developed from the ground?

Singapore needs a 'citizen participation'-based school system in which students are taught to make decisions on issues at an early age. The education system needs to move away from a top-down teacher-driven instructional system to a bottom-up student dialogue system. The pedagogy should move away from finding right answers to one of exploring options and alternatives. The education system needs to wean itself from correct- and wrong-answer options and get students to view issues in relative terms. If students at a young age are taught to take decisions, then the city-state will be in a better state of developing a participant democratic system in which citizens are not passive onlookers in the political process. Teaching needs to be based on viewing students as 'respective minds', eager to learn, engage, contribute

and participate. In order to achieve this pedagogical participant system, the education system must find more enlightened ways of students' assessment and move increasingly to a student-centric educational model.

Reflections

"Geography informs rather than determines. Geography, therefore, is not synonymous with fatalism. But it is, like the distribution of economic and military power themselves, a major constraint on – and instigator of – the actions of states." (Robert Kaplan, 2014:29).

What defines Singapore's success story in the last 50 years as seen by Terrence Chong (2010) in his Singapore tome, *Management of Success*, lies in two areas – material and ideological success. More important, however, in this 'management' all these years is good governance. Governance here is defined as a "process of decision making that is structured by institutions (laws, rules, norms and customs) and shaped by ideological references" (Bakker, 2010:44). In Singapore, the rule of law and norms are well established.

What is the measure for a state's success? One measure is economic. The island-state has gone through remarkable growth in the last 50 years. Between 1965 and 2013, Singapore had achieved a massive 1,356% in real GDP per capita growth compared to 146% for the world and 96% for the United States for the same period. Singapore's economic success demonstrates that global geography favours nodes, cities and spatial liberalisation. The Bank of Singapore-Knight Frank's 2013 Wealth Report puts Singapore as the Second Wealth Centre in the world after London (Ong, 20113:B13) by 2023. Singapore is a newly-established state amongst the 100 states formed since the Second World War. In business parlance, it is the most successful start-up country in the world. The next lap in development is going to be more challenging.

What trigger mechanisms made Singapore so successful? Without sounding environmentalistic, it is difficult to conclude on Daron Acemoglu and James Robinson's (2012:48‑56) rejection of the "Geography Hypothesis". Yet, it would be difficult to say that Singapore's geography has not had a role to play in its success. Without good leadership, enlightened governance and a strong cultural ethos for progress, geography itself will not have mattered. Geography is thus a somewhat neutral factor in both the success and failure of states, but it is not a factor that can be lightly treated or marginalised. Good leadership can capitalise on geographical assets and minimise geographical

handicaps that a state faces by adaptation. In Singapore, the political leadership used geography as political ideology by using effectively arguments in both environmental determinism and possibilism (Savage, 2004) to ensure that citizens understood the precarious nature of Singapore's political autonomy and independence.

About the author

Victor R. Savage graduated with BA (Hons) from the University of Singapore in 1973 and completed his MA and PhD in geography at the University of California, Berkeley under the Fulbright-Hays scholarship. He has been a faculty member in the National University of Singapore's (NUS) Department of Geography and was Coordinator of the Southeast Asian Studies programme. He is concurrently Deputy Director of the Master in Environmental Management (MEM) programme and Director of Alumni Relations in NUS. His research and teaching over the last 30 years has been on culture-nature relationships in Singapore and Southeast Asia.

Victor believes that in an increasingly interdisciplinary world, geography provides a pertinent discipline in integrating science and the arts, the environment and culture, the local and global, fundamental and applied research, and Singapore provides an apt case study. According to him, Singapore's future development as a global city in Asia lies in understanding and tapping on the many cultural crossroads, geopolitical relationships and global intersections of multidisciplinary research and diverse activities. While it is difficult to change the geographical hardware of the city-state, this essay places emphasis on investing in the national software and utilising smart solutions and adaptations.

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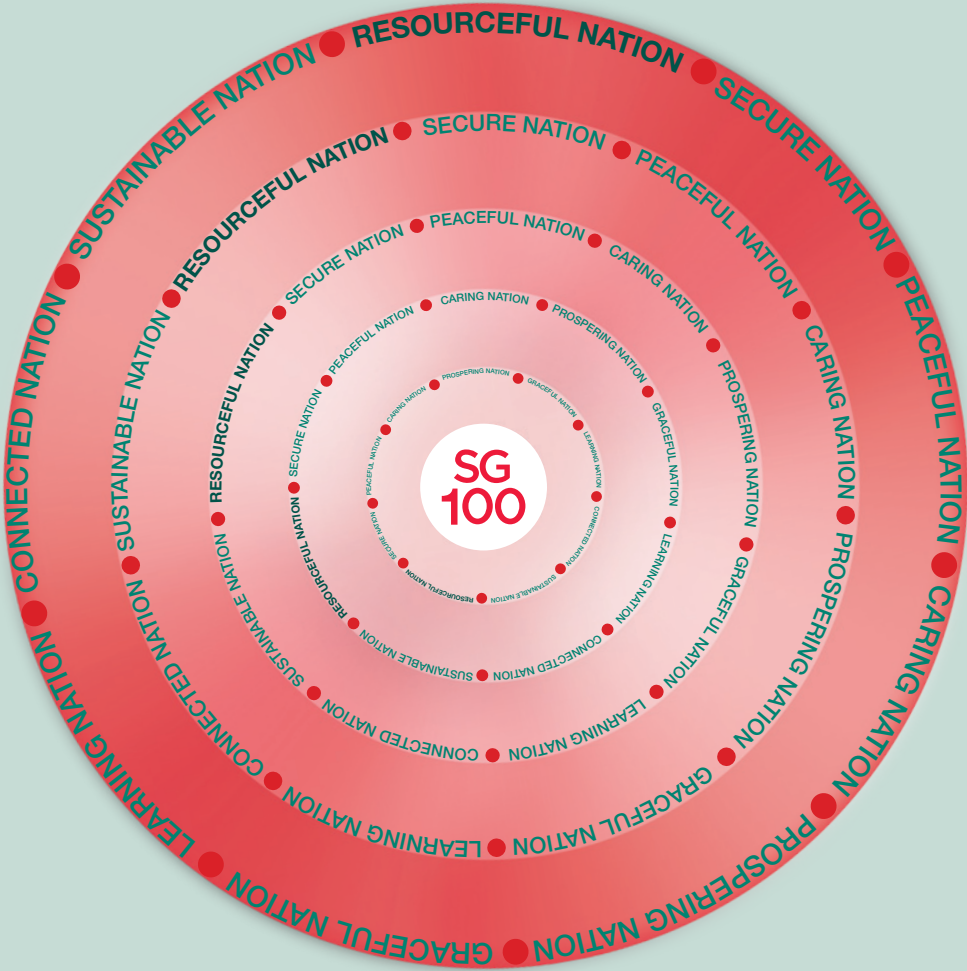Wagner, Tony (2010) *The Global Achievement Gap*, New York: Basic Books

SG50 'ImagiNation'

When the next bold ideas take wing in Singapore

RE-IMAGINING SINGAPORE AS A RESOURCEFUL NATION

"Suppose we could capture every drop of rain in Singapore, could we become self-sufficient?" (1977)

"Whatever it is, we've got to try every little way to minimise the use of carbon fuels…. We have to accept that we are all passengers on this one planet and if we don't reduce this consumption of carbon energy, we are in serious trouble." (2008)

Lee Kuan Yew

CHAPTER 23

Rain-water Harvesting/Storage and Water Recycling: Towards Water Sustainability for Singapore

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"Suppose we could capture every drop of rain in Singapore, could we become self-sufficient?"

- Founding Prime Minister Lee Kuan Yew's 1977
challenge to PUB Chairman Lee Ek Tieng

Introduction

Being a basic life-supporting commodity, water is of strategic importance to all nations for survival and economic development. Historically, towns and cities developed at locations where freshwater was easily accessible – along rivers, at river mouths, near to freshwater lakes or places where ground water was available. However, as population increases, towns and cities expand and new cities are being developed even in semi-arid areas with engineered water-transfer systems and implementation of water recycling and sea-water desalination technologies.

In the past decade, many cities in the world had encountered water scarcity because of uneven rainfall distribution attributed to climate change. According to a recent projection by the United Nations, 35% of the world's population will not have adequate safe water to support their basic needs by 2025. It is also envisaged that the water shortfall problem will continue to worsen and the proportion of the world's population that will not have enough safe water will be further increased to 40% by 2050. Therefore water conservation and finding water from non-conventional sources, such

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as adopting membrane processes to produce high-quality water for reuse, are solutions to water shortage.

Current Singapore water supply status

Singapore, being a city-state on a small island of about 718 km^2 with 5.4 million inhabitants, faces shortage of water from natural sources due to limited land space for water storage. However, with its effective water management strategy of water conservation and the four national taps – local catchment water, imported water, highly-purified recycled water known as NEWater and desalinated water – adequate water has been met for Singapore's need (currently about 400 million gallons per day[1] or 1.5 million m^3 per day), even during dry season. To date, NEWater contributes to meeting about 30% of Singapore's water demand, while desalinated water can meet up to 25% of our current water need[2].

