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Mr Philip Yeo, Chairman NSTB

Excellencies

Award recipients

Distinguished Guests

Ladies and Gentlemen

1. We are here tonight to pay tribute to an outstanding group of individuals who have made significant contributions to the development of Science and Technology in Singapore. They come from diverse fields of scientific and engineering endeavour. The National Science and Technology Awards represent the highest honours that the nation bestows on them.

2. The Singapore economy is in transition. It is changing from an investment driven economy to an innovation driven economy; from a value added economy to a value creation economy.

3. What is the main difference, one may wonder, between investment driven and innovation driven; between value adding and value creation?

4. It is not easy to explain in clear and simple term the difference between the two. What is clear is that the transition from one to another requires not only a quantum leap in our capability, but also a major shift in our mindset towards economic competitiveness.

5. For 40 years, we have been highly competitive in attracting foreign direct investment. Our philosophy is: What we do not have, we borrow. 6. With our productive and disciplined workforce, competitive wages, excellent infrastructure and efficient global connectivity, we compete for technology intensive and capital intensive investment. Along the way, we imported global technologies and leveraged on the global markets of the MNCs. We added value, by turning these technologies into quality products and services and delivering them to the regional and global markets in a highly cost effective manner.

7. This win-win partnership between Singapore Inc. and the MNCs of the world has enabled us to expand our economic capacity, sustain our economy growth, and progress from a third world economy to a first one, all within a short span of 30 to 40 years.

8. Looking ahead, however, we are fully aware that this strategy of "adding value based on borrowed technology and borrowed market" could not work forever. The day is near when major developing economies will be able to do the same, except that they will do so

with cheaper wages and lower business costs.

9. It is time for us to move on, and move up the economic ladder. It is time for us to shift our mindset, from one of "borrowing technologies and borrowing markets", to one of "creating technologies and creating markets".

10. So, instead of getting more productive by lowering our cost of production in Singapore, we now strive to become more competitive by generating new sources of revenue for products and services coming out of Singapore.

11. The pace of transition will depend largely on our capability and capacity in building our own intellectual assets. These include up-stream scientific and technological discoveries, mid-stream development of innovative product, process, application and services; as well as down-stream effective commercialisation of these discoveries and innovations in the regional and global markets.

12. We need to make the transition as quickly as possible and contribute to innovation development and value creation, if we want to remain relevant to the regional and global economy. If not, we will face the danger of outliving our usefulness to the market , be it local, regional or global.

13. Fortunately, the process of economic repositioning is well under way. Even though terms such as KBE, New Economy, Innovation Driven Economy, and Value Creation were used extensively only in recent years, the development of a new economic infrastructure started some 15 years ago.

14. Some of you here may be old enough to remember the establishment of four major research institutions within a short span of two years in 1986 and 1987. These are: the research division of Institute of Systems Science at NUS, Information Technology Institute at NCB, Grumman-NTI CAD/CAM Centre and the IMCB at NUS. Since then, the network of RIs and RCs in the public sector has expanded tremendously, hosting the work of about 2000 research scientists and engineers today.

15. We also see the same progress in the private sector. According to the annual national R&D survey, the number of research scientists and engineers in Singapore has grown by four times in the past 10 years, from 4,300 in 1990 to 18,300 in 2000. In term of Gross Expenditure on R&D (GERD), it has grown from 0.86% of GDP in 1990 to 1.89% of GDP in 2000, with the private sector accounting for 62% of this spending.

16. These encouraging signs show that more companies are investing in R&D, and more scientists and engineers are engaging in scientific research and technological development in our economy.

17. Notwithstanding this steady progress, there is still much to be done and achieved. Last year, the revenue generated from indigenous intellectual property, comprising royalties and licensing income, was $75 million. 285 patents were granted for

Singaporean inventions. The numbers are promising, but still small relative to our full potential.

18. Our top priority is to invest more in science and technology, and to extract greater economic value out of our investment in science and technology.

19. Under the leadership of its Chairman Mr Philip Yeo, the NSTB has initiated a series of major changes to restructure and reposition the Board. Activities relating to industry development and enterprise promotion have been transferred to EDB. NSTB will now focus on the Creation, Ownership, and Exploitation of intellectual capital. In short, in the words of Mr Philip Yeo, the "COE" of intellectual capital.

20. To step up the pace of technology "Creation" in Singapore, the NSTB will continue to invest about $300-$500 million a year to support the running of the Ris and RCs.

21. At the same time, to make sure that we are able to derive maximum economic value out of this investment, the NSTB has established the Biomedical Research Council and the Science & Engineering Research Council. These Councils will support, direct and stimulate quality research in selected disciplines of science, engineering and biomedicine. Senior scientists who know and understand research in order to implement a rigorous system of research assessment and evaluation will staff the Councils. The Councils will also establish new Ris and RCs to lay the foundation for new areas of future growth, and restructure existing institutions to enhance our overall effectiveness in the creation of intellectual capital.

22. The NSTB will also promote greater sense of ownership and more effective exploitation of intellectual property developed by the RIs and RCs. It will encourage and facilitate Singapore based enterprises, big or small, locally or foreign owned, to tap on the pool of scientific and engineering talent, resources and intellectual property available in the Ris and RCs.

23. After all, these Intellectual Property is public assets to be used for economic and social benefits. Clear and transparent policies on ownership and commercialisation will be established by the NSTB to encourage effective commercialisation. The valuation of intellectual property and its commercial exploitation will be conducted at arms-length from the RIs and RCs. NSTB Holdings, a wholly-owned subsidiary company of the Board, is being re-positioned to promote the commercial exploitation of IP created by the RIs and RCs.

24. Besides focussing on the "COE" of intellectual capital, NSTB is stepping up the investment in human capital because human talent is the key driver of growth in an innovation driven and value creating economy.

25. As a small country, we will have to do our very best to nurture our own local talents as well as to attract global talents. Many of our research scientists and engineers today are from abroad. We will continue to have an open policy to attract them to come to

Singapore. At the same time, we are building up a core of local scientific talent.

26. The theme of this year's Science.01 is 'Investing in Human Capital'. It is important that we focus on promoting Science to our young people. We must make Science fun and engaging, and enthuse our young to take up postgraduate education in Science and pursue rewarding careers in science, engineering and biomedical research. This is in fact the objective of the 5-year S$500 million National Science Scholarships programme launched in July this year.

27. NSTB, working in collaboration with the Ministry of Education and the Singapore Science Centre, is implementing a range of youth science programmes to reach out to our young. I hope our researchers will involve themselves actively in these activities, and serve as role models, mentors, coaches and resource persons.

28. Our 10 award winners tonight are indeed role models for our young. They show that a career in science, engineering and biomedical research can be rewarding and fulfilling. Through these awards, we would like to accord them our recognition for their accomplishments. We hope it will spur them on to achieve greater heights in the years ahead.

29. Once again, it is my pleasure to extend my heartiest congratulations to all the award winners tonight. I wish you all a most pleasant evening. Thank you.