“Sky-pointing” and Changes in Global Higher Education

NUS Pro Chancellors
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Ladies and Gentlemen

If you walk along the beaches of the Galapagos Islands you will see what look like big black clumps of seaweed. You should not step on them because these are not seaweed. They are marine iguanas.

Marine iguanas are cold-blooded so to warm up after a swim, they drape themselves on the rocks to catch the sun. As the animals heat up, they shift their positions so as to reduce their sun-exposure, a behaviour called “sky-pointing”.

![Image of marine iguanas on the beach]
When Evelyn and I visited the Galapagos several years ago, we were lucky to travel with famed wild-life photographer, Tui de Roy. Tui grew up in the Galapagos and one of the most remarkable stories she related, was of the massive volcanic eruption on one of the islands in 1995.

As red-hot lava flowed into the sea, the water boiled and many fish died. Instead of fleeing, hundreds of seabirds were drawn to the site to feast on the dead fish, some of the birds being scalded in the process. And amidst the lava flows that scorched everything in their path, the marine-iguanas could not figure out why it was so hot. So they did what they would normally do when hot – they pointed into the sky.

Of course this was not the right response and many perished.

Tui’s story is about a truly dramatic natural history event. It also reminds us of how crucial it is to understand the changes in the external world, and to make timely and appropriate responses. It highlights the risks of just continuing to do what you are used to doing, even though changing circumstances demand different types of action.

Last month, our NUS Board of Trustees Chairman Mr Wong Ngit Liong, led an NUS Board study visit to China. The five universities we visited impressed us deeply with their ambitious plans, burgeoning research capability, and commitment to educational reform. It highlighted that while NUS is doing well, with a steadily rising international reputation, we have to think carefully about the changing global higher education landscape, and our own strategic positioning within it.

**Three trends in Global Higher Education**

In this regard, there are three trends in global higher education which I believe are highly relevant to us.

First, all round the world, universities are internationalising.

Undergraduate study abroad schemes are expanding and double-degree programmes between universities are on the rise. Several universities have set up branch campuses
overseas, notably in the Middle-East and more recently, in China and other locations. We can only expect the internationalisation of universities to spread with widening participation and growing intensity. This matters to us because one area where NUS really stands out today is our many global programmes and strategic global partnerships. We therefore need to carefully consider how we can retain this as one of our distinguishing features.

Second, we are starting to witness in Asia, the dramatic birth and growth of new peaks in higher education.

A passage I read recently adds colour to this perspective. It described a student “…joining the crowds of young men at dawn, finding the right booth and bench, sweating through the mounting heat as the day advanced, … hundreds of sweaty bodies crammed together in the exam compound.”

If it sounds familiar, it actually isn’t. The passage is about students sitting for the imperial examinations in China, more than 500 years ago. It does, however, underscore emphatically the central role and value of education in Chinese society, since ancient times.

In recent years, this deeply rooted historical impulse has found powerful new expression, in the rapid growth of China’s leading universities. Here are some numbers to give you a feel for the magnitude and speed of the change:

- 6.3 million – this is the number of new graduates from Chinese universities in 2010.
- S$700million – this is the research budget of Tsinghua University in 2010. In 2006, it was S$300million.
- 2013 – this is when, a report from the Royal Society of UK projects, China’s research publication output will exceed that of the US.

Various educational innovations are also being launched. Peking University’s Yuan-pei programme, for example, offers multi-disciplinary courses taught in small-classes.
China is not alone in turbo-charging its top universities. South Korea is injecting S$7.8 billion into its World Class University programme, set up in 2008. India will more than double the number of Institutes of Technology, which represent the pinnacle of Indian higher education.

Thirdly, the competition for top talent is further intensifying.

China’s gravitational pull is growing. For example, the qianren jihua is a programme specifically targeted at hiring top faculty to China’s leading institutions. Although it is supposed to be a “thousand talents programme”, more than 1500 individuals have been recruited so far. Meanwhile, despite strained budgets in several countries in the West, their leading universities are still aggressively recruiting top faculty.

In short, the world’s top universities in the US, UK and Europe continue to push ahead, with several internationalising significantly. At the same time, new strengths are developing rapidly in different parts of Asia. These changes raise crucial questions for NUS: What adjustments must we make to “raise our game”? How do we further steepen our own growth trajectory, to try to stay ahead of the curve?

As an occasional artist, I often struggle with complex subject matters, here for example trying to do a sketch of Machu Picchu. In such situations, what I have learnt is that the greatest risk is to try to capture too much detail. It is paradoxical that, in sketching and painting, the way to depict complexity well is to understand it, and to simplify it.

