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Editor's note

We at NUS Enterprise are passionate, constantly endeavouring to bring light to our ecosystem – WE IGNITE!

This edition of ENTERPRISE SPARKS recounts the new and exciting frontiers that we have moved into, including the opening of BLOCK71 Jakarta and the launch of NUS Centre of Additive Manufacturing. The former is a joint partnership between NUS Enterprise and Salim Group to support innovation and entrepreneurship development in both Singapore and Indonesia, while the latter is a multi-disciplinary research centre boosting the university's capabilities in the field of AM-enabled biomedical technology.

Pushing the commercialisation boundaries, the Lean LaunchPad Singapore programme is scaling up to a national level, with NUS Enterprise serving as the node to three other Institutions of Higher Learning satellites.

The ignition blazes through the various quarters of the entrepreneurial ecosystem, arousing the interest of many young and budding entrepreneurs, students and academics to think of innovative solutions and ideas. The myriad events and programmes that we organise and participate in, such as the Summer Programme, Kopi Chats, trade conferences and outreach initiatives, are a testament to the rigor of our efforts to create a radiant environment for entrepreneurship to thrive.

We hope our readers and stakeholders alike engage and play a part in the entrepreneurial IGNITION.

Enjoy the read!



NUS Enterprise

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LAUNCH OF NUS CENTRE FOR ADDITIVE MANUFACTURING

The new centre will work with industry and local hospitals to support adoption of advanced manufacturing technology in Singapore's healthcare sector



NUS Centre for Additive Manufacturing (AM.NUS) launching in style on 21 July 2017 at the NAMIC Healthcare Summit

On 21 July 2017, the National University of Singapore Centre for Additive Manufacturing (or AM.NUS) was launched by Mr Amrin Amin, Parliamentary Secretary, Ministry of Home Affairs and Ministry of Health, at the Additive Manufacturing Healthcare Summit. This Summit is jointly organised by the National Additive Manufacturing Innovation Cluster (NAMIC) and NUS Enterprise.

The establishment of AM.NUS is jointly supported by NAMIC and the Singapore Economic Development Board (EDB). With an initial funding of SGD18 million from NUS, NAMIC and EDB, AM.NUS will focus on developing and applying ground-breaking additive manufacturing (AM) technology in the biomedical and healthcare fields. The new centre will also leverage on NUS' multi-disciplinary expertise from the Yong Loo Lin School of Medicine, Faculty of Engineering, Faculty of Science, Faculty of Dentistry and School of Design and Environment, to boost the university's capabilities in the field of AM-enabled biomedical technology.

AM.NUS consists of two laboratories – one located at the Yong Loo Lin School of Medicine and the other at the Faculty of Engineering.

These facilities are equipped with the latest AM equipment, including powder, plastics and liquid - based printers, 3D scanners, CAD image processing and design software, as well as testing and validation facilities.

AM.NUS will also run AM-related courses for post-graduate students, deepening the local talent pool within this field. Graduates will learn and gain hands-on experience in AM processes, materials technologies and design for AM principles. This will enhance the quality of customised products and services and raise the productivity of many industry sectors as a whole.

"AM.NUS will bring together NUS technologies with industry expertise, enabling the accelerated translation of NUS technologies into innovative healthcare products and services. The Centre is already working on a total of 17 collaborative projects, and has raised about SGD4.7 million in additional project funding," said Dr Lily Chan, CEO of NUS Enterprise.

Forging new industry collaborations

AM.NUS will work closely with industry partners to develop and transfer AM technologies for biomedical applications. At the event, four industry partners signed collaboration Memorandums of Understanding (MOUs) with AM.NUS.

These industry partners are:

<p>Creatz3D</p> <p>This local SME will partner AM.NUS to develop next-generation medical training and educational simulation.</p>	<p>Dou Yee Enterprises</p> <p>This pioneering mid-sized local company with established bases of manufacturing in Asia using metal injection moulding technologies, will collaborate with AM.NUS to develop capability for 3D printed precision parts.</p>
<p>Forefront Additive</p> <p>This local precision engineering company will be leveraging on AM.NUS' biomedical capabilities to grow their business in the healthcare space.</p>	<p>Osteopore International</p> <p>This local pioneering SME that specialises in AM will partner AM.NUS in the design, development and clinical trials of 3D-printed bioscaffolds for orthopaedic applications.</p>

"Additive manufacturing (AM) is a disruptive technology that should be embraced by Singapore's manufacturing industries", said Mr Chang Chin Nam, Executive Director (Precision Engineering), EDB. "To support technology development and encourage industry-wide



(2nd from right) Mr Amrin Amin, Parliamentary Secretary, Ministry of Home Affairs and Ministry of Health, gained insight into AM.NUS' R&D capabilities and the applications of AM innovations

adoption, Singapore has embarked on building AM capabilities within the public and private sectors, both in R&D and workforce training. In close partnership with the National University Health System, AM.NUS will therefore complement Singapore's AM efforts in the biomedical industry."