Moving forward

The four-national-tap strategy will facilitate Singapore's progress towards water self-sustainability. It enabled Singapore to overcome the potential water constraint resulting from the non-renewal of the first water contract with Malaysia in 2011. With PUB's aims to expand the Singapore's water catchment area to 90%[3], tripling the current NEWater capacity and increasing desalination capacity to meet up to 55% and 25% of our future water demand respectively by 2060[4], Singapore can be self-sufficient in water should the second water contract with Malaysia not be renewed in 2061. In other words, without any new water contract with Malaysia, the four national water taps will be reduced to three – local catchment water, NEWater and desalinated water.

Among these three national taps, the cost of unit water production is still the highest for desalinated water due to the relatively high energy cost required to desalinate sea water, even with advances in desalination technology. Therefore, *to achieve water self-sufficiency for Singapore at the lowest cost in the long term, maximising freshwater availability from the other two national taps – local catchment and NEWater – is paramount*. This is being addressed in PUB's plan. However, can Singapore adopt other strategies to maximise fresh water from local catchment and water recycling?

In my opinion, there are three possible strategies that can be adopted to further enhance freshwater availability, as illustrated in the diagram:

- Increasing water storage through underground storage system;
- Implementing on-site rain-water harvesting; and
- Adopting on-site water recycling.

Increasing water storage through a large-scale underground storage system

Traditionally, rain-water is collected and stored in reservoirs as a source of drinking water. In Singapore, rain-water is collected through 48 major waterways in 17 reservoirs, which are inter-connected. By 2060, up to 90% of Singapore land area (about 646 square kilometres) could serve as water catchment area. In other words, with an average annual rainfall of 2,357.8 mm[5], up to a maximum of 1,527 out of 1,693 million cubic metres of water (or 4.1 out of 4.6 million cubic metres per day) can be captured annually through the local catchment areas. An average of 4.6 million cubic metres per day of rain-water is theoretically more than enough to meet Singapore's current daily water demand of about 1.5 million cubic metres. However, the lack of sufficient conventional water storage bodies such as reservoirs limits the amount of rain-water that can be stored for producing drinking water.

One of the possible solutions is to create a large-scale underground water storage system at the national level, similar to the Jurong Rock Caverns for oil storage and the concept of future underground cities. The idea of having underground water storage system is not new. The earliest practice of underground water storage dated back to the ancient cisterns in the earliest time of the Bible, and these were usually peer-shaped with a depth of 4.6 to 6.1 metres and an opening of 0.6 to 0.9 metre, and large enough to store water for individual household or community[6]. Water was hoisted up from these cisterns using ropes and buckets. Examples of large-scale cisterns are the several hundred ancient cisterns built during the Roman time that are located beneath the city of Istanbul. One of them that is well-known is the Basilica Cistern (Yerebatan Sarnici), which was constructed in 532 AD. It measures 140 metres long and 70 metres wide and covers 9,800 square metres in total area with a capacity of about 100,000 cubic metres[7] (equivalent to 40 Olympic-sized swimming pools).

As illustrated in the diagram, these large-scale underground water storage facilities could be located under parks and canals, below open or multi-storey HDB car parks, under HDB flats and government buildings, and deep under the ground similar to the Jurong Rock Caverns. This underground storage facilities are inter-connected and linked to surface reservoirs. It can collect
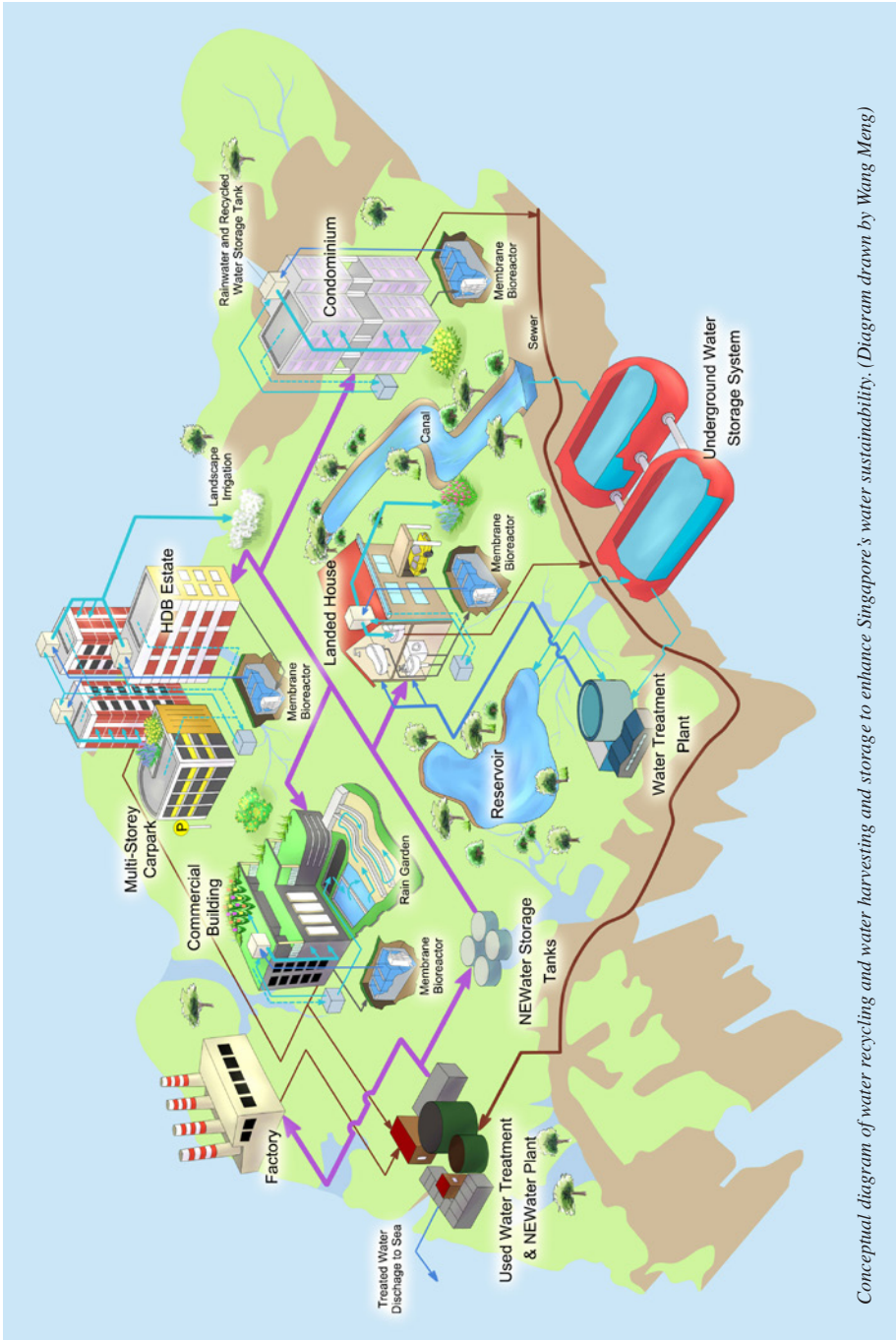
Conceptual diagram of water recycling and water harvesting and storage to enhance Singapore's water sustainability. (Diagram drawn by Wang Meng)

excess rain-water from the drainage system or reservoirs. Stored water from the underground water storage facilities can be pumped into surface reservoirs during dry seasons or directly to water treatment plants for producing drinking water.

Although such a large-scale underground water storage system is costly, it is long-lasting (easily up to hundreds of years) and will increase the water supply from local catchment areas significantly, thus answering the challenge raised by our founding Prime Minister Lee Kuan Yew in 1977. In addition, this underground water storage system could also alleviate any potential flash flood in Singapore due to extremely heavy rainfall resulting from climate change, preventing disruption to daily life and damage to property due to flooding.

Implementing on-site rain-water harvesting

Beside the large-scale underground water storage facilities, rain-water harvesting can be implemented for commercial buildings, industrial compounds and private homes. Relatively smaller underground cisterns can be constructed to store rain-water collected from rooftops and private compounds. The stored rain-water can then be utilised for gardening and landscape water features or pumped into holding tanks on the top of buildings or houses to be used for toilet flushing and cleaning.

Adopting on-site water recycling

NEWater is playing a key role as an alternative source of freshwater for Singapore, contributing to 30% of Singapore's current water demand and up to 55% of its future water demand by 2060, accordingly to PUB's plan. Because of NEWater, Singapore has not experienced any shortage of water supply even during severe dry seasons experienced in recent years. Moving forward, water recycling through NEWater production will continue to play a pivoting role in ensuring Singapore's water security and sustainable development.

Water recycling through NEWater production allows "multiplying" of the water supply. When water is being recycled once, as in the case of NEWater, with a recycling rate of 0.5 (i.e., 50% of used water is recycled as NEWater), every drop of used water will produce 0.5 drop of usable water, 0.5 drop of water will produce another 0.25 drop of water, then 0.125 drop, and so on[8]. Theoretically, one drop of used water will produce another drop of water (i.e., $0.5 + 0.25 + 0.125 + 0.0625 + \ldots = 1$), which is a multiplier of 2. Mathematically, the multiplier effect is equal to *1/(1-R)*, where *R* is the recycling rate.