In other words, “show less so that we can see more”.

But it’s not a matter of just showing less – it’s about identifying the critical, ignoring the clutter and stressing the bold strokes that define the essence of the place.
Three Key Brushstrokes

In keeping with this spirit, I believe three words, like three key brushstrokes, capture what NUS has to do to respond strategically to this changing higher education landscape. They are: Focus, Differentiate, and Synergise. Let me elaborate on each of these.
The first key brush-stroke – Focus.

Focus is vital in all areas of our university’s work but perhaps most so in research. Under the very able leadership of Deputy President Barry Halliwell, the quality, impact and reputation of our research continues to grow. Our Research Centres of Excellence in Quantum Technology, Cancer and Mechanobiology, as well as new research programmes such as in graphene and real estate, are also putting NUS on the world map.

Despite these achievements, however, we must push even harder to grow the number of research areas where NUS is among the international leaders. In this, we will face intense global competition, particularly with the massive resources which Asia is investing in “hot” research fields.

For us to succeed in this effort, we must further sharpen our focus. We must focus to gain maximum leverage from our own finite resources, our existing strengths and comparative advantages, so as to be as competitive as possible at a high international level.

Allow me to illustrate with our work in the areas of health and public health.

Here, our main goal is to be better and faster at bringing basic research discoveries to clinical application; that is from “bench-to-bedside”, and then from “bedside-to-community”. Our focus is on selected health issues and diseases of importance to Asian populations. This is a good niche for us because the global burden of disease is shifting rapidly to Asia, and the behaviour and responses of these diseases to treatment, often differ from Caucasian populations.

To make NUS a key centre for such research and development, we have progressively strengthened the critical building blocks, as well as the crucial linkages between them. Most notably, the formation of the National University Health System in 2008 brought the NUS Medical and Dental Schools and the National University Hospital (NUH) under one governance. This has strongly facilitated bench-to-bedside research. It enables
the research strengths of the Yong Loo Lin School of Medicine, to link more strategically with the clinical research expertise of NUH, which is developing into a major centre in Asia for first-in-man and early phase clinical trials for new drugs particularly for cancer. In parallel, the Duke-NUS Graduate Medical School has also built strong research programmes, and works closely with the Singapore Health System and the rest of NUS.

The strategic partnerships between these entities are boosting our global research competitiveness in basic and translational clinical research. We are now well-poised to take one vital step further. That is to move beyond “bench-to-bedside” research to enhance the health of the whole population. As Singapore and Asia face the current epidemic of chronic diseases, there is a pressing need for better and more cost-effective public health interventions and modes of health delivery.

The recent setting up of the Saw Swee Hock School of Public Health is crucial to our plan. The new School will strengthen our ability to analyse key trends in population health, to pilot and evaluate new and more cost-effective models of healthcare delivery, and to contribute to the prevention and response to new infectious disease epidemics.

Beyond these core areas of focus, is a penumbra of exciting research collaborations with other Faculties and Institutes in NUS, particularly the Faculty of Engineering and the NUS Global Asia Institute.

Over the next few months, Deputy President Halliwell, Vice-President Ho Teck Hua and Vice-Provost Tan Thiam Soon, will be continuing the process of further sharpening the focus of our other Integrative Research Clusters, namely Finance and Risk Management; Energy and Environmental Sustainability; Ageing; and Asia-related Studies. For this work, they will be consulting closely with Deans, Institute Directors, research leaders and faculty. I hope that you will give them the full benefit of your insights and experience, so that together, we can grow the research areas where NUS is among the international leaders.
I would like to move now to the second key brush-stroke, which is Differentiate.

Differentiation can of course take different forms. In the Galapagos, differentiation is evident everywhere.

This is a magnificent frigate bird. In case you were wondering, what looks like a big red balloon is actually part of the bird. These massive red vocal sacs have evolved to be very impressive, especially to female frigate birds. Yet, it’s largely about display and sound, though it does usually end with a useful bit of sex. It is part of the richness of bio-diversity, but I doubt it is the sort of analogous differentiation we should pursue!

A better model would be this waved albatross. It is designed to fly spectacularly, covering huge distances, and making clever use of rising air thermals to soar ever higher.