"As a cluster founding member, together with NTU's Singapore Centre for 3D Printing and SUTD's Digital Manufacturing and Design Research Centre, the NUS Centre for Additive Manufacturing will play a vital role in NAMIC's translational research and industry adoption efforts, further strengthening Singapore's efforts to become a global 3D printing technology hub. As the industrialisation of 3D printing gains momentum, our goal is help the sector achieve better patient outcomes, addressing the needs of our bio-medical and patient community with cost-effective and personalised healthcare solutions," said Dr Ho Chaw Sing, Managing Director, NAMIC.



INKING INDUSTRY CONNECTIONS

As part of NUS Enterprise's effort to connect industries to the university talents and research capabilities, a new initiative has been rolled out – The Industry Roundtable Series (IRS). This is part of NUS Innovation Access Programme (IAP). IAP is a bespoke and structured service designed to enhance corporate innovation, tapping into a deep pool of talent, technologies and technopreneurship at the university.

This is a platform for in-depth discussion and exchange of knowledge amongst senior corporate executives, industry experts and academics. Centered on a series of topics, IRS harnesses the university's innovation resources to uncover new technology trends.

The current series focuses on three key verticals;

1. Connected Devices – looks at various aspects of digital space such as Internet of Things, Big Data, artificial intelligence etc;
2. Future Health – delves into healthcare monitoring, healthcare data analytics, wearable devices, smart implants, medical devices, personalised medicine, robotics in healthcare; and

3. Environmental Solutions – looks at sustainable solutions, smart building technologies and advanced materials and coating for various industries.

These events are jointly organised by NUS Enterprise and Ascendas-Singbridge. To sign-up : enterprise.nus.edu.sg/event



Attendees at the Industry Roundtable Series: Connected Devices, held at NUS Enterprise @Singapore Science Park

NEW PARTNERSHIPS, NEW MARKETS



Close to 300 guests attended the official launch of BLOCK71 Jakarta



8villages, a start-up, shared about their social marketing solutions for businesses and public partners

In July 2017, NUS Enterprise jointly launched BLOCK71 Jakarta together with Salim Group, a Jakarta-headquartered company with a global presence and business activities across numerous industries. Modelled and named after BLOCK71 in Singapore, the 1,500sqm incubation facility is located in Kuningan, Jakarta. BLOCK71 Jakarta supports innovation and entrepreneurship development in both Singapore and Indonesia, acting as an ecosystem builder and global connector that catalyses and aggregates the start-up community.

BLOCK71 Jakarta was officially launched by Mr Lim Hng Kiang, Singapore's Minister of Trade and Industry, who said,

“BLOCK71 Jakarta will be a launchpad for Singapore entrepreneurs and innovators to build ties with the Indonesian start-up community, and explore opportunities to work together.”

This is an example of what we hope to achieve with a network of partners to build a Global Innovation Alliance, which was a recommendation by the Singapore Committee on the Future Economy earlier

this year. This Indonesia-Singapore partnership is also a timely one, given that 2017 marks the 50th year anniversary of diplomatic relations between Singapore and Indonesia.”

Singaporean start-ups may leverage upon BLOCK71 Jakarta to gain easier market access within Indonesia, while Indonesian start-ups can link up with NUS Enterprise's other BLOCK71 hubs in the US, China and Singapore. Start-ups will be supported in the following ways:

- 01** Access to NUS Enterprise and Salim Group's comprehensive global networks, including investors, mentors, corporate partners and industry;
- 02** Incubation support through a range of programmes and entrepreneurial initiatives organised by NUS Enterprise;
- 03** Opportunities to pilot and test business ideas and technologies within the Indonesian market;
- 04** Being part of the ecosystem and community, benefiting from sharing of best practices, access to entrepreneurial events and opportunities for collaboration.



Mr Axton Salim, Minister Lim Hng Kiang and Dr Lily Chan at the official opening of BLOCK71 Jakarta

Some 20 start-ups are already based at BLOCK71 Jakarta, including Carro, Vidsee, HelloBill, pslove and 8villages.

“We are delighted to partner with NUS Enterprise in launching BLOCK71 Jakarta. We have embarked upon this initiative as we want to support entrepreneurs as well as encourage new developments in Indonesia. The Salim Group's networks and experience will facilitate the entry of start-ups and innovations to the local market and benefit the community here,” said Mr Axton Salim, Salim Group's Executive Director.