If used water such as greywater can be recycled and used one more time on-site before eventually being discharged to the sewer and recycled as NEWater, the multiplier effect will be further enhanced. For example, with 50% of used water (greywater) being recycled on-site and 50% of the final used water in the sewer recycled as NEWater, the multiplier will be 3. In this case, the multiplier effect will be equal to $1 + R/(1-R)^2$, where R is the recycling rate. Therefore, adopting on-site water recycling is an attractive option.

On-site water recycling has been adopted in other countries such as Japan, China, Australia and the United States. In Japan, on-site water recycling practice started in the early 1960s, and adoption expanded rapidly since the 1980s[9]. By 1996, there were about 2,100 buildings with on-site water-recycling systems or connected to large-area water-recycling systems, accounting for 0.8% of Japan's domestic water use. These on-site water-recycling systems are located mainly in urban cities, such as the Tokyo metropolitan areas and Fukuoka City. In the case of China, its regulation stipulated that for all hotels having construction areas exceeding 20,000 m^2 and all public buildings having construction areas exceeding 30,000 m^2, on-site reclaimed water facility must be provided. Consequently, more than 154 small wastewater reuse facilities had been built, and more than 120 of them were in operation in Beijing's central region in 2002[10]. These on-site water-recycling facilities were built mainly in hotels, universities and office buildings.

Other examples include: recycling of greywater from a condominium/commercial office building in San Francisco (181 Fremont) for toilet flushing and irrigation; recycling of used water (blackwater) from toilets and hand basins for toilet flushing and cooling tower make-up in a 29-storey building in Sydney, Australia (1 Blight Street); and recycling of greywater from shower, bathtubs and hand-wash basins for toilet flushing and irrigation for the Sunset Ridge Retirement Community (comprising 100 independent living villas, a 120-bed aged-care residential complex and resort-style facilities) in Zilzie, Queensland[11].

For Singapore, on-site water-recycling systems to recover high-quality water from used water, particularly greywater from showers, laundry and hand-wash basins, for toilet flushing, landscape irrigation, cleaning, and make-up water for cooling tower and boilers could be implemented for commercial buildings, condominiums, HDB estates, schools and factories. These systems could employ membrane technologies such as micro-filtration or ultra-filtration, membrane bioreactor, reverse osmosis and disinfection process, such as ultra-violet disinfection system or chlorination, to produce high-quality water for

reuse. To enhance the durability of the membrane system, ceramic membrane with automated cleaning system could be adopted.

For industrial water recycling, besides adopting the above-mentioned technologies, an emerging technology like forward-osmosis process has great potential for water-recycling application. It utilises an osmotic pressure gradient generated by a highly-concentrated solution (known as "draw" solution) to allow water to diffuse through a semi-permeable membrane from feedwater, which has a relatively lower concentration. Consequently, a diluted draw solution is produced. In industrial water recycling, the highly-concentrated draw solution could be a concentrated chemical while the feedwater could be used water. The final diluted draw solution could then be utilised directly for industrial process, achieving direct water reuse instead of producing high-quality recycled freshwater.

A major challenge in the implementation of on-site water-recycling system is the system capital cost, recurring operational and maintenance costs and retrofitting costs. Comprehensive cost-benefit analysis is certainly required on a case-by-case basis. Multiple business models can be considered to lower the financial barriers to the adoption of on-site water-recycling systems, and they include: providing government grant for the upfront system and retrofitting costs; providing low- or zero-interest financing for the systems and installation costs; reduction of water tariff and waterborne fee for those who implement on-site water-recycling systems; and engaging a service provider to supply and operate the system as a business venture.

Summary

To achieve water self-sufficiency for Singapore by 2060, besides increasing local catchment areas and expanding the capacity of sea-water desalination and NEWater, efforts to maximise recycling of water and the capture, storage and usage of rain-water are necessary. Three recommended approaches to achieve this aim for Singapore would be to increase water storage through underground storage system, implement on-site rain-water harvesting and adopt on-site water recycling. Implementation of these approaches will not only encourage water technology research development and increase water supply in Singapore, but will also generate economic activities and business opportunities for water utilities companies and local small and medium-sized enterprises, truly establishing Singapore as a "Global Hydrohub".

About the author

Dr Ng How Yong is currently an Associate Professor, Associate Head (Administration), Dean's Chair and Director of the Centre for Water Research in the Department of Civil and Environmental Engineering at the National University of Singapore. His research interests are in biological wastewater treatment, membrane technologies for water reuse and desalination, energy recovery from wastewater and microbial fuel cell. He has published more than 260 papers in peer-reviewed international journals and conference proceedings. Dr Ng is a fellow of the International Water Association (IWA), a member of the Management Committee of the IWA Specialist Group on Membrane Technology and a member of the IWA Publication Committee. He is editor of the 'Journal of Water Reuse and Desalination' and an associate editor of 'Water Research'. He has served as a technical advisor/consultant on industrial wastewater treatment, water reuse, desalination and membrane technologies for a number of companies based in Singapore, China, Japan and the United States. Dr Ng is the recipient of the 2014 IWA Pacific Regional Project Innovation Awards (Applied Research – Honour Award), the 2009 National University of Singapore Young Researcher Award, the 2008 Singapore Youth Award, the 2007 Singapore Young Scientist Award and the 2006 IWA Young Professionals Award.

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Driven by Natural Power: The sEV Revolution in Singapore

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Modern cities by definition and design are not sustainable due mainly to their reliance on fossil fuel that results in unacceptable levels of carbon emission, negative impact on human health as well as over-consumption of other non-renewable resources. Future generations will bear the increasingly burdensome costs of their maintenance and expansion.

In 2035, Singapore becomes the first country in the world to have nearly 100% electric vehicles (EVs) on the road. From 2034, only EVs are allowed to be imported and sold in Singapore. Unlike other countries, Singapore deploys a nation-wide EV-charging network powered completely by natural renewable energy, mostly solar power and some urban wind energy, which make it truly sustainable. The EV infrastructure is part of a national sustainable mobility infrastructure consisting of smart roads, Internet-based mobile apps, human mobility engineers, public transport systems, car parks, natural energy, commercial and industrial buildings as well as residential apartments and houses.

This is a brief history 'of the future' in Singapore's audacious plan to engage global climate change by making fossil fuel history through a massive total replacement of its vehicular traffic by sustainable electric vehicles (sEV) and their impact on Singapore's electric mobility lifestyles.

One happy motoring day in 2035

I leave home at 7am that morning and am greeted by a pleasant "Good morning, Michael, 100% charged" effeminate voice. "Thank you," I reply, before realising that I am talking to a machine!

As I slide into my sEV, I decide to switch to driverless mode and let the vehicle bring me to my favourite breakfast meeting location. The location is one of several destinations visited before and "remembered" by the sEV's computer.

The smart sEV leverages on Singapore's island-wide IT network supporting the intelligent road system via GPS Google Maps and my mobile apps to plot the best and fastest route with the least morning traffic jam. It "remembers" every destination visited, monitors possible traffic hotspots real-time and tracks useful motoring services such as charging points, car-wash locations, tyre shops, convenience stores and eating places. If desired, one can even scan for sEVs of friends within three kilometres, call contacts and connect with them via the hands-free telephone built into the steering wheel.

It is a busy morning. From the breakfast meeting to Changi Airport to pick up a couple of key clients and bring them to their hotel at Marina Bay, before going to Jurong, Bedok and the city for other meetings. Hours pass. Suddenly, the voice reminds: "40% power", which I believe to be adequate for the rest of my day. Automatically, the sEV shows all the proximate charging locations, highlighting those where I had been before and those that are associated with my sEV Power Membership. I choose a new shopping centre just five minutes away for my lunch.

The car park operator of the new shopping centre is not associated with my sEV Power Membership. Charging for sEV is, however, free for shopping centre patrons. The entry point recognises my IU and vehicle numbers. Anyway, ad hoc charging fee can always be deducted from the IU cash card if necessary.

The car park has remote charging at every lot. I pull into a lot and the sEV's computer confirms the vehicle's alignment with the charging strip embedded on the floor and I engage the remote charging with a voice command "Engage". How convenient. No need to connect a charging cable to my sEV.

Solar-powered charging stations are available everywhere in private as well as HDB/URA car parks and commercial buildings. Most charging is free since it consumes very little energy and is included in the parking fee if required. There are also sEV Power-Stops, most of which are located at former petrol stations that are now obsolete. At these stops, one finds supermarkets, café, food courts, fast food restaurants, gyms, snooker saloons, reading rooms and free Internet hotspots. Drivers of sEVs are occupied while their sEVs undergo fast charging and a car-grooming session. Many sEV service providers sell special monthly packages for unlimited charging for as low as $30 per month. This is awesome saving when compared with the $400-$500 previously spent on petrol for fossil fuel vehicles.

