

Speech by Prof Tan Eng Chye, NUS President

University Awards 2019

Tuesday 28 May 2019

University Cultural Centre

NUS Pro-Chancellors

NUS Chairman and Trustees

Award Recipients

Distinguished Guests

Ladies and Gentlemen

1. Good evening. My heartiest congratulations to Chorh Chuan, Ying-I, Markus, Andrew, Vincent, Yan Ning, Min En and Hans. You are truly outstanding individuals. NUS is immensely proud of how you have achieved peaks of excellence in your pursuits, and how your life and work have left a deep, positive impact.

Core Value of Excellence

2. Indeed, **Excellence is an enduring core value at NUS**. Today, NUS is an institution that has put Singapore on the world academic stage. Many Singaporeans are deeply proud of NUS.

3. This reputation and standing that we enjoy today is a testament to the longstanding spirit, culture and pursuit of excellence at NUS. NUS is committed to providing a solid education for our students that prepares them to be able and competent for the future. At the same time, NUS pursues excellence in research; our research seeks to create new knowledge, novel applications and solutions to problems. NUS is also breaking new grounds in growing a vibrant innovation and enterprise network in Singapore and the region. Although the focus this evening is on education, research and service, it is noteworthy that NUS is also striving for excellence in our administration and finance functions, as a truly excellent university attains best practice in all that it does.

4. It is Excellence, and not rankings, that defines what NUS does.

5. Rankings may fluctuate; methodologies evolve. However the environment changes, **NUS is in the mission of education, research and innovation for the long course.** As Singapore's flagship public university, our purpose extends beyond great research – NUS plays a unique and profound role in serving and advancing society, nation and community in many ways.

6. Excellence is about being extremely good at what we do. At NUS, we know what Excellence is, and what it entails. Every Faculty and Department has developed their own benchmarks in research, teaching and service; they know where they are heading towards. Together, we are moving forward as

a university. **Excellence is a continual endeavour. We are always seeking to do better and to outdo ourselves.**

(i) Excellence – Promotion and Tenure System

7. **The Promotion and Tenure, or P&T system at NUS is centred on Excellence.** We uphold high standards for all faculty appointments, promotion and tenure. Every case is objectively and independently reviewed by multiple parties and committees at the departmental, faculty and university levels, as well as by international disciplinary experts. P&T standards have been rising over the years, in tandem and in reflection of the University's progress.

(ii) Excellence – Embracing and Developing Talent

8. **As an organisation that pursues and values Excellence, NUS embraces talents from Singapore and all over the world,** who do excellent work, who share our values and are keen to contribute to our mission. For top Singaporean academic talent, NUS wants to be their home institution, where they can grow, fulfil their potential and realise their academic aspirations.

9. **NUS has been actively involved in developing programmes to engage and support current and aspiring Singapore academic talents.** The MOE-AU scholarships, the NUS Overseas Graduate Scholarships,

Overseas Postdoctoral Fellowships and Early Career Award are designed to support those who are interested in pursuing academic careers, at various stages of their higher education journey.

10. In 2018, NUS introduced a **Development Grant without service obligations**; the intent is to provide resources, for example conference or travel grants, to young Singaporean academics to nurture their academic growth and pursuits, wherever they may be. Even if they are not with NUS at this point, we want to reach out to them, support them as they endeavour to carve a niche for themselves in this highly competitive world of academia.
11. In August this year, NUS will be organising an **inaugural Singaporean Researchers Global Summit**. This is the first time we will be hosting a gathering of Singaporean researchers of this scale and diversity, from all over the world. The Summit will bring together 200 Singaporean researchers, senior and junior, connecting them to Singapore, to the local AUs and the Singapore research ecosystem.
12. In short, **NUS is committed to grooming, engaging and cultivating the next generation of Singaporean academic talent.**

Core Value - Innovation

(i) Examples of Innovation at NUS in Education, Research and Enterprise

13. Apart from Excellence, I would also like to speak about Innovation. NUS has pursued many innovative strategies over the years. Examples in education include integrated residential living and learning at UTown, establishing a Conservatory of Music that has deeply enriched the arts scene on campus and in Singapore, and setting up Yale-NUS College, a unique liberal arts college which combines the diverse intellectual traditions and cultures of the East and the West.