We have been identifying relevant Singapore technologies and start-ups that are interested in piloting or test-bedding their ideas in Indonesia and introducing them to BLOCK71 Jakarta,” said Dr Lily Chan, CEO of NUS Enterprise. “BLOCK71 Jakarta is open to all start-ups and entrepreneurs who are keen to explore the Indonesian market. In particular, we strongly encourage companies which are developing innovative technology solutions with the potential to scale globally to apply.”

THE WORLD MEETS IN SINGAPORE

The 2017 iteration of the NUS Enterprise Summer Programme saw 69 participants from 15 countries come to Singapore to learn about the country's entrepreneurship ecosystem and economic history. With morning lectures, afternoon company visits, and recreational activities held over two weeks, participants enjoyed a good balance of learning and fun. The programme culminated with start-up pitches and a cultural dinner, wrapping up what was a fruitful experience for participants and facilitators alike.

Enriching, Engaging Explorations: Lectures and Company Visits

Over the course of the programme, participants were given two vastly different perspectives on Singapore: the technologically advanced, as well as the down-to-earth and heartlander view.

Students were exposed to Innovation in Government through an introduction to Singapore's political context by Dr. Gillian Koh Deputy Director, Research, Institute of Policy Studies and a visit to the NEWater Visitor Centre. The participants also had the opportunity to understand Singapore's economic landscape theoretically through a lecture by Dr. Chia



An exclusive tour and introduction to Google Singapore

Ngee Choon, Department of Economics, NUS and experientially, with a visit to the Singapore Design Centre and a trail in Bedok by Neighbourhood Noms. At the Singapore Design Centre, both participants and facilitators were wowed by the 3-Dimensional printing stations. The trail in Bedok gave participants an alternative insight to everyday life in Singapore, with low-income housewives at the Bedok Family Service Centre

teaching participants how to make popiah.

Trends in Singapore's Entrepreneurship Ecosystem

On a visit to engineering firm HOPE Technik, co-founder and CEO Mr. Peter Ho, provided a raw and honest opinion of starting up, cautioning participants to manage their expectations. "You are accountable to the people you lead," he emphasised, sharing how employees come on board

a founder's dream.

Aspiring young entrepreneurs also should not be in a hurry to start their own companies, but ought to seek out a good idea first, Prof Wong Poh Kam, Director of NUS Entrepreneurship Centre, suggested. "Opportunities will always be there, and you will still have the entrepreneurial spirit in you, so you can always pick it up again."



A social inclusion and dragonboat adventure rolled into one with local social enterprise Society Staples (which advocates for the integration of persons-with-disabilities)

For the students, many of whom came from developing economies, the lecture on Social Entrepreneurship by Laina Greene, Associate Director, Asia Centre for Social Entrepreneurship and Philanthropy, and co-founder, Angels of Impact was especially relevant. For students raring to start-up, she advised, “Good intentions are not enough to start a business, much less sustain one. Practical strategies are required for effective start-up growth.”

These strategies, which included ideation, business model canvas creation, and validation of customer and product assumptions, were also imparted to the students by entrepreneurship researcher-practitioner Dr. Virginia Cha. Dr. Cha emphasised the importance of continuous experimentation, market analysis and landscape scanning in the age of technology.

The final lecture by Mr. Ali Hussain received a standing ovation as he shared his personal journey into entrepreneurship and his vision to give students educational opportunities.

Vast Vocality: Opportunities for Dialogue

Breakfast Circles
Breakfast Circles let participants share their own experiences based on a series of key themes, including Doing More with Less, Turning Problems into Opportunities, Making a Small Change, and an open mic session.

UK-based Sana Sawhney discussed her project, Pair of Warmth, which re-distributes unwanted socks to underprivileged children for use against the winter cold. Others who shared included Wang Kunlin from Canada, who is working on a LinkedIn for startups; medical student Shaul Ariel Navarro Lara, who spent a social service year serving the HIV community in his home country of Mexico; and Australia-based Fortunate Prosper Tillya, whose charity uses art as a platform to empower children.

Fireside Chats
Fireside Chats allowed participants to indulge in conversations with NUS-supported entrepreneurs, such as WateROAM, Jaga-Me, and Bonappetour. Many participants



Prof Wong Poh Kam, Director of NUS Entrepreneurship Centre giving a welcome address

were inquisitive about the process of starting up as well as team dynamics. The fireside chat with Dhana Inc’s founder Shamini Dhana was especially engaging for many aspiring social entrepreneurs curious about sustainability and group empowerment.

Team Time: We’re All in This Together
Team time saw participants from different countries coming together to present a start-up idea. They had to overcome their social and cultural differences, while applying the learnings that they were taught during the lectures.