The shopping centre is one of several new buildings that had incorporated renewable energy into their designs. The government had earlier motivated developers with non-financial incentives such as increased GFA (gross floor area) bonus should they choose to invest in renewable energy in an enhanced manner. Developers were required earlier to provide for sEV-ready car parks in their building plans. Every 10% use of renewable energy would earn a 20% bonus in the permitted GFA.

The GFA measures the sheltered floor areas of a building and unsheltered areas for commercial uses for plot ratio control and determining development charges. Any GFA bonus essentially reduces the cost of the building and allows more usable space to be built and marketed. Using the GFA does not cost the public a single cent and allows developers to invest in the renewable energy equipment and infrastructure to reduce fossil fuel consumption. It adds to better building sustainability.

Developers have hitherto focused on "green" buildings and energy efficiency as their sustainability guide. By 2020, the oxymoronic notion of sustainable "green" buildings is discarded to embrace a wholly-natural energy basis for sustainable buildings, in addition to using sustainable building materials and accessories. The use of absorption chiller air-conditioning systems, waste heat re-circulation, recycling of used water and a host of other measures are part of the developers' arsenal for a sustainable building.

Developers develop master energy plans for their buildings for sustainable end goals such as zero-carbon footprint, easy maintenance, comfort and productivity, and with extended life-cycle. To achieve zero footprint, developers deploy renewable sources such as solar thermal, solar photovoltaic (PV), urban wind and water.

The shopping centre has a condominium consisting of low-rise blocks to high 30-storey towers. Built in a unique East-West facing to maximise solar and urban wind impact, its seeming all-glass façade are actually solar PV panel arrays, which also adorn its roof-top next to absorption chillers. Small-wind turbines can be seen at strategic locations to capture the wind gust bursting through the buildings to produce urban wind energy, which together with the solar PVs power the elevators, as well as common and household lighting and heating. The complex is rated RE70, meaning renewable energy drives up to 70% of its energy needs. Only a very small fraction of this renewable energy (just 1 kW-hr per parking lot) is needed for sEV charging.

I finish my lunch and the restaurant endorses the complimentary sEV charging before I proceed to the car park. My sEV greets me: "Welcome back, Michael, 100% charged." The top-up charging from 40% to 100% takes less than an hour while I have lunch. How convenient indeed.

I decide to take charge of the vehicle and drive to my next meeting before proceeding home to prepare for the evening dinner with the newly-arrived clients. An incoming call from overseas requesting a short conference prompts me into the driverless mode again, as I continue the journey without stopping.

Along the way, I wonder whether I should take either an electric bus or sEV taxi later since the dinner venue is quite near my house.

The sEV revolution offers motorists numerous advantages in the areas of energy efficiency, motoring costs and pollution emission. The sEV engine is twice more efficient than previous fossil fuel vehicles (FFV), with braking efficiency at around 65% compared with 18%-23% for FFV. Using renewable energy for battery charging means virtually zero carbon emission, compared with only 66% reduction in carbon emission when using electricity from fossil fuel (gas) generation previously.

This is my second sEV, being one of the first to benefit from the 10% COE (Certificate of Entitlement) first released for sEV in 2026. COEs for sEV are competitive but affordable when one factors in the convenience, lower maintenance cost and recurring energy cost. Prices of sEV have become much lower than standard fossil fuel vehicles, whose prices and base COE prices have gradually tripled after the government acknowledged the unacceptable social costs associated with their harmful CO_2 (carbon dioxide) emission.

Battery technology for sEV has improved by leaps and bounds. They charge faster, hold more charge, cost less and last longer. A typical fully-charged battery can last more than 250 km instead of just 150 km in 2015. Singaporeans on the average drive less than 60 km each day. Similarly, taxis clock from 250 km to less than 300 km daily.

The computers on board sEVs are embedded with smart technology. One can remotely summon the sEV from a car park or home via the GPS locator on your person, e.g. watch, pen or clothing, and instruct it to return home or to a transitional parking location to await your next summon. Various buildings and many commercial buildings have designated driverless taxi stands and car parks to add to the convenience of happy electric mobility.

Climate change threat to our survival – why sEV matters

For years, many scientific studies by the United Nations and other credible research institutes have all concluded that human activities in the past 250 years are responsible for global warming of nearly 2°C (Celsius) due to increasing massive greenhouse gas emission from the burning of fossil fuel (coal, petroleum and gas) for rapid industrial development. The final solution is simple – make fossil fuel history.

In 2014, Singapore committed internationally to reduce carbon emission to between 7% and 11% below its business-as-usual (BAU) level by 2020. It is also ready to further reduce emission to 16% below its BAU level by 2020 if there is a legally-binding global agreement on climate change. Singapore generates relatively low levels of carbon emission per dollar GDP, mainly from its refineries and petrochemical sector, ranking 113th among 140 countries in 2014. Grid electricity is being generated by fossil fuel gas, which replaced petrol-fed power stations, thereby reducing carbon emission by half. Gas is, however, also a non-renewable fuel source.

Key policy review and innovations

For Singapore, the truth that "green is not sustainable" hits home, and the impact of global warming in devastating coastal regions and hampering valuable food crops demands an innovative response from a resourceful Singapore, where only an audacious and unconventional solution would create the kind of impact for the world to emulate.

The massive adoption of EVs must be within the wider context of climate change and carbon emission reduction. It requires a coordinated national effort and resolve. Obsolete paradigms regarding sustainability, fossil fuel, vehicular mobility and national survival need to be re-calibrated and re-configured for the sake of Singapore's future.

The success factors of the sEV revolution in Singapore can be narrowed down to the following:

- The sEV transformation is not just a transport policy but a critical tool to combat climate change and global warming by making fossil fuel history.

- The measures to make sEVs more affordable are not "consumption subsidies" as narrowly conceived previously. They are actually social investments in the sustainability of Singapore's future generations.

- Import duties on sEVs are reduced. Road tax for fossil fuel cars increased sharply due to the unacceptable social costs associated with their harmful carbon dioxide emission.

- Prices for sEV become much lower when the authorities allow the exclusion of the sEV battery, which constitutes about 40% of its cost, from import tax computation, provided sEV vendors import them separately. The sEVs could be sold without any battery; batteries are separately purchased or more popularly subscribed to under various sEV membership power plans sold by many sEV service providers. Batteries are recyclable and a healthy, vibrant industry exists for second-hand batteries. Some sEV models provide for battery swapping instead of charging; others have both modes.

- Renewable energy such as solar PV and urban wind is feasible and offers better alternatives. Since 2014, solar energy has achieved grid parity in Singapore in terms of costs. Up-scaling solar power in buildings and car parks to serve the 100% sEV population brings investment payback to less than five years with much cheaper solar technologies.

- Solar-powered car parks have been prevalent in Germany and Europe for the past 20 years. The often-misquoted variability of solar electrical generation is effectively addressed by companies such as ABB, Siemens and Bosch, among others.

- Buildings and developers are key elements of the solution for reducing emission through the enhanced adoption of solar and urban wind power. The use of GFA is an ingenious non-financial incentive to motivate and encourage developers towards lowering fossil fuel dependency in their buildings. The sheer beneficial economics of GFA bonus guarantees its effectiveness. Building owners need to provide only 1kW-hr per parking lot charging point, which is a tiny fraction of the entire building's energy consumption.

- The clever use of COE (Certificates of Entitlement) to gradually scale up sEV adoption enables a complete transformation of Singapore road vehicles to 100% sEVs within just 10 years. This is a remarkable feat only possible in Singapore, where more than 95% of road vehicles are less than 10-year-old.

The Appendix chronicles the milestones of policy and measures during our passage to achieve sustainable electric mobility. They tell the story of an exceptionally resourceful nation, led by visionary leadership at every level, embarking on an ambitious plan to make fossil fuel history through the 100% transformation of its fossil fuel vehicular traffic to electric vehicles powered by natural renewable energy. In the end, the sEV becomes more than just a mode of transportation to usher an era of rich electric mobility lifestyle for our sustainable future.

Imagine the possible – greater energy security with reduced carbon emission

The sEV revolution requires an entirely innovative nationwide infrastructure harnessing natural solar and urban wind energy to empower sEV car parks, sEV power hubs and charging points, sEV workshops and sEV buildings in place of current petrol stations, motor workshops and conventional car parks.

The sEV revolution in Singapore reduces our oil dependency by nearly 20%. A 100% sEV population simply eliminates the 16% of imported oil that used to go directly to petrol pumps to quench our fossil fuel vehicles. This adds to significant energy security and cuts carbon emission drastically.

Singapore's electric grid infrastructure remains a strong backup to reinforce continuous energy supply during the haze or other environmental hazards that may impede our solar and urban wind power generation. The grid infrastructure is, however, empowered by power stations that produce electricity generated by fossil fuel gas.

This peek into our future suggests sEV (powered by renewable energy) as that proverbial tipping point pebble on the status quo calm water to produce rippling waves after waves of "healthy" and truly sustainable electric mobility impact throughout the country for a better future. Just imagine the possibilities.

About the author

Michael Heng is a certified management consultant with more than 30 years' senior management experience with local and foreign MNCs, including 15 years as a tenured university associate professor. He is currently President & CEO of EnergyCorp Global Pte Ltd, which was set up in 2009 to promote renewable energy. He is Co-Chair of Sustainable Infrastructure & Sustainable Mobility of the Sustainable Energy Association of Singapore.