14. In research, we look at where the big future problems are, where we have substantive expertise in, and where we can make a real difference. We then formed integrated research clusters, and innovative structures, such as the Innovation 4.0 set up, that will allow us to facilitate and reap the full benefits of cross ideation, learning and collaboration between industry, researchers and students, for more thorough, purposeful and impactful work.

15. In Enterprise, NUS was also ahead of the times; the NUS Overseas Colleges programme began nearly two decades ago; NUS also established The Hangar for start-ups and developed the BLOCK71 network, before

innovation and entrepreneurship became buzz words. NUS Overseas Colleges alumni have gone on to found 600 start-ups; NUS Enterprise has incubated or supported over 1,000 start-ups and projects. Together, these companies have cumulatively raised more than SGD \$2 billion in funding since 2013.

16. Moving forward, NUS will need to be even bolder, and more innovative.

Innovation is a core value that was launched in our new vision, mission and values in August last year. **Innovation is important because it can help us to transform and to leapfrog.** To encourage innovation, we have set up structures to support you in testing and experimenting, so that you can take your innovative ideas forward and realise them. For example, if you are keen to explore a new technology or pedagogy in class, the Centre for Instructional Technology will be happy to work with you.

(ii) Importance of Innovation in Research

17. Research intrinsically embodies innovation – we are investigating questions, challenging the status quo and endeavouring to find new answers. **The innovative use and deployment of technologies, resources and platforms, can help us to translate our research more quickly, realising the benefits and augmenting the impact of our research work.**

18. Let me cite the example of BeeX. BeeX is a deep tech engineering spin-off developing autonomous vehicles for the maritime industry. It started life as a student-led project for a competition. More than 50 students have contributed to the build-up of knowledge and expertise, since Team Bumblebee was incepted in 2012.
19. Team Bumblebee has grown to become a world-class competitive robotics team. In 2018, Team Bumblebee emerged as Champion of RobotX, a global autonomous marine robotics competition. This win is particularly significant as we are the first non-American team to win.
20. Under the R&D leadership efforts of Professors Marcelo Ang and Loh Ai Poh, two former students, Grace Chia and Goh Eng Wei, who were part of the original founding team, pushed ahead with the commercialisation of the technologies developed. After completing the Venture Hothouse of the Graduate Research Innovation Programme, or GRIP, they spun off the company BeeX with the knowhow and technologies from NUS. BeeX recently secured a multimillion dollar purchase order from a Thai company. BeeX is a wonderful testament to the ingenuity and persistence of our students and the professors who have guided and supported them, in advancing and realising their innovations.

(iii) Graduate Research Innovation Programme (GRIP)

21. Last year, NUS launched the Graduate Research Innovation Programme, or GRIP, to encourage more commercialisation from research outcomes. **GRIP will support, encourage and enable NUS PhD students and researchers to take their research further, to move their research outcomes from the lab to the market, by forming deep tech start-ups.** NUS hopes to seed, incubate and launch up to 250 deep tech start-ups over the next five years, with the option to invest up to \$100,000 in each selected start-up.
22. GRIP is in its early days but I am very heartened at how it has taken off. In the first run in October 2018, we received nearly 100 applications. 20 teams were enrolled and have since gone through the business validation and venture creation hot-housing programme. The teams have access to master engineers, prototyping partners and market databases to help them form a company. In January 2019, 15 teams received \$100,000 from NUS.
23. In just these last three months, four companies have secured purchase orders, and another four have signed term sheets with venture and angel investors. This is a very positive development and I would like to encourage faculty members to tap the GRIP programme, to explore innovative ways to advance and commercialise your research.