The two-week programme was truly an enriching and eye-opening experience, teaching participants to challenge their assumptions. The students brought home insights and life lessons about Singapore

and entrepreneurship - most of all, they had a taste of what true passion is. As Fortunate remarked, reflecting on her first encounter with durian, “You either love it or hate it - there’s no middle ground.”



INSIGHTS INTO THE DIVERSITY AND DYNAMISM AT LAUNCHPAD

The start-up community at LaunchPad@one-north has grown tremendously in recent years, but how exactly? To find out, Prof Wong Poh Kam, Director of NUS Entrepreneurship Centre at NUS Enterprise, led the TechSG team in conducting a census of tenants at Blocks 71, 73 and 79 over two periods (Oct-Nov 2015 and Feb-Mar 2017). The results were shared during the TechSG Insights event held at BLOCK71 Singapore on 2 August 2017.

Prof Wong revealed that the number of tenants had grown by 65% between November 2015 and March 2017, with the number of start-ups increasing from 216 to 361, and the number of other facilitators – such as investors, accelerators, incubators – increasing from 41 to 64. Looking deeper, the team discovered that 47% of the start-ups that were present in 2015 had “graduated” by relocating away from the LaunchPad, 38% had remained, and 15% had ceased operations or were now inactive. Within these three blocks, 58% of start-ups are less than 2 years old, and the industry profile of start-ups has also seen a shift away from Internet & Mobile and Media & Lifestyle to more start-ups in Biomedical & Health, Engineering & Hardware as well as Financial Services.

Explaining the trends observed, Prof Wong said: “The reality of a vibrant start-up community is that firms die, new firms come in, firms graduate and move out, and it is this dynamism that’s actually important. A diverse ecosystem with different kinds of start-ups and players is also important for Singapore at this stage of our growth.”

In addition, Prof Wong also shared insights from another survey of high-tech start-ups



Panelists (L to R): Mr Vinod Nair, co-founder of MoneySmart, Mr James Tan, Managing Partner of Quest Ventures, Ms Patrizia Polizzi, Founding Member of Startup Autobahn Singapore, Mr Mohan Belani, co-founder of e27 and Prof Wong Poh Kam, Director of NUS Entrepreneurship Centre shared views on the importance of diversity for a thriving eco-system.

in Singapore conducted with 530 of such firms in 2016, of which 65 were previous or current tenants of LaunchPad. Some of the interesting findings from the survey were how the LaunchPad start-ups generally performed better in funding, and were also more internationalised in their business.

These insights were discussed during the panel session involving Mr Vinod Nair, co-founder of MoneySmart, Mr Mohan Belani, co-founder of e27, Mr James Tan, Managing Partner of Quest Ventures, as well as Ms Patrizia Polizzi, Founding Member of Startup Autobahn Singapore.

The panelists unanimously agreed that it’s the diversity of people within LaunchPad that allows for quality connections to be made. The panelists also gave suggestions on sustaining the dynamism of the community, from the importance of retaining a small number of established start-ups as community anchors, and the need to further improve the infrastructure and tenancy policies.

Missed the session?

The full research report can now be downloaded at [launchpad.techsg.io!](http://launchpad.techsg.io)

GROWING SYNERGIES FOR SOCIAL IMPACT



(Standing 6th from right) Biplab Paul with villagers (Photo© Naireeta Services)

Naireeta Services clinched the Syngenta Agriculture Social Enterprise Award for Best Use of Technology and Innovation at DBS-NUS Social Venture Challenge Asia 2016. Their product, 'Bhungroo™', is a water management solution for farmers affected by droughts and floods. A year later, co-founder Biplab Paul shares about the company's progress.

What's the inspiration behind Naireeta Services?

'Naireeta', which means 'cloud that brings the best rain', is founded upon Mahatma Gandhi's principle of 'Antyodaya', where society collectively protects and promotes the welfare of the weakest and poorest.

Inspired by this principle, we work with farmers, women, smallholders and youths, starting first in India and now across Asia and Africa, to provide education on water management in the context of climate change and food security.

'Bhungroo' is an easy-to-use gadget that captures and stores excess rainwater during the monsoon seasons, and releases it for use during the drier months. This technology is available at zero to minimal cost to farmers.

What has been Naireeta Services' greatest achievement in the past year?

When we won the DBS-NUS Social Venture Challenge Asia Syngenta Agriculture Award, our women farmers and smallholders were elated with joy. As they constantly face discrimination and social marginalisation in India's caste system and patriarchal society, formal recognition is a powerful way to validate that their voices matter.

As a social enterprise how do you reach people with your vision? Do you have any tips for aspiring social enterprises?