Michael graduated with Bachelor of Arts and Bachelor of Social Sciences (Hons) degrees from the then University of Singapore and a master degree from the London School of Economics. He received the Public Service Medal (PBM) for community service in 2002 and CSR Leadership Awards in 2012 and 2013.

Appendix

|	Our Passage To Sustainable Electric Mobility - Milestones	When
1	**Strategic sustainable mobility framework blueprint** *National consultation: declaring war to make fossil fuel history:* Communications and consultation with Inland Revenue Authority of Singapore, Land Transport Authority, Ministry of Education, Housing and Development Board, car trade associations, SBS Transit, SMRT Corporation, private bus operators, architects, car-park operators, Automobile Association of Singapore, business chambers, petroleum companies, electric vehicle distributors, electric car storage vendors, education and training institutes, Sustainable Energy Association of Singapore, Real Estate Developers' Association of Singapore, financial institutions, retailers' associations, architects, community organisations and the public.	2020/25
2	**Social capital investments – tax and funding incentives** • COE structures for sEV and other vehicles • Road tax structure for sEV and other vehicles • Funding and GFA incentives for new sEV-ready buildings • Funding and incentives to make existing buildings sEV-ready • Funding and incentives for open sEV car parks using solar power	2025/27
3	**Human talent development and investments** • Universities and polytechnics launch sEV automotive engineering degree and diploma programmes, as well as courses on renewable energy, electrical storage and sustainable engineering. • Scholarships and education incentives for the first few batches of sEV automotive engineers, renewal energy and sustainable engineering graduates.	

Appendix (Cont'd)

	Our Passage To Sustainable Electric Mobility - Milestones	When
	• Universities and polytechnics launch various management programmes in mobility lifestyles. • 10% COE for sEVs • 10% COE for sEV taxis • New building plans to have 10% sEV-ready car parks • HDB and URA car parks begin programme to become 100% sEV-ready progressively over five years.	2026
4	**International conference and exhibition on sEV supply chain** • Showcasing leading manufacturers and innovations in sEVs, storage devices, solar car parks and sEV supply chain, and sEV-friendly building designs as well as universities and educational institutes having sEV automotive engineering and renewable energy curriculum. • Investment incentives and OHQ funding for joint ventures in sEV and sEV supply chain products, and related service providers. • New industries with new jobs in sustainable electrical mobility • 20% COE for sEVs. • 20% COE for sEV taxis • New building plans to have 30% sEV-ready car parks	2027
5	• 30% COE for sEVs • 30% COE for sEV taxis • New building plans to have 40% sEV-ready car parks • SBS and SMRT begin seven-year programme to replace fleet with sEVs and solar-powered buses.	2028
6	• 40% COE for sEVs • 40% COE for sEV taxis • New building plans to have 50% sEV-ready car parks • First batch of graduates in sEV automotive engineering, renewable energy and sustainable engineering • First series of open sEV car parks powered by solar energy	2029

Appendix (Cont'd)

	Our Passage To Sustainable Electric Mobility - Milestones	When
7	50% COE for sEVs 50% for sEV taxis New building plans to have 80% sEV-ready car parks Status review of sEV transformation progress	2030
8	**Integrated development** Conversion of existing petrol stations into sEV pit-stops incorporating battery-charging (with minimum of three-hour fast charging), F&B outlets and recreation facilities (spa, bowling, billiard, gym, etc)	2031
9	• 70% COE for sEVs • 70% for sEV taxis • All HDB URA car parks sEV-ready	2032
10	• 90% COE for sEVs • 90% for sEV taxis • New building to have 100% sEV-ready car parks	2033
11	• 100% COE for sEVs only • 100% COE for sEV taxis only	2034
12	• 100% sEV population • All SBS and SMRT buses are sEVs. • All taxis are sEVs; some are driverless. • All new buildings under construction are designated sEV-ready.	2035

RE-IMAGINING SINGAPORE AS A SECURE NATION
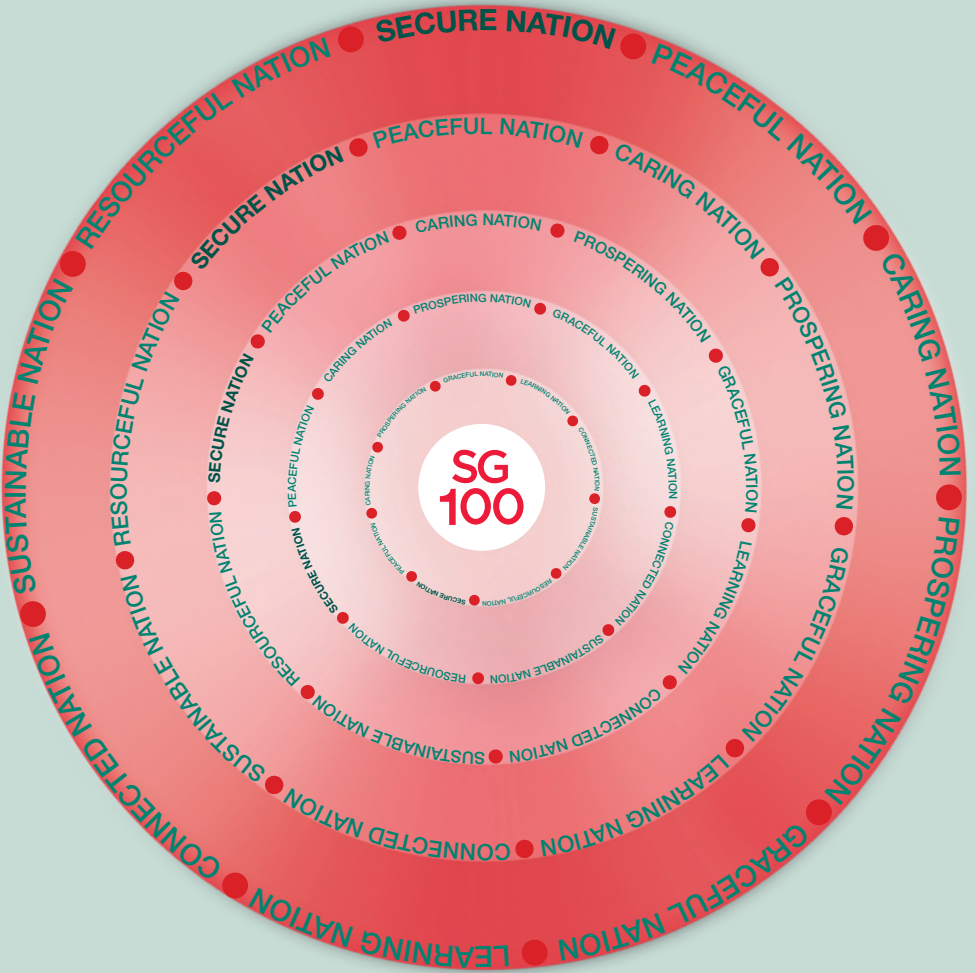
"If we are not vulnerable, why do we spend 5% to 6% of GDP year after year on defence? Are we mad? This is a frugal government, you know that well." (2011)

"National service has had a profound impact on Singapore society over the last 30 years. It has become a rite of passage for our young men and a part of our way of life that has helped to unify our people. They learn to live and work closely with each other, regardless of race, language or religion." (2000)

Lee Kuan Yew

The Evolving Singapore National Security Problematique: Towards Homeland Resilience

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Singapore celebrates its 50th anniversary of independence this year, and enough time has elapsed for a review of how the country approaches the whole national security *problematique*. The first thing that can be observed is that over the years, the Singapore government has understood that national security is more than just military defence. In the early years after the separation from Malaysia, when the new nation did not have much of an army, a navy or an air force, the emphasis was naturally on building up a credible military defence capability to strengthen military deterrence. At the same time, Singapore was helping – through the multilateral platform of the Association of Southeast Asian Nations (ASEAN) – to foster a stable and peaceful regional security environment through active diplomacy and constructive big power engagement.[1]

Nevertheless, from the very beginning post-independence Singaporean policymakers have understood that external threats aside, the internal cohesion of what was essentially a multi-cultural, multi-racial and multi-religious immigrant society was not something that could be taken for granted. Since the end of the Second World War, the country had been beset by the internal threats of communism and communal disturbances arising from religious and racial chauvinism. This is why nation-building has always been taken very seriously by Singapore leaders. Moreover, from the early 1980s there was increasing conceptual work within official circles acknowledging that there was a hard aspect to national security as well as a softer aspect to it. These ideas came together about 30 years ago and are now embodied in the concept of Total Defence. This comprises five aspects that are important in thinking about national security - military, economic, civil, social and psychological.

