

Technology Commercialisation Forum 2010
Address by Guest-of-Honour
Permanent Secretary (National Research & Development) Teo Ming Kian

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**KNOWLEDGE-BASED ENTREPRENEURSHIP: A KEY FOCUS OF
SINGAPORE'S INNOVATION POLICY**

Dr Lily Chan
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Distinguished Guests

Ladies and Gentlemen

Good morning

Introduction

1. Let me first thank you for inviting me to join you at this opening of the Technology Commercialisation Forum 2010. It is good to see the gathering of so many researchers, industry professionals, businessmen and fund managers here today. Knowledge and innovation require such powerful networking to bring to life.
2. The theme of the Forum is knowledge-based entrepreneurship. I had called it technopreneurship, and it is something we have been trying

to encourage. We formally launched Technopreneurship 21 some ten years ago. The drive to encourage knowledge-based entrepreneurship has not diminished. If anything, it has just received another boost with the recent Budget announcement.

Driving Entrepreneurship and Innovation at the National Level

3. That is perseverance you might say, a key characteristic of entrepreneurialism. But it is also our strong belief that innovation and enterprise are critical for our competitiveness as a nation and for our economic development.
4. At the national level, we have put in place a robust Research & Development agenda to generate knowledge and drive innovation. Investment on R&D has steadily increased. Our commitment has been reinforced in the recent budget announcement that the Government will allocate some 1% of GDP to R&D, expecting the overall R&D spending to increase from 2.8% of GDP in 2008 to 3.5% by 2015.

National Framework for Innovation and Enterprise (NFIE)

5. These investments will come to nought if the results of research are not applied for the benefits of our society or commercialised effectively.
6. Various policies have been put in place to encourage enterprise formation and growth. Many tax incentives are available. The recent Budget offers yet more incentives, including deduction from personal income tax for angel investments into start ups.
7. We recognize that not all tax incentives are helpful at the very early stage of trying to bring ideas to the market. NRF therefore has put in place the National Framework for Innovation and Enterprise, to provide assistance at each stage of the value chain from knowledge creation to enterprise formation and growth. This should help bring about a vibrant eco-system for innovation in Singapore.
8. Technopreneurship development is complex. How ideas formed and enterprises started or the eco-system evolved is complicated and non-linear. But let me simplistically describe how we try to help in each of the stages.

9. As a start, researchers from the universities and polytechnics can tap on NRF's Proof Of Concept (POC) fund to carry out further development on their inventions or ideas that are technically feasible. Each project could be supported with up to \$250,000. This is not a small amount, and with this, researchers should be able to fly across what many called the valley of death. Launched in March 2008, the POC program has funded over 35 researchers.
10. Dr Steve Zhou from the Department of Electrical and Computer Engineering in NUS is one such recipient. He wanted to develop an easy-to-use mobile stereoscopic (SS) content creation and publishing platform to enable mobile devices or digital camera to capture stereoscopic images. His one-step content creation and distribution platform can make Flickr or YouTube videos stereoscopic. Dr Steven Zhou has now started up a company, MXR Corporation - an emerging, cutting-edge technology company specialising in mixed reality.
11. After validating the ideas and proving the concepts, start ups could be formed and they would require investment. At this early stage of the enterprise's life, the risk of failure is very high and there

is much guidance and nurturing required on top of funding. They require a special group of investors that can provide such essential hand-holding. Our local start ups have found it difficult to find such investors.

12. Recognising this gap, NRF has launched the Early Stage Venture Funding scheme to catalyse the formation of several early stage venture capital funds. Under this scheme, NRF matches dollar for dollar up to S\$10 million, the funds raised by the selected VCs. These funds would invest in locally-based start-ups.

13. Several of our local start ups have already benefited from the investment by these early stage venture capital firms.

14. One example is BioMers, a medical device company that focuses on applying polymer composite fabrication technology for various biomedical applications. The company has developed a completely translucent brace system, with similar mechanical properties to metal wires. One of NRF's selected Early Stage Venture Fund, the Nanostart Fund, has invested in the company and is currently helping it to grow.

15. Not all start ups could so readily find a VC investor. Some require further nurturing. Specialised incubators could provide such intensified functions of mentoring and networking to more investors and customers. NRF therefore has attracted several such technological incubators to be set up here.

16. There are now 8 such incubators. They include Innosight Ventures, a company using Clayton Christenson's disruptive innovation model, the successful Silicon Valley Plug N Play Tech Center, founded by Saeed Amidi, Social Slingshot, driven by the co-founder of MySpace, Brad Greenspan, and Neoteny Labs, managed by Creative Commons' CEO Joichi Ito, a globally recognised angel investor who has invested in companies like Twitter and Technorati. Of course, there are also the incubators led by the local experienced and energetic serial entrepreneurs. These incubator managers have first-hand experience in growing technology enterprises and will provide systematic management guidance, mentorship and networking to turn innovative ideas into commercial businesses. Start-ups can benefit from the mentors' contacts & advice, thereby improving their odds of becoming successful "home-runs".

17. Many successful Silicon Valley technology enterprises are founded by researchers, graduate students and university faculty. They have a strong background in science or engineering and the research experience to identify new ideas and create innovations to meet market needs. We want to encourage this. Hence, we have also established the University Innovation Fund to help each university develop a vibrant innovation eco-system and a culture of academic entrepreneurship. This UIF award is what Dr Lily Chan spoke about earlier in her opening remarks.

Knowledge-based Entrepreneurship

18. We have got great support from the universities. Each has now set up an “Enterprise Board” comprising members of the Board of Trustees to provide top level direction to achieve a “third mission” of entrepreneurship in addition to their traditional roles of research and education. The universities are convinced that this third mission would enrich and strengthen the university’s traditional roles of research and education, the way it has happened in well known universities like MIT, Stanford and Imperial College.

19. MIT, Stanford and Imperial College all have good science and great enterprises and are able to attract the best students. As a result, they contributed significantly to economic development as well. In a recent study, MIT was credited with an estimated 25,800 currently active companies founded by its alumni that employ about 3.3 million people and generate annual world sales of some \$2 trillion. Collectively they would rank as the 11th largest world economy. In 2007 alone, the AUTM Licensing Survey found that 555 start-ups were formed in the US from research done in US institutions, with more than 680 products introduced into the market that year. Those are the contributions they made to the economy through their research and commercialization efforts.

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20. I am greatly encouraged with the organization of this Forum.

21. I hope this Forum with the community-based approach will help to accelerate the commercialisation of technologies invented in NUS labs. Already, there are many professors who are known to be pushing their inventions to the market. They include Professors Sam Ge, Seeram Ramakrishna, Anindya Datta, Garg Hari, Choolani

Mahesh, Teoh Swee Hin, Tan Tiow Seng and Dieter Trau. I am sure there are many more. These are only the ones whom I have met recently. They are great role models, showing the way for their students, enhancing the university's standing and helping to transform Singapore into a vibrant R&D hub and a knowledge-based, innovation-driven entrepreneurial economy.

Conclusion

22. The NUS Enterprise that organizes this Forum has an important mission. And that is to facilitate more faculty members, researchers, students and alumni to successfully commercialise their intellectual property. Who knows – NUS could be like MIT, generating enough enterprises to be ranked amongst the world's economies.

23. I wish you all an exciting and fruitful TCF 2010.

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