Let your work speak for itself. Many companies focus their efforts on grasping how to use media at a premature stage, and developing visual collaterals, when they really should be focused on creating positive change, tackling the problem for their target communities.

Media attention will come once you have implemented a successful project and can speak about it in a tangible and concrete way.

How would you define meaningful impact?

A social enterprise will only survive if they are making good impact to the community. There are four questions I ask myself and the team when evaluating if we are making a positive difference in our

target communities. First, are we able to solve the most pressing issue identified by the local community? Second, are the solutions we propose inclusive and accessible (financially and socially) to everyone in the community? Third, what is the acceptance level within the community; do people believe in the solution, and are they keen to adopt it? Finally, is this model self-sustainable and scalable across communities in different geographies?

“
It is alright to make a financial loss, but it is unacceptable to make profit at the cost of your values.” – Biplab Paul

What are some common misconceptions people have of social enterprises?

People think social enterprises are ‘Non-Profit’ organisations. This is not true – we have been making a profit since last year, mainly because we have broadened the scope of who we work with and created different revenue models, segmenting the market according to needs and ability to pay.

Making a profit does not mean compromising on ethical standards and social values. It is alright to make a financial loss, but it is unacceptable to make profit at the cost of your values.

“
Social enterprises should position themselves at the same playing field as multinational corporations and discuss how best they can synergise with each other.” – Biplab Paul

What are some advantages of being a social enterprise?

Social enterprises are strong at building rapport with communities and delivering service to the last mile. This helps us be more aware of the community’s existing knowledge and resources, giving us an advantage in being the first to learn about innovative ideas from the grassroots level. This also allows us to learn how local culture and tradition influences decision and behavior, enabling us to involve the community in creating solutions that they are able and happy to adopt.

How can partnerships between social enterprises and multinational corporations be mutually beneficial?

Social enterprises and MNCs are both interested in tackling the same issues, but one does so at the micro level and the latter does it at the macro level. Multinational companies can consider making their data and learnings available at an open source to facilitate horizontal exchange of knowledge.



Naireeta Services Team (Photo© Naireeta Services)

For example, when the Syngenta team paid a visit to our programme areas to learn about how Bhungroo benefits communities, they also shared about the Good Growth Plan of Syngenta. In that interaction, the community was able to recognise Syngenta’s ethos of environmental sustainability and community-centric agriculture development. As a result, the community picked and implemented a few points from the Good Growth Plan. In this way, Syngenta brings the capacity building, guidance and discussions to the door steps of the community, while Naireeta Services helps with the handholding support.

Taking inspiration from the Good Growth Plan’s ‘Empower Smallholders’ commitment, we established a non-profit called Sustainable Green Initiative Forum (SGIF) . Here, women farmers and community members play a central role in the integrated agriculture growth plan of their community. We identify key women farmers across India, who in turn identify farmers who are most vulnerable to natural disasters and climate change, and find out the main problems they face. We then approach different sources to search for solutions and make them available to women farmers. In this way, knowledge is shared and society’s problems are addressed.

This year’s finale of the DBS-NUS Social Venture Challenge Asia will be livestreamed on Facebook on 4 October 2017 at [facebook.com/DBSNUS](https://www.facebook.com/DBSNUS), Visit: Socialventurechallenge.asia

This article is a contribution by Syngenta, Sector Champion (Agriculture) of the DBS-NUS Social Venture Challenge Asia

RISE OF THE ROBOTS: AUTOMATING FINANCIAL ADVICE

AutoWealth's team (L-R) Ow Tai Zhi (Co-founder and CEO), Tan Ming Zhen (Head of Technology), Michael Ngien (Head of Wealth Advisory) and Noel Lee (Co-founder and COO)

In July 2017, AutoWealth launched its automated financial advisory platform for financial investments positioning itself to disrupt the SGD500 billion market in Singapore. Incubated by NUS Enterprise at The Hangar, the NUS on-campus entrepreneurship hub, AutoWealth was set up by Ow Tai Zhi and Noel Lee, who met while studying at the NUS Business School. They saw automated advisory technologies taking off in the West, and wanted to build a local platform to make an impact in Singapore and the region.

Working in a manner similar to a human financial planner, AutoWealth's product helps customers make the most of their investments, though in a more convenient, transparent and hassle-free way. Customers start by taking a quick questionnaire online, so that AutoWealth can understand their financial situation, risk profile and online goals. A proprietary algorithm analyses the answers and recommends a portfolio customised to the user's profile. After meeting with an AutoWealth representative to open the account, customers can log on to AutoWealth's platform anytime to monitor their portfolio. AutoWealth has set a low minimum investment sum of SGD3,000 with low service fees of 0.5% per annum of the investment amount to make their service accessible to the masses.