The Total Defence concept has really been the pillar upon which succeeding Singaporean notions of national security have been built.[2]

From the communists to the violent Islamist threat

There have been numerous episodes since the 1990s that appear to have validated the idea that one must have a comprehensive understanding of security and that both the hard military and softer non-military aspects are important. To be sure, the communist threat had receded by the end of the 1980s with the collapse of the Soviet Union, the related withdrawal of Soviet-backed Vietnamese forces from Cambodia, and the formal cessation of hostility by the Communist Party of Malaya that ended four decades of low-intensity conflict with both Singapore and Malaysia.[3] Nevertheless, rather than any peace dividend arising out of the end of the Cold War, the worldwide religious fundamentalist revival of the 1980s contributed to renewed tensions between the various faith groups in Singapore – resulting in the passage of legislation in 1990 calling for all faith communities to refrain from over-aggressive proselytisation of other groups, and for religious groups to stay out of the political arena.[4] By the early 2000s and in the wake of the terrorist attacks in New York and Washington, DC by Al Qaeda in September 2001, religiously-inspired transnational terrorism also became an issue that occupied policymakers' minds. The discovery of the Al Qaeda-linked Jemaah Islamiyah (JI) cell in Singapore at the end of 2001 was a significant wake-up call. If the JI plan to strike at Western diplomatic and commercial interests in a densely-populated part of the city-state had been successful, the economic, social and psychological impact would have been severe.[5]

To be sure, Singaporeans have had to pay what has aptly been called the "Osama bin Laden tax" ever since. On the physical security front, certain lifestyle changes have had to be endured, most keenly felt when travelling overseas, given the need to cope patiently with enhanced security checks, numerous cabin luggage restrictions and regularly changing visa and immigration procedures. On the domestic front, public campaigns have intensified, continually reminding one and all of the need for vigilance, while regular emergency exercises such as the Northstar series involving various government agencies and the public have become very much part of the fabric of life. Furthermore, while there has long been recognition after independence that a small multi-cultural country like Singapore needs to guard against threats to racial and religious harmony, September 11 and the discovery of

Singaporean JI members under the spell of violent sectarian foreign ideologies strongly reinforced this perception. Since then, there has been enhanced awareness that social and psychological resilience against extremist ideologies is critical.[6] Thickening the plot since the mid-2000s has been the trend for such ideologies to be increasingly disseminated via the Internet – particularly through YouTube, Facebook and Twitter. This development in turn has given rise to the so-called "self-radicalisation" phenomenon – individuals with neither previous suspect backgrounds or direct institutional links with terrorist networks can nevertheless decide to embark on violent terrorist pathways after being radicalised online by viewing violent extremist materials. At the time of writing, the Islamic State (IS) – an extremely virulent offshoot of Al Qaeda – has carved out territorial control in parts of Iraq and Libya and its ideological appeal has – thanks to the impact of cheap smartphone technology and the digital media revolution – radicalised hundreds of Southeast Asians, including some Singaporeans.[7]

Tier one threat of transnational terrorism

It is worth recognising that a terrorist attack in Singapore today would have devastating consequences. First, the religious-ideological motivation of transnational terrorist groups implies that they would aim for mass civilian casualties, so the physical and economic costs of an attack would be significant. Secondly and far worse, the social and psychological effect on the multi-religious fabric of Singapore would likely be deleterious as well, raising the potential of a backlash against segments of society seen by some Singaporeans – however wrongly – as associated with the terrorists through their religious ties.[8] The question we need to ask is: are we better secured against the tier one threat of a terrorist attack today than a decade ago? In a strictly physical security sense, the answer is undoubtedly yes. Singapore is a much harder target to attack today thanks to: greater awareness of the nature of the transnational terrorist threat; strong immigration checks, stronger control on the movements in and out of the country of strategic and hazardous materials; closer coordination between various local security and intelligence agencies; and, importantly, good intelligence exchanges and operational collaboration with foreign governments, well-evidenced by the recapture of Singapore JI operational leader Mas Selamat Kastari in April 2009.[9]

However, it remains necessary to guard against creeping governmental and public complacency for two basic reasons. First, just because Singapore

has yet to be attacked in the post-Communist Party of Malaya era does not at all mean that this will never happen. Singapore remains a decidedly iconic terrorist target, as the revelations in recent years of the intention by Indonesia-based terrorists to target the Singapore Embassy in Jakarta and the discovery of a map of the MRT network (with Orchard Station circled) in the possession of an Indonesian militant, demonstrate all too clearly. Hence the old adage remains pertinent: we have to be lucky all the time but they need to be really lucky just once. It bears remembering always that Singapore is seen as a close friend of Israel and the United States – so that is all the justification that the likes of Al Qaeda and JI – and the newer institutional forms these have evolved into – need to attack us. Secondly, it cannot be overstated that the Internet has been a genuine game-changer. As the Boston Marathon bombing of April 2013 and other so-called lone-wolf attacks in Copenhagen, Paris and elsewhere since then attest, anybody with the requisite combination of personal psychological susceptibility and situational circumstances can self-radicalise without family and friends noticing. The Internet provides not just the platform for legitimising propaganda as mentioned but also both tactical tips and knowledge on how to make improvised home-made explosives. Hence better public awareness of the early warning signs of violent radicalisation is needed more than ever. A whole-of-society and not just a whole-of-government approach in short, to countering the very real, Internet-facilitated threat of radicalisation into violent extremism, is needed.[10]

Put another way, physical resilience against transnational terrorism must go hand-in-glove with social and psychological resilience against the extremist ideological "virus". Thus initiatives like the Inter-Racial and Religious Confidence Circles, Racial Harmony Day and the Community Engagement Programme inaugurated in the wake of the July 2005 London subway bombings will remain fixtures of everyday life in Singapore, while the important work in detainee rehabilitation and wider counter-ideological efforts of all-volunteer bodies of Islamic scholars like the Religious Rehabilitation Group (RRG) will continue to have significant roles to play in shoring up the mental and ideological firewalls against violent extremist ideologies, online as well as in the real world.[11] In sum, from the wider perspective of the national security *problematique*, the enduring impact of September 11 has made it very clear that bombs and bullets aside, countering violent extremist ideology is also very much a key national security interest and can be expected to be so in the foreseeable future.

Other emerging non-military national security issues

Other "defining moments" have further confirmed that non-military aspects of security have become very salient since the late 1990s. The 1998 Asian Financial Crisis had some economic impact on Singapore, but the fact that the crisis helped to bring about the end of the 32-year rule of President Suharto in Indonesia and the ensuing regional security repercussions, illustrated that security issues were increasingly complex and inter-dependent. The 2003 SARS crisis, in which Singapore had the dubious distinction of having the fourth highest rate of infection in the world, also drove home the point that bombs and bullets went only so far against certain types of existential threats – it was a superbug![12] Since then, the intensifying globalisation of the world and the increasing complexity, interdependence and hence vulnerability of national critical infrastructure to cyber-terrorist attacks have further confirmed that only a comprehensive approach to Singapore's national security that encompasses both military and non-military aspects – and the notion that security is the business of not just the government but also businesses and civil society – is absolutely necessary in today's situation.[13]

Such an assessment was precisely why the National Framework for Singapore's Security was unveiled in 2004. It emphasised the comprehensive logic of national security and the need for a whole-of-government/whole-of-society approach to the issue. In fact, one reason why the Centre of Excellence for National Security (CENS) was formed nine years ago within the S. Rajaratnam School of International Studies in Nanyang Technological University was to promote more systematic whole-of-government/whole-of-society thinking about national security matters. To this end, CENS acts as the academic partner of the National Security Coordination Secretariat in the Prime Minister's Office. Currently, CENS generates policy-relevant research in three key areas of interest: radicalisation into violent extremism and ways to counter this; understanding what make for the social resilience of multi-cultural, multi-religious and globalised societies and polities like Singapore; and social media analytics, strategic and crisis communications, and cyber-security policy. These areas are all very much part of the Singapore national security *problematique* today.[14]

Rise of the concept of "resilience"

If the question were to be asked as to how else the Singapore national security *problematique* has evolved into the present decade, it could be asserted

that there has been increasing emphasis on the notion that because absolute security may no longer be entirely possible given the rapid proliferation of complex and interconnected threats, Singapore should perhaps transition from a "security mindset" to a "resilience mindset". Resilience is, like security, a contested concept. But the general idea is that societies that are resilient are those that are able to absorb a systemic shock, bounce back and function optimally as before, perhaps adapting to new environmental realities if need be. Societies that are resilient in essence possess within themselves the robustness, resourcefulness and gumption to stay united and steadfastly committed to the nation, despite the trauma of a natural or man-made disaster.[15] In a sense, such a notion is nothing new. In 1979, the late Mr S. Rajaratnam, the first Foreign Minister of post-independence Singapore – inspired by the great medieval Islamic scholar Ibn Khaldun – argued that Singapore needed what Khaldun had called *asabiyya* in order to continue to thrive and prosper in an increasingly complex and uncertain global environment. *Asabiyya* could be interpreted as a combination of dogged group solidarity wedded to the determination to surmount internal and external challenges. Mr Rajaratnam had also recalled that the great 16th century Renaissance philosopher Niccolo Machiavelli had argued that societies that succeeded were those that possessed *virtu* or the "ability to show mastery amidst the flux of things".[16] Much more recently, Deputy Prime Minister Tharman Shanmugaratnam has urged for a greater sense of "common cause" on the part of all Singaporean communities.[17] Whatever the precise terminology, one thing remains clear: in the next 50 years, it does seem that the Singapore national security *problematique* may well be evolving, in the sense that rather than the traditional concern with "security", future leaders in the government, businesses and civil society may be grappling with "resilience". In other words, it may be suggested that Homeland Resilience – the ability of the polity to retain the essential *asabiyya* and *virtu* to surmount future internal and external challenges – may well turn out to be the *sine qua non* of the long-term stability and success of Singapore in a globalised, highly competitive and often dangerous world. The precise modalities and mechanisms by which such homeland resilience is generated could thus be a topic that is worth further exploration by think tanks and policy practitioners in the coming years.