For the NUS leadership, faculty, staff and community, we must constantly seek to differentiate ourselves, when we define our goals and design our programmes. We want differentiation that creates distinctive new value and allows NUS to soar. In the key areas that NUS decides to pursue, we must not only do these well, we must do them differently and, hopefully, better than others.
Let me illustrate with the unlikely example of physical infrastructure.

In leading universities in China and Asia, the most visible feature of their growth is the dramatic expansion and enhancement of their physical facilities. Over the past 5 years, NUS too has transformed our physical infrastructure.

We have refurbished most of our existing buildings, developed the Bukit Timah Campus, to house our Law and Public Policy Schools and several research institutes, expanded space for our Faculties at Kent Ridge and put up new buildings for the Yong Siew Toh Conservatory of Music, Faculty of Engineering, Business School, Yong Loo Lin School of Medicine, Faculty of Dentistry and Duke-NUS Graduate Medical School. We also worked with the NUS Society, to develop one of the best facilities anywhere, for the support of alumni activities.

But as Winston Churchill astutely observed “We shape our buildings, thereafter they shape us”. We have therefore seized opportunities within this physical transformation, to enable innovative new learning approaches, and to create lively and dynamic hubs to promote interaction, collaboration and a rich campus experience.
Our new University Town or UTown is the best example of this. The very first plan for UTown was to build new Halls of Residence, based on our existing, very successful model. But we felt this would be a wasted opportunity. Rather, we should do something novel and bold with UTown to make it a different kind of student hub and to introduce a new model of residential college learning.

To achieve this, we interlaced spaces for learning, living, arts, culture, sports and social activities, so as to blur the line between learning inside and outside the classroom. Opened two months ago, UTown has already developed into a major hub. A student newspaper called it “a cool, interesting place with a whole new vibe”. The Education Resource Centre and Starbucks, are very popular, especially, I am told, at 1am at night.

Meanwhile, the first two residential colleges, including one for our University Scholars’ Programme, are providing their student residents with novel learning experiences. In each College, students from different disciplines come together in small groups to read seminar-style modules which explore global and Asian themes. They will also take two “Ideas and Exposition Modules” or USP writing programmes which nurture critical thinking and writing skills. Apart from the formal curriculum, the students also engage with a wide range of interesting scholars and speakers through informal seminars and Masters’ Teas.

Many of these are self-initiated and organised by the students. Vice Provost Tan Tai Yong provided me with this snapshot of an evening in one of the colleges.
“It’s 8 pm, and a group of 40 USP students are gathered in Cinnamon College for a presentation by six of their fellow students. They are talking about their fieldtrip to the jungles of Laos, their work with minority people there, and the academic module they are helping to design to send other students to the same villages. Examples of village food are passed around and some are trying out the crunchy baked crickets.

Outside, in the courtyard, 20 or 30 students are listening to a professor give an informal talk on the Big Bang.”

I am very encouraged by the depth and range of activities in our residential colleges. They show that the students are developing into a community of thinking, engaged young people.

I am also happy that when all four UTown Colleges are up, about 20% of NUS undergraduates would have the opportunity to live and study in them. Together with our newly renovated Halls of Residence, more than half our students will be able to have an on-campus living experience.

Looking beyond UTown, our long-term plan is to develop a new and complementary Campus Core opposite UTown, on this side of Kent Ridge campus.

Part of this new core will be formed by the University Cultural Centre, Conservatory of Music and the Lee Kong Chian Natural History Museum that will be built next to them. This cluster will create unique opportunities to mount joint exhibitions and programmes which explore the art, dance, music, culture and natural history of a period or theme.

Our long-term aspiration is to develop to the south of the University Cultural Centre, an integrated living, study and social complex, with Raffles Hall as a key anchor. The location of this proposed new core is also strategic, bridging the Schools and institutes on the west and south of the ridge with the Yusof Ishak House and Science-Medicine-Dentistry complex on the other side. Yusof Ishak House itself has already been substantially enhanced with more and better student facilities, as well as an open-air, covered plaza. In recent months, we have started looking at the Forum at the Central
Library, which is very heavily used by our students. The Old Admin Building next to the Forum is one of the oldest on campus, and it is more cost-effective to replace it than to retrofit it.

In our planning for the new building, we will be creating for the Faculty of Arts and Social Sciences, new teaching and student facilities, faculty offices and research spaces. In addition, we will build more common interaction spaces for the use of all students. This will be functionally integrated with the Forum, and we hope, in the longer-term, with the proposed new Campus Core.

With these, and other projects I have not covered, our goal is to create an enabling physical environment – one that actively promotes an energising learning and research environment; an environment that makes us attractive to talented students, faculty and staff, and allows them to do their best work.