AutoWealth has been running in beta mode since May 2016. Its initial beta users saw high net returns averaging 10.4% over the first year's pilot run. Other benefits of AutoWealth's platform include globally diversified portfolios to reduce risk, a consistent investment approach driven by a rule-based algorithm and no lock-in period, so that customers can withdraw their investment without any penalties.



AutoWealth is not only the smartest way to invest, it is also the safest way to invest. We spent over a year testing and refining our platform's investment strategy, until it had proven results. Our high returns, low risk strategy was confirmed by the high net investment returns for our group of beta customers – some of which have been with us since May 2016."

- Mr Noel Lee, co-founder, AutoWealth



READY-FOR-MARKET TECHNOLOGIES SHOWCASED AT TECHINNOVATION



NUS Autonomous vehicle from Advanced Robotics Centre was showcased at TechInnovation

The NUS Industry Liaison Office (ILO) showcased more than 20 NUS technologies at TechInnovation, held from 19 to 20 September at the Marina Bay Sands Convention Centre.

The booth at the event was a centre of attraction for many delegates, with a myriad of ready-to-market innovative technologies on display, including an autonomous vehicle and soy wine.

Mr S Iswaran, Minister of Trade and Industry and the Guest-of-Honour at the event, was introduced to a few NUS technologies, namely the soy wine from the Faculty of Science, and robotics such as the Haptic robot, e-scooter and autonomous vehicle from the Advanced Robotics Centre. The inventors were on hand to share more about the application of these technologies and the benefits they can bring to the market.

The technologies displayed ranged from AI for Glaucoma, Advanced Sensing (plastic optic fibre that enables measurement of the degree of bending structures), Outdoor cooling (technology deployed to achieve thermal comfort environment), sight saving screening (a solution that combines smart phone optics and computing with a robust holder to capture images of eyes) to Goldbug (a method of extracting gold from electronic waste) and many others. Two of the technologies, Redox Reimagined and AI for Glaucoma, were selected for crowdpitching and garnered much attention.

INAUGURAL NATIONAL **LEAN LAUNCHPAD** KICKS OFF



Lean LaunchPad teams at work on the business model canvas

Modelled on the NSF I-Corps programme, Lean LaunchPad (LLP) Singapore was launched in 2013 by NUS Enterprise. With the pilot successfully completed, the programme is now scaling up nationally over the next 5 years. This marks a new milestone as other Singapore Institutes of Higher Learning come together with NUS to create a national platform combining educational efforts and entrepreneurial talents, building a shared resource pool to facilitate the commercialisation of technologies out of academic research. The programme, funded by the National Research Foundation, aims to strengthen the innovation ecosystem at the national level.

New LLP satellite nodes will be established in Nanyang Technological University, Singapore University of Technology and Design and Singapore Management University. Trained in the LLP pedagogy, they will serve as decentralised sites to conduct the programme within their campuses and catalyse the engagement of academic researchers from all publicly-funded institutes to the programme.

The inaugural cohort commenced on 18 August and has close to 100 participants forming 22 teams grouped into four domain tracks. These teams will go through 10 weeks of customer discovery guided by in-depth industry mentors to help teams validate their market potential for successful commercialisation of their technological innovations. The programme will offer a new grant of SGD10,000 to enable selected teams to further explore and conduct market validation in overseas markets.

The Final Presentation Day will be held on 23 October at The Hangar by NUS Enterprise. For more information on the programme, visit: leanlaunchpad.nus.edu.sg



More than 200 students attended NOCFest on 24 August 2017

A peek into the study cum entrepreneurship internship programme

This year, NUS Overseas Colleges (NOC) held the inaugural NOCFest on 24 August 2017, showcasing alumni start-ups as well as talks and panel discussions for students to learn more about entrepreneurship and innovation. Over 400 undergraduate students turned up at The Hangar by NUS Enterprise to learn more about the NOC programme, specifically through the eyes of alumni who shared about their own entrepreneurial journeys.

The event kicked off with an NOC Alumni Start-up Booth Showcase, where attendees were able to speak to more than 20 companies and 50 alumni, including students that had recently returned from their overseas internships. Many startups such as Xfers, e27 and Honestbee were present, offering those interested an insight into the process of starting companies after NOC.

Concurrently, various experts from Singapore’s start-up ecosystem shared their knowledge with eager audiences. Professor Tom Kosnik of Stanford University gave the entrepreneurs-to-be a workshop on how to build a winning team in a start-up, touching on topics such as trust between teammates. David Ding, Head of Regional Fintech in the DBS Innovation Group and also President of the NOC Alumni Executive Committee, imparted advice about intrapreneurship and being the voice of innovation within companies.