Homeland resilience – the battle for Singapore's history

In fact, one interesting further confirmation of how the national security *problematique* has evolved to encompass non-military aspects is the current

debate about Singapore's history and the true extent of the threat from the Communist Party of Malaya. In other words, was there really a serious communist threat in Singapore's past or was the threat exaggerated?[18] There are actually two issues here. First, the root problem is a generalised lack of awareness of key defining moments in Singapore's history amongst many Singaporeans. For instance, a recent survey by the Institute of Policy Studies found that key episodes, such as Operation Coldstore (1963) in which at least 100 people, including leftist opposition leaders, were detained, were recalled by "less than a fifth of the 1,500 respondents".[19] Secondly, such weak historical awareness has rendered elements of the public susceptible to arguments by some revisionist historians that the communist threat in Singapore's history has been exaggerated. Worse, they suggest that the Coldstore operation mentioned earlier decimated not a communist network but rather a legitimate progressive left-wing opposition to the People's Action Party (PAP) government that went on to win the 1963 elections. Hence the implication is that the PAP government of the day launched Coldstore for political rather than security reasons. Revisionist writers – who appear to have a rather spirited following on the social media, especially on sites such as *The Online Citizen* and *The Real Singapore* – go so far as to ask readers to re-examine the "morality of how the PAP came to rule Singapore".[20]

In essence, the debate about Operation Coldstore is really about homeland resilience. Some conservative analysts think that Singapore needs a reinforced master narrative – the Singapore story – to help maintain community cohesion, especially with the many new immigrants coming in to keep the economy going, given the nation's low birth rates. Conservatives worry that if, in place of the master narrative, there are multiple conflicting and contradictory narratives, there may be epistemological confusion and hence no chance for an overarching common Singapore identity to be preserved. Liberals on the other hand argue that the Singapore story must not be dominated by political elite's accounts but must also bring in multiple perspectives – including those of former Coldstore detainees and their academic and online supporters – because multiple narratives offer greater diversity than one master narrative. Conservatives are unlikely to go along with this, because they fear that without an overarching and sturdy philosophical overall narrative glue that holds various Singaporean communities together, fissure between old and new citizens, as well as between the more sceptical younger and more worldly-wise older generations – as the Coldstore debate hinted at - would only worsen and the social fabric may well unravel. One possible knock-on effect

of such an outcome is that it may render vulnerable young people from some faith groups more susceptible to emotional religious appeals to transnational sources of allegiance – with all the attendant downstream effects, including adoption of violent extremist ideologies – as has been the case elsewhere.[21] In other words, the current debate about Singapore's past is a litmus test of the depth of Singapore's *asabiyya* and *virtu* – and hence is also an aspect of Singapore's ever-evolving national security *problematique*. The optimal outcome, of course, is that all sides can agree to adopt the stance of a "loving critic" of the nation, society and government, so that Singapore's *asabiyya* will be strengthened.[22] In any case, how the debate over Singapore's history pans out is arguably one key element of the corpus of military and non-military issues that will have implications for the homeland resilience of the city-state in years to come.

About the author

Kumar Ramakrishna was previously Head of the Centre of Excellence for National Security at the S. Rajaratnam School of International Studies. He graduated with First Class (Hons) in Political Science from the National University of Singapore in 1989 and Master in Defence Studies from the University of New South Wales in 1992. He went on to obtain his PhD in History from Royal Holloway and Bedford New College, University of London, in 1999. Kumar has been a frequent speaker on counter-terrorism and the communist threat in Singapore history before local and international audiences, a regular media commentator and a published author in numerous internationally-refereed journals.

His first major book 'Emergency Propaganda: The Winning of Malayan Hearts and Minds, 1948-1958' (2002) was described by the International History Review as "required reading for historians of Malaya, and for those whose task is to counter insurgents, guerrillas, and-terrorists". His second book 'Radical Pathways: Understanding Muslim Radicalization in Indonesia' (2009) was identified by Perspectives on Terrorism (May 2012) as one of the top 150 books on terrorism and counter-terrorism, as well as "an important and insightful case study on the pathways to extremism and violent jihad in Indonesia". His most recent single-authored books are 'Islamist Terrorism and Militancy in Indonesia: The Power of the Manichean Mindset' (2015) and 'Original Sin? Revising the Revisionist Critique of the 1963 Operation Coldstore in Singapore' (2015).

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A Vision for National Service in Singapore

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Introduction

Singapore came into being in 1965 amidst a period of great uncertainty and against a backdrop of conflicts such as the Indonesian confrontation and Communist insurgency. It was born during those periods of difficult circumstances. Although time has passed, history is not forgotten. Memories of those turbulent times are still held within the deep recesses of our pioneer generation's collective memory.

Despite its difficult beginning, Singapore has undergone major transformations. For 50 years, it has made progress that other small nations could only dream of. It has enjoyed peace, security and economic growth, and improved the standard of living equal to some of the most developed countries in the world. Singapore's per capita GDP has risen from US$800 in 1965 to more than US$50,000 today. It has stood out and become a model of success for many other nations.

Underpinning these 50 years of development is an institution that secured the space for Singapore's phenomenal growth to take place. This institution is our national service. In 1967, then Defence Minister Dr Goh Keng Swee justified the government's decision to introduce compulsory conscription of male youth on the grounds of establishing a credible defence force and nation building for Singapore. It would provide a strong deterrent to potential aggressors, defend Singapore's sovereignty and protect our way of life.

National service (NS) in Singapore has come a long way since.

National service in the past

Almost every Singaporean would have at least a relative or know of someone, either a friend or colleague, who has served NS. NS weaves through multiple

generations, from grandfathers to fathers to sons, and from uncles to nephews. It connects cohorts within a generation and between generations. NS has impacted the lives of many Singaporeans, from 18-year-olds to those who are in their late seventies.

It was a rite of passage for our young male citizens. It was a process our boys went through to become men. Some parents saw it as part of building discipline and toughening up their sons, helping them to grow into mature and responsible young adults. At the same time, many parents worried about their sons' well-being when they enlisted. Before their enlistment, many of these 18-year-olds had been pre-occupied primarily with academic and other recreational pursuits. Enlistment into a uniform service was a major disruption in their lives. Men who had gone through NS swore it was one of the toughest phases in their early adult lives. They went through tough physical training, strict regimentation and a loss of personal freedom. For two years, their creature comforts at home were replaced by barracks shared with enlistees they had never met before. For two to two and a half years, life was very regimented.

Ironically, our men took pride in sharing their experiences during their NS. They were able to see the fun side of the hard times they had with their buddies. They recounted stressful episodes with fondness and nostalgia. They enjoyed friendship and camaraderie. They remembered periods of training that stretched their physical and mental endurance. Temper flared, egos were broken, new friendship emerged and life-long bonds were forged. These experiences created a powerful narrative on what it means to be a Singaporean. They are stored as permanent images of their growing-up years. Such memorable images help them to relive their defining moments with fellow national servicemen (NSmen) time and time again.

Women, especially mothers, have often remarked how the young men have emerged better disciplined and more mature after two years of NS. They seem better able to handle life's challenges. NS transforms the hearts and minds of our young, and is an institution that many of them can share and identify with.

It is also not uncommon for many of our young men in uniform to find role models during their NS. These role models teach them important values. They develop leadership skills in them. Some of them continue to make powerful and positive influence many years later.

National service today

Notwithstanding its success today, Singapore cannot avoid an increasingly uncertain future, fraught with threats and challenges, both globally and regionally. We cannot ignore the threats brought about by the Al Qaeda and Jemaah Islamiah terror groups. We must be ready to respond against any threats to our security. The ISIS conflict in the Middle East demonstrates how fragile peace is around the world. Singapore is not immune to such crises. Violence and hostility can be brought to our shores, and undermine the decades of peace we have painstakingly built. These are challenges that Singapore will continue to face in our neighbourhood. We must take our defence, and therefore our national service, seriously. Only by doing so are we able to stand firm against those who hold hostile intention against us.

At the same time, we are beginning to face a new but different challenge. It is not another external threat. Instead, it is internal. In recent years, our NS institution has come under the media spotlight due to changing demography and social landscape. Rising public expectations, higher educational levels and a mobile workforce in a global economy have all contributed to the pressure on our NSmen. They put a strain on those who have to cope with the demands of work and family, and serving the nation at the same time.