For this large and complex construction programme, we are indebted to the overseeing NUS Board committee chaired by Mr Ng Yat Chung, and the great leadership of Deputy President Joe Mullinix and Vice President Yong Kwet Yew.
As I say this, I am reminded of my visit to Samarkand in 1996. Tamerlane its 14th
century ruler, got his builders to construct massive domes that pushed the technical
limits of that time, because he had the ultimate performance-based system – if you
couldn’t put up a suitably huge dome, you lost your head.

Our NUS performance-based system is much more moderate, yet our Campus
Infrastructure, University Town and Office of Estate Development teams, have done an
outstanding job despite challenging demands, and without anyone losing their heads.

Another very different area where we have to think hard about differentiation is our
students and their education. The fact is that each year, China and India will together
produce nine million graduates. Increasing numbers of these graduates will be of ever-
higher quality, in tandem with the rapid advances being made in the top universities in
these countries.

This raises a fundamental issue for us, which is this: How can we best help each NUS
graduate to stand out, to be competitive and successful?
Just exhorting NUS students to study harder would not be enough.

Last year when I was in Nanjing, I had dinner at a well-known restaurant. The wall murals showed famous scholars through the ages, preparing for the imperial examinations. This picture depicts the scholar Ju Yin who after studying all day would capture fireflies in a gauze bag to allow him to study into the night. Other scholars went even further. This picture is of Sun Jing, who tied his hair to the ceiling beam to prevent himself nodding off when studying.

If we believe these enduring role models tell us something of the culture, it seems clear that NUS students should not try to compete based on hours of study time clocked. Our students must also develop qualities and skills that will differentiate them, that will help set them apart.

Over the past few years, Provost Tan Eng Chye and his team have very ably developed a wide range of academic programmes that stretch students with different interests, drive and capacity. As a result, NUS enables our students to pursue different academic pathways, and acts as a gateway and bridge, to quality programmes at renowned partner universities overseas. Even as the Provost’s Office continues to build on these
programmes, it will also formulate new approaches to further strengthen our students’ abilities in three areas. These are:-

- Clarity of thinking and communications, both verbal and written;
- Cross-cultural effectiveness; and
- Cultivation of wider personal and professional networks.

In the interests of time, I won’t elaborate on these. I would underscore, however, the vital importance of clarity of thinking and communications.

George Bernard Shaw famously said: “I’m sorry this letter is so long, I didn’t have time to make it shorter”. It is actually hard to be concise while capturing the essentials. It requires thought, discipline, hard work and a certain habit of the mind. But, it is a vital skill, and if NUS graduates can gain further mastery of it, this will serve them well for the future.

I would also stress the value of strong cross-cultural skills. In view of this, we will further widen the coverage of our global education programmes.

Today, more than 50% of our undergraduates participate in at least one overseas educational programme. Over the next few years, we will raise this to 70%. But we will not just do more of the same. Instead, Provost Tan will be developing a novel summer programme where groups of students from different disciplines will undertake study visits to our region with faculty members. The students will formulate key questions and learn to address them through their field-work, interviews and discussions with experts and peers. At the same time, it will help our students to better understand and network with our region.

I want to turn now to the third key brush-stroke, which is Synergise.

Some of you may know that I have just come back from Bhutan. Even though it was supposed to be a holiday, I would like to let you know that I did work pretty hard. Eight
hours of walking in the day followed by the freezing cold of the evenings. If you can’t make out what I was doing, I was working, with a pencil, on this State-of-the-University Address!

When this photo was taken, I was thinking about how NUS could achieve novel and powerful impact. And one of the ways I believe we can do this is to maximise the synergies between our key programmes.

I want to share a noteworthy example of this, which is what CEO of NUS Enterprise, Dr Lily Chan, is doing to accelerate NUS’ efforts at commercialisation and start-up formation. Her strategy builds on our unique NUS Overseas Colleges. This intensive experiential entrepreneurship education is highly successful and has produced more than 90 start-up companies since 2001. One problem, however, is that many students return from the NOC charged up with fresh ideas, but lacks a base on campus where they can bring these to reality.