NOC alumni Marcus Tan (co-founder of Carousel), Audrey Tan (co-founder of Angels of Impact) and Henry Chan (co-founder of Shopback) were also present to discuss what’s most important for starting a new venture. On what it takes to be your own boss, all three agreed that it was a mix of product-market fit, perseverance, as well as building a great team.

“I never knew that we had such a vibrant start-up scene in Singapore and I’m glad I took out the time to drop by NOCFest today! Talking to some of the seniors and attending the talks has greatly inspired me to be part of all this,” Tchea Yu, a Year 2 FASS student, shared enthusiastically. We hope that many others were similarly motivated and hope to see them at the NOC interviews!

NOC (Israel) student, Priyanka Kamath shares the experience of rocking through the streets of Israel with her fellow NOC mates, Sun Xue, Huimin Cheng and Jie Ai Lim

As a gesture of gratitude, NOC hosts an appreciation lunch every semester for the founders and colleagues of the start-ups that students work in. And as always, there are performances for some fun-filled entertainment! We were told that dance performances were a rarity. So to break the monotony of other types of performances, my housemates and I decided to groove to a song. Not just any song, but a Bollywood one! Although we were under pressure to present a perfect business pitch that morning, we took time out of the previous evening to put together something interesting.

After goofing around and practicing for a few hours, we thought we were quite prepared to hit the dance floor the next day! But as fate would have it, we messed up our performance thanks to a shortfall in our memory. How upset we were! That gaffe made us want to redo our dance sequence and thus, the idea of doing it around Israel was born.



NOC (Israel) students grooving away – bringing part of our culture to a foreign land

Not only did we dance on a busy street and on the beach in Tel Aviv, but also in Masada and at the Dead Sea! We took our dance enthusiasm along with us to our house weekend trip. Some offered to help us record while others stopped to have a look. We got stares, laughter and compliments alike. It was also a delight interacting with people who we dragged into our dance sequence. They seemed to love it! We brought a part of another culture into a foreign environment which ignited some wonderful conversations and laughter with the locals!

THE CHINESE IMMERSION

Daniel Stephen, an NUS Overseas College (Shanghai) student shares his experiences of being a Singaporean Indian in China

On Speaking Mandarin

First things first; the question I get asked the most is whether I speak Mandarin, and the answer is yes (well, sort of). In fact, language is often the least of my concerns.

Keep an open mind

When I first arrived in Shanghai, there was quite a steep adjustment curve, especially since I'm not ethnically Chinese. At times, it was a bit overwhelming but I just had to get a grip on the situation and stay calm. It is always important to keep your eyes peeled, ears attuned and mind open to take in new things. Observe what the locals are doing and don't be shy to speak up and ask questions. You also have to allow yourself leeway to make mistakes. You'll get into the swing of things in no time.

When in Rome, do as the Romans do

And as they say, 入乡随俗, or "when in Rome, do as the Romans do". Take it from me, this philosophy is especially important in the Shanghai metro in the morning. If you don't push and shove, there is no way you're getting out of that train.

Generally, China is in equal parts welcoming as it is unaccepting of foreigners. For all of the convenience that is afforded by the myriad of apps like WeChat, Alipay and DiDi that allow you



(3rd from left) Daniel Stephen at the Global Youth Entrepreneur's Forum 2017, University of Hong Kong, with other NOC Shanghai students

to live like the locals, there also exists a convoluted system of 规则, or rules, that foreigners are often unaware of. These can trip you up. Certain aspects are also quite clearly out of bounds to foreigners.

Connecting with the Common Man

I take joy in the small things like the conversations I have with the locals. Chinese people are generally quite friendly and often willing to engage in a conversation. More often than not, the conversation ends with a new friend. WeChat also facilitates this process of making friends, just a simple "扫一扫"/scan a QR code and you're done. I've even made friends just by chatting up strangers on the 高铁/high-speed train. More importantly, you learn so much from these interactions and start to see things from their perspective.

Enriching Explorations

I have also had the chance to explore China itself a fair bit. In June, I participated in an event called the Dragon 100 programme, and I was able to explore Hong Kong, Shenzhen and Henan. In Henan we even had the opportunity to visit a Chinese power plant and the Shaolin temple. Such experiences have enriched my experience in China and have helped me to learn more about this incredible country in all its sheer scale and diversity.

Taking the Uncharted Path

Some people have asked why I chose to come to China, and my answer is quite simple. It's not about China per se. It never was. It's all about taking the path less travelled and trying to blaze a new trail. It's also about how these unconventional experiences and environments force you to grow and view the

world in a completely different light. To better understand how other people view the world, and most importantly to bridge this cultural gap that exists between people of different nationalities. Regardless of our backgrounds, we are one collective humanity and our differences don't divide us but instead serve to bring us closer.

