

Managing Innovation in a Connected World

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Ladies and Gentlemen,

Good Morning.

Introduction

1. I would like to thank the organizers for the invitation to speak at the opening of this inaugural IPSIM (International Society for Professional Innovation Management) Innovation Symposium.
2. The current economic turmoil makes this subject that much more compelling.
 - As companies focus on survival rather than growth, the most tempting solution is to cut the R&D and innovation budget to boost the bottom line.
 - In the short term, this would have limited consequences and may even appear good. But it would severely compromise competitiveness.
3. Innovation has to be a critical and enduring part of our strategy - whether for a government or corporation, in good times and bad.
 - The world is driven by two unrelenting forces of globalisation and rapid technological advances.
 - Globalisation has brought about intensifying competition. One cannot hope to insulate from competitors offering the most compelling products or services.
 - Rapid technological advances are constantly shrinking the world, shortening the information and supply chain, disseminating and exchanging knowledge instantaneously across all corners of the world. Like a tsunami, change speeds across geographical boundaries, wreaking widespread ramifications.

- a. The current subprime crisis is a most obvious manifestation of this characteristic. Look at how a supposedly local housing mortgage problem got transformed into a global crisis.
- These two driving forces reinforce each other accelerating their impact on the world.

Innovation and Economic Competitiveness

- 4. Singapore, for those who do not know us well, is a small country with no natural resources.
 - We are really small, at about 700 square km.
 - We are totally devoid of natural resources. No oil, coal or gold. We import all our food. Even 50% of water we used is imported.
- 5. Change, and innovative and responsive change is a critical strategy to ensure our survival and maintain our relevance to the world.
 - In our short 40 over years of nationhood, we have shifted our economic strategy 4 times, almost once every decade – from the labour-intensive phase of development in the 60's to the skills-intensive phase in the 70s, capital-intensive in the 80s, technology-intensive development in the 90s and now moving more so into a knowledge-based, innovation-driven phase of development.
 - The changes were made in response to and often in anticipation of evolving developments and global trends.
 - a. When we decided to industrialise, we went against popular wisdom of erecting barriers to protect local industries, but open our arms to foreign companies. We now host over 7000 MNCs from US, Europe and Japan, more than 3,000 companies each from China and India and about 2,500 companies from Australia and New Zealand.
 - b. We transformed our port into a container port when there was still debate raging on whether that was where the world was going. Today, it is connected to over 600 ports in over 120 countries worldwide. Last year, it handled 28 million containers, 85% of which were transshipped. Various innovations were implemented so ships need not stay more than 10 hours at the berths.

c. In 2007, our water authority won the Stockholm Industry Water Award. From a water-starved country, we could be self-sufficient if we choose to now. Innovation in water recycling and desalination has made this happen at very reasonable cost. Several of our companies here have been exporting the technology to China and the Middle-east.

6. There are other policy innovations as well that are less obvious.

- Singapore is a multi-racial, multi-religious and multi-cultural society. Racial harmony is crucial. We have seen how nations have been torn asunder from racial strife.
 - a. Apart from educating our people on the need to stay united, our political system has been designed to ensure there would always be minority representation in our legislature so the minorities will not feel alienated.
- Our traffic management system is another policy innovation that enables us to manage our limited road space.
 - a. Our roads occupy almost the same land space as our housing. We introduce a quota for bidding each month to manage the growth of the vehicle population. We further implement the Electronic Road Pricing (ERP) to manage congestion at specific road segments so that traffic could be better spread out. This is not a toll, but congestion pricing, so the rates would change with the level of congestion. These have kept our roads reasonably free flowing.

7. How do we keep pushing ourselves to change? Many have told us Singaporeans are not innovative. So we need to be extra conscious to build up this capability and culture.

- Firstly, there is recognition from the top that only by being adaptive could we survive and prosper. In fact, I could say we are paranoid about survival.
 - a. Policies are formulated to build an environment conducive for innovation. Taxes are minimised to encourage enterprise. Personal income and corporate tax rates are low. Corporate tax rate is 18%. Highest personal marginal tax rate is 20%. There is no capital gains tax. Angel investors could deduct from their income tax, their investments in start ups should they fail.