Our children and young adults have not lived through the early years of Singapore's independence. They find it increasingly difficult to comprehend the meaning of NS when the historical context no longer seems as relevant today. Memories of Singapore's early years of struggle no longer hold as much sway over them as they did over earlier generations.

Today, NS is at a point of inflexion. No longer is the same historical narrative compelling enough to move the hearts and minds of our people to make sacrifices. It is not sufficient to sustain the current form of NS on the basis of history 50 years ago. Singapore's society is changing as we become a global city. Without a new narrative, we will not be able to sustain NS in future.

However, a new trend is emerging. An increasing number of people today are beginning to come forward to serve. They are stepping up to volunteer their service and to contribute to NS. They are not so much informed by the past, but rather by what Singapore has made possible for them. They come from all backgrounds and different places around the world. Many were not

born in Singapore. They have come in search of a better place for themselves and their families. Singapore gave them the opportunity to build a better life.

Not too long ago, I was asked if I could make time to be part of an interview panel for the SAF Volunteer Corps (SAFVC). I agreed but was not expecting the interviews to throw up any interesting insights. I was wrong. The applicants showed me what I had never expected - their eagerness to make sacrifices for Singapore and to serve the country. Many of them felt it was their duty to do NS although they are legally not required to. If the attitudes of our new citizens and permanent residents towards volunteering for NS are anything to go by, we will see the emergence of a new set of values and attitudes towards NS in future.

Let me give a few examples to illustrate this point:

- A senior executive from an MNC based in Singapore recently applied to join the SAFVC. He wanted to "pay back" to the country that gave him the opportunity to provide a better future for him and his family.

- A 40-plus-year-old new citizen from Malaysia who's married with a daughter, recently applied to join the SAFVC. He keeps himself physically fit. He owns and runs a local IT company with a few employees. He wanted to pay back to the country that had treated him and his family well. He was prepared to undergo weeks of military training and to be deployed alongside 19- and 20-year-old full-time national servicemen.

- Another 31-year-old female volunteer who became a new citizen eight years ago came for the SAFVC interview. She was from Shanghai. To her, Singapore is her home because it is where her heart is. Each time she returns to Singapore on an SQ flight, she would feel a strong sense of belonging when the air stewardess announces: "… a warm welcome home to Singapore citizens and permanent residents." She wanted to serve and experience NS, which she had heard so much about but had never had the opportunity to do so.

- A man and his wife decided to apply to be volunteers with the SAF. They were new citizens, but there was absolutely no necessity for them to do so. Yet they submitted their applications. They even applied separately, without the interviewers knowing. The husband wanted to experience what he would otherwise not be able to, but the reason for wanting to do so was the same - gratitude and love for Singapore.

These potential volunteers came from different educational and professional backgrounds. Each of them has his or her own talent, and was looking forward to making a contribution to the security of our country.

Future of national service

The future of our national service can no longer continue to be defined narrowly and simply as forced conscription into military service. We must re-examine its purpose and adapt to the new context that is emerging. National service must embrace a broader and more strategic definition in order to meet the challenges that we will face in the next 50 years.

Increasingly now and in the future, every young Singaporean growing up here will have to take some time-out, pause and reflect on what Singapore means to them. They must re-evaluate their own relationship with this city-state. The question each one must ask of himself or herself is this: What is Singapore to me? Is it a place where I was born? Is it a place where I earn a living and build my career? Is it a place where I can start a family, where home is, or where my heart is? Or is it something else? The answer may not be easy or straightforward. Whatever the answer, it will not be the same for everyone. Yet, as human beings we all have a primal need to belong somewhere. The reason we are calling Singapore home today is because a part of us belongs here. And we want Singapore to continue to prosper and progress for as long as we can envision. It is for this reason that we must therefore protect it for our future generations. National service is our only means of preserving our existence and our way of life.

A new phase of our society's development and the relevance of national service must evolve. Singapore has arrived. By any measure, it has outperformed many economies in the past 50 years. Yet, its concept of national service remains largely limited to military capabilities. The advent of the Internet and communication technologies has fundamentally changed how society sees and informs itself. Changing demographics of our people with higher education and expectations can lead to polarisation within our society. Other factors beyond our control can threaten to undermine the foundation of national service. Left on its own, it will gradually erode the pillars that support it as societal values diverge and bifurcate. The NS canvas must be stretched to accommodate and include new possibilities. It must re-define and allow for people from all walks of life to serve, in the best possible ways that they can.

Nonetheless, our young people's love for Singapore can be as strong as its founding generation's. I believe their loyalty to Singapore is informed by the possibility of a bright future that we can create for ourselves. A brighter future that stands on the foundation of a strong defence capability and united people.

Individual context

Ultimately, our young people hold the key to the future of this island-state. Because they are born in a different millennium, they are informed by different contexts. Their views of the world are shaped by technology and globalisation. The NS of the future will be one where there is a strong focus on harnessing NSmen's individual talents, skills and qualifications. These are taken into consideration when they are being deployed. With advancement in modern weapons and command and control systems, the nature of warfare will shift. Technologies will be used to free up NSmen from mundane tasks and enable them to perform roles with greater impact. The size of NS units will be different in future - smaller in terms of personnel but reinforced with state-of-the-art defence technologies.

Leadership

With increasing uncertainty in the future, the style of leadership in our military institutions will evolve into a more enlightened model. We will balance the inherent top-down, 'authority-centric' command and control style with one based on principles of servant leadership. The servant-leader is servant first. It begins with the natural feeling that one wants to serve and to serve first. Then conscious choice brings one to aspire to lead[1]. Our servant-leaders can transform and nurture our NS institution to attract people to choose to serve. They can do so according to their talents and capacities. In times of national crises, we will be able to call upon our NSmen and volunteers to hold the country together.

Our NS leaders in future will therefore be those who are chosen for their commitment to serving this country. They will emerge from having served in NS, which is the fertile ground upon which servant leadership is nurtured and grown. I foresee that great servant-leaders will emerge from those with passion and commitment to NS.

Empathy

More than ever, we need empathy in our society. Empathy is the capacity to understand what another person is experiencing from within the other person's frame of reference, i.e., the capacity to place oneself in another's shoes[2]. Empathy is what will hold us together in spite of our differences. NS provides for the nurturing of empathy amongst and between Singaporeans because of shared values and experience. Through empathy, my hope is for our people to transcend polarisation due to social and economic factors.

National service is a strong institution for nation building. Through it, we can realise the vision that our first Defence Minister Dr Goh Keng Swee had articulated. We must nurture this institution. To do so, we must come together as one united people, regardless of race, language or religion. National service can drive positive change in our society by being the socio-emotional glue that holds our different communities together. It embodies the love we all have and the sacrifices we are prepared to make to defend and protect our home.

Singapore will continue to navigate through global, regional and local challenges in the many years to come. A strong and united citizenry, imbued with the virtues of national service, is vital if Singapore were to keep prospering in the next 50 years.

Conclusion

United we stand. Divided we fall. Through NS, we stand together resilient in times of crisis. We honour our country and we honour those who served before us, before and during the early years of Singapore's independence. We must never forget those who have lost their lives in the defence of our country. The memories of those who had fallen must be etched on the walls of this institution called National Service to serve as a constant reminder of the sanctity and obligation of every Singaporean to serve and protect our motherland.

A strong defence force is the only guarantee of sovereignty and self-government. No other sovereign state will take Singapore seriously if we are seen to be weak. And if we are weak, we as a nation would have lost our way and our ability to secure the future for our children.

A united people are the critical factor that will sustain NS. It is the only institution that can assure the integrity of this small island we call home. Without it, we will be swept along with the waves of political turmoil that the world around us serves up from time to time. The threats to our national sovereignty and our very way of life can only be dealt with decisively with a strong defence force. A Singaporean once said: "What you cannot defend, you do not own."

My hopes and wishes during this 50th anniversary of independence are that Singaporeans will continue to come together and forge a shared identity that is informed by the desire for a common future of continued peace, progress and prosperity. These can only be secure when every Singaporean is willing to transcend differences and, if necessary, to bear arms to defend our sovereignty with our lives, for the sake of our children and our children's children.

About the author

Growing up in the old Kampong Chai Chee, Seah Chin Siong was used to the outdoor "rough and tumble" life. He began his national service journey after completing his studies at Temasek Junior College. When he was enlisted in 1983, he joined the second batch of recruits to be trained at the then Tekong Infantry Training Depot. He was commissioned as a second lieutenant in 1984 and was posted to the School of Infantry Weapons at SAFTI at the old Pasir Laba Camp. Chin Siong completed his full-time national service in 1986 and graduated from the National University of Singapore in 1988. He was posted to a reservist infantry unit as a platoon commander and was subsequently promoted through the ranks to become commander of an infantry brigade. For his contribution to national service, Chin Siong was awarded the SAF NSMan of the Year in 2008. He received the Commendation Medal (Military) and Long Service Medal (Military) National Day Awards in 2010 and 2011 respectively.

Chin Siong is married with two children, a 22-year-old son and a 16-year-old daughter. He is currently CEO of Singapore Pools.

Endnotes

1 *The Servant as Leader* by Robert K. Greenleaf

2 Wikipedia