Separately, NUS Enterprise has established a series of vibrant incubators using refurbished bungalows near our Prince George’s Park Residences. However, these have not yet achieved the high level of “buzz” that we are aiming for. What Lily and her
colleagues have done has been to create a powerful bridge between these two programmes by converting a block at our Prince George’s Park Residences into an Enterprise House or as the students prefer to call it, N-House. A critical mass of returning NOC students can now live in N-House which also has lounges and meeting rooms to facilitate interactions and discussions. The physical proximity to our bungalow-incubators will induce a bi-directional flow of ideas and talent between these two localities. Leveraging on these anchor communities, regular events will be organised to draw other students, as well as academics, business angels, venture capitalists, businessmen and entrepreneurs. N-House is off to a promising start and we are upbeat that it will grow in scale, vibrancy and impact.

After incubation, the next major challenge for many of our start-ups is the small size of the local market. To help our start-ups, particularly those in the software and IT applications, gain access to larger markets, NUS Enterprise has set up launch-pads in China and in Silicon Valley.

During our Board study trip, we had a first-hand view of one of these launch-pads when we visited the NUS Research Institute at Suzhou Industrial Park. The three buildings which will house our Institute will be ready by mid-next year.
You can’t see it in the photo, but our hosts understand us well – our facility is very close to a cluster of restaurants, housing and the police station.

A key part of our Research Institute at Suzhou is the incubator unit which will provide business advisory services, mentorship and space for NUS start-ups. One of the highlights of the Board visit to Suzhou was a briefing from an NUS start-up which was working out of our temporary facilities. PatSnap is a company that offers proprietary software and services for the mapping and management of IP. We were all infected by the lively buzz in their office, packed with about 20 young people working furiously on their computers. We expect at least some of these start-ups to grow quickly through facilitated access to the Chinese market, while contributing to the development of the innovation ecosystem at Suzhou Industrial Park.

The Research Institute will also house the research programmes of an initial group of seven NUS faculty, which range from water membrane technologies to interactive digital media to finance. Some of these research programmes will also likely result in start-ups or industry collaborations which would also benefit from the Institute’s incubation and commercialisation capabilities.

We should not, of course, confine ourselves to developing synergies between NUS programmes and units. Instead, our strategic global partnerships present unique
opportunities for leap-frogging initiatives based on synergies between ourselves and partner universities overseas.

Last year, I highlighted the Yale-NUS College as a key example of such an initiative, and I am happy to report that excellent progress has been made since. President Richard Levin and the Yale senior leadership have been working very closely with us on the setting up of the College and the design of its physical infrastructure.

Vice-President Lily Kong had kindly agreed to concurrently serve, on an interim basis, as Acting Executive Vice-President (Academic Affairs) of the College, and we are very grateful to her and Yale Vice President Linda Lorimer for the rapid progress that has been made on all fronts in our faculty recruitment drive, curriculum development, and outreach to prospective students. We have been particularly heartened by the enthusiasm of the nearly 1000 Junior College students who attended the initial rounds of outreach activities.

The vision of creating a new model of liberal arts education for the future and for Asia, has found resonance with many prospective faculty, students and supporters. On our part, we are excited with this ground-breaking initiative that will position NUS well for the
It will be a future, though, that will be full of new and complex challenges, driven by fundamental shifts in the global higher education landscape.

But here, I want to return to Tui’s story which had a little twist. Among the sea-birds that gathered to feast on the dead fish, there were some which worked out how to do so skilfully and safely. These birds did so well, that because of the abundance of food, they even started to breed.

In a similar way, despite the challenges of the future, there are many opportunities which NUS can seize to excel and to steepen our trajectory of growth. For us to do so, however, we need to sharpen our focus; continually differentiate ourselves; and build greater synergies between NUS programmes and with our overseas partners.

I am very optimistic that we can continue to do well.

While in Bhutan, one of the places I visited was the famous Tiger’s Nest monastery. There was an ancient rock there with a thumb-sized black depression in it. I was told that if you were able with your eyes shut, to walk forward three paces and place your finger in that depression, it would bring you great luck. Without finding out what would
happen if you failed to get your finger in the said depression, I gave it a try. The good news is that I managed it, without peeking, within the prescribed three tries.

I hope that the resultant good luck will last a long time and cover the whole of NUS.

But while we will take all the luck that comes our way, we are in any case, well-poised to respond nimbly and well to the changing higher education landscape. I say this because as a community, we share a strong sense of common purpose and self-belief; our talent pool is growing, in size and impact; and above all, because the spirit of NUS burns ever more strongly.

From our Board to our faculty and staff to our students, we want to excel and we are committed to pursue our shared goals with energy and determination. Through our individual and collective efforts, we have the will and the ability to succeed, to position our university strategically in the changing higher education landscape, by making NUS a leading global university centred in Asia.

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