- Secondly, we try not to rely on just serendipity to bring about innovation, nor accept the fate that we are not innovative. Active promotion and encouragement are directed to develop and sustain an innovative culture generally, and both in the public and private sector.
 - a. We started by ensuring the lifeblood of innovation and enterprise will flow by building up the infrastructure – both soft and hard when we launched what we call the Technopreneurship 21 programme.
 - i. In education, the curriculum focuses on science and mathematics, with the rigour that these disciplines require and enough space for creative thinking and exercising of initiatives.
 - ii. In financing, the venture capital industry¹ now manages some \$19 billion with 160 VC firms here.
 - iii. We are now restructuring the info-comms industry for more effective competition and innovation with the introduction of a New Generation Broadband Network with a speed in excess of 1 Gbps.
 - iv. A Pro-Enterprise Panel, comprising both private and public representatives, has been set up to hear and resolve any government rules or regulations that inhibit innovation and enterprise.
 - b. In the Government, mechanism has been established for public officers to think out of the box to bring about quantum leap in delivering public service.
 - i. We set up The Enterprise Challenge (TEC) to provide not just funding to test new ideas, but more as a way for public officers to bypass their bosses so they need not be concerned about the risk of failure.

We had 2 young fire fighters who sought to overturn the traditional way of putting out fire. Instead of trying to get larger hoses and bigger fire engines to deliver increasingly bigger volume of water to drown out the fire, they

¹ According to EDB, these numbers are correct as of 2006.

proposed to spray water droplets so they could quickly evaporate to displace air and snuff out the fire. Imagine the resistance from macho fire fighters. But they won the day with the design of a light, portable water mist gun that has been successful beyond their own expectations.

- ii. Every government ministry is now provided with a certain percentage of their budget to be used only for innovation. It is like what private sector companies do - allocating a percentage of their revenue or profit for R&D.
- c. For the private sector, we try to understand the needs to formulate policies that would actively encourage innovation and enterprise.
- i. Our universities are being oriented to go beyond teaching to R&D. New knowledge creation is critical for innovation. We expect R&D expenditure to reach 3% of GDP with the private sector accounting for two-third of this.
 - ii. Beginning of this year, we announced further improvement in our tax policies to help encourage pervasive innovation across our industries, benefiting companies, big and small:
 - Super deduction of R&D expenses: 150% of R&D expenditure incurred locally can be deducted against taxable income, up from 100% previously.
 - R&D Tax Allowances: Up to \$150,000 of R&D Allowances can be accumulated each year from chargeable income, which can be deducted against future R&D spending.
 - R&D Incentive for Start-up Enterprises (RISE): For start ups that have yet to make any profits, R&D expenditure that would have been claimed as deduction under the super deduction can be partially exchanged for cash.
- d. Other pieces are being put in place, like our National Framework for Innovation and Enterprise that sought to integrate the value chain of knowledge creation, knowledge diffusion and knowledge usage to build up a vibrant eco-system for innovation in Singapore. This would address issues of incubators, venture capital for seed stage start ups and other innovation-driven activities.

8. Singapore understands that no man is an island, especially in this globalised world. We are an open and cosmopolitan society, buffeted by global forces and benefiting from the flows of people, idea and commerce.
 - We have always served as an interchange - for trade, communication and business. Out of 4.5m million people, about 25% are not Singaporeans. Many of the corporate labs that set up here would have nationalities from many parts of the world.
 - We will build on this inherent characteristic of ours to create a knowledge and innovation hub as a platform for talents from all over to interact and work with each other. The diversity of ideas and cultures that they bring will no doubt greatly enhance innovation.
 - a. A CREATE (Campus for Research Excellence And Technological Enterprise) is being built. This will house research centres of world class universities that share the ideals of innovation and enterprise. MIT has started one that in the steady state, will have some 400 researchers. Others from Europe and Israel are under discussion.
 - b. An NRF Fellowship will further serve to enable young researchers from all over the world, passionate about their breakthroughs and disruptive ideas, to set up their own labs and groups to bring these ideas to fruition.
 - i. In the first call last year, we had 136 applicants all with excellent credentials. Nine were chosen, and these represented 8 nationalities (Greece, Germany, Russia, Singapore, Korea, China, The Netherlands and USA). In the second call which we had just closed, there were 186 applicants. The NRF SAB had recommended 20 outstanding applicants as Finalists, who would come to Singapore and be interviewed by an international panel next month.

Conclusion

9. This Innovation Symposium is another great example of linkages and interchanges indispensable in a connected world. It is through such exchanges that we can make this a better world. There are great challenges facing the human kind. It is through innovation and enterprise that we can hope to see the quality of life for people around the world continuously improving.

10. I wish you a fruitful and engaging time at the Symposium. Thank you.