(iv) AI and Data Analytics

24. **Another important development is how AI and data analytics are changing the world; they will also significantly alter the course and pace of research.** Estonia is an example of how AI and machine learning are being deployed to services provided to its citizens. Under e-Estonia, almost every government service can be done digitally – from voting, education, healthcare, banking, taxes, policing and so on, except for getting married, divorced or buying property. In an ambitious project beginning this year, using AI and data analytics, Estonia is going to design a robot judge to adjudicate small claims disputes of less than 7,000 euros. So the next time you are involved in a minor car accident, or are cheated by a shopkeeper in Estonia, you may be speaking your case to a robot!

25. AI and data analytics are very powerful tools. I would like to encourage faculty members to keep up with developments, and to explore how AI and data analytics can be innovatively incorporated to augment or transform your research.

26. In wrapping up this section on our core values, I would like to reiterate that **in NUS, we are grounded in excellence, and we must actively innovate for excellence.** Be bold; and take the leap to push forward novel ideas and projects.

Lifelong Learning at NUS

27. Let me move on to talk about Lifelong Learning, which is a significant organisational development that concerns all of us at NUS. Under the leadership of Senior Deputy President and Provost Prof Ho Teck Hua, NUS has embarked on continuing education in a trailblazing way. We initiated a Lifelong Learners Programme, which is the first in any university around the world, where NUS enrolment is valid for 20 years and our graduates enjoy automatic enrolment into all our continuing education programmes. We curated an NUS CET500 catalogue, comprising cutting-edge courses to help learners stay competitive in this digital era.

28. But Lifelong Learning goes beyond offering continuing education courses. **In this era of rapid change and development, the entire education system at NUS must be geared towards helping all our students to become more intellectually versatile, and to prepare them for a future of lifelong learning.**

29. Those of us who have been in NUS long enough will remember that our degree programmes were modelled after British universities, which emphasised early and deep specialisation. Over time, our curriculum has introduced breadth requirements; we shifted towards honing T-shaped competencies. As Ford would say, (and car enthusiasts would understand this), Model T was groundbreaking, but for its time; it is no longer good

enough. We are now shifting towards developing pi-shaped, or multi-T competencies. We have created many pathways for students to pursue double majors or major-minor combinations, to be trained in more than one discipline.

30. We also recognise that it is critical to **strengthen the horizontal foundation competencies**, so that students can engage with deep learning across a broad range of specialisations in future, wherever their careers take them. This is why we have put in a lot of thought and effort to design a solid General Education or GE framework at NUS. In 2015, the GE curriculum was reformed into a five pillar structure. Through General Education, all students will engage in inquiry and discussions about social, cultural, scientific and historical topics that will lay the foundations for important life skills such as critical thinking, communication and reasoning. The GE framework has a forward thinking orientation – new skills in Computational Thinking and Design Thinking are being embedded within GE modules. Also, all NUS undergraduates will either study coding or programming methodology as part of their disciplinary studies, or they will read a full module of Computational Thinking as part of GE.

31. Two GE modules, namely Asking Questions and Quantitative Reasoning, represent yet another educational innovation at NUS. They are the first university level modules that are delivered to a whole cohort of NUS undergraduates in a blended pedagogical mode. In addition, through the

tutorial group assignments, students will learn with classmates from all disciplines; they immerse in the richness of perspectives and have the opportunity to establish a broader network of friends. Here, I would like to thank Bernard and Huang Hoon from the Provost's Office, for leading the reforms to the NUS General Education Framework.

32. As an illustration, literally, of the many excellent and diverse talents at NUS, the slides on GE, are the artistic work of Associate Professor John Holbo from the Department of Philosophy. Thank you John.

Conclusion

33. In closing, may I once again convey my heartiest congratulations to our award recipients. You have done so much and so well; the NUS community is pleased to recognise and celebrate your talents, passions and achievements. This evening is yours.

34. Ladies and gentlemen, NUS is a large, vibrant and comprehensive university comprising 17 Schools and Faculties. Our community of over 40,000 students, 12,000 staff and 300,000 alumni across 100 countries, is a formidable force. **We will continue to stay grounded in excellence and to pursue innovation. Together, we will chart our own unique course and we will innovate our future.** I am glad we are all part of this exciting journey. Thank you.