The NOC Shanghai experience thus far has been a blast!

Stay updated on our upcoming events at:
enterprise.nus.edu.sg/events

	JUL		AUG		SEP
05	Hackware v3.2	01	Kopi Chat: Startups, Outerspace and You	04	Journey of Innovator: Money Talks
5-6	National Lean Launchpad Educators' workshop	02	TechSG Insights Event: Launchpad @ one-north - Dynamism & Diversity	12	Industry Roundtable Series: Connected Devices (Defence, Law Enforcement, Manufacturing)
06	Startups X Law	03	IBM Pop-up labs: Innovate with Cognitive Tech	14	Industry Roundtable Series: Environmental Solutions (Sustainable Building Technologies)
09-22	NUS Enterprise Summer Programme	16	N-House Welcome Party	15	N-House Innovation Challenge
13	T-Hero Global Innovation Challenge Roadshow	17	The Automobile Industry in Asia: Startup Vs. Mercedes-Benz Perspective	15	Entrepreneurial Link: Singapore x Indonesia
14	MSTC Half-Day Symposium	18-19	LLP Bootcamp	19	L'Oréal Innovation Runway finale
18	How to hire Superstar tech talent	21	Journey of Innovator: Start-up Pitchin 1-2-3	21	Industry Roundtable Series: Connected Devices (Intelligence on Edge)
20	NUS Healthcare Start-Up Showcase	24	NOCfest	21	Shell #IdeaRefinery Launch
21	NAMIC AM Summit Series - HEALTHCARE SUMMIT	28	Journey of Innovator: From the Horses' Mouth	22	BLOCK71-GO!
22	Singapore's Startup Venture Capital Ecosystem: talk by Jaffrey Paire	29	Industry Roundtable Series: Future Health (Big Data in Healthcare – Innovation Opportunities and Challenges)	28	Industry Roundtable Series: Future Health (Patient monitoring and digital health)
25	Introduction to LabVIEW and Data Acquisition Seminar	30	N-House Machine Learning workshop	29	Modern Aging Seminar Series: Aging and the Digital Revolution
		31	Industry Roundtable Series: Connected Devices (Working IoT- Connected Technologies Shaping the Future of Work)		

SPACE TECHNOLOGY: THE NEXT FRONTIER



(L-R) Dr Bidushi Bhattacharya, Former NASA Scientist and engineer, CEO of Astropreneurs Hub; NASA Commander Jeffrey N Williams; and Event Moderator Chia Lih Wei, co-founder of TinyMOS

In this issue of SPARKS, we explore space – the vacuum outside of Earth encompassing the stars and planets. And while space tech may be unheard of in the past, it is fast becoming an area of interest for aspiring ‘astropreneurs’ to build new space technologies. In August, we welcomed Dr Bidushi Bhattacharya, former NASA Scientist and engineer, and NASA Commander Jeffrey N Williams, who recently spent 534 days onboard the International Space Station, for our Kopi Chat on Start-ups, Outerspace, & You. Here are 5 interesting points we captured:

01 What are your some of the emotional challenges of space walking?
In the capsule, you will feel as if you are a triplet in a womb, and if you are afraid of heights, you are definitely in the wrong business. As astronauts, there are some requirements – you should not have a fear of claustrophobia or heights and, professionally, you must understand the known risks and have the confidence to deal with them. There is a lot of pressure to get the job done.

02 What do you think is the most required innovation for space tech?
Tech development in life support systems – there is a crucial need for a reliable life support system in space and the performance of the system is crucial for the crew.

03 How do we know what are the space problems if we are not in space – and how do we solve them?
One way is to follow the daily activities of the crew and from there, observe problems. For problems to be solved, we need people from different specialisations and disciplines, very much similar to Earth – whatever on Earth has to be replicated in space.

04 Being part of an international crew, what UI/UX problems did you face?
Well, it’s not rocket science (literally or not) but the hardest part of the training is actually the Russian language. On the space shuttle, only English and Russian are spoken.

05 Advice for aspiring entrepreneurs?
First, pursue interests through education and experience and develop these into passions. Work hard to fuel these passions. When the door of opportunity opens up, go for it. Be prepared for your journey!

Among the many questions asked (even one on how to become an astronaut!), the bit that the audience most wanted to know was what happens next if he/she has a solution in space tech. As this is a niche industry, co-speaker Dr Bidushi Battacharya advised going through a space-tech incubator (such as Astropreneurs Hub, a first in Southeast Asia) and learning about business model design, funding and validation. Entrepreneurs should also learn about space systems, and gain knowledge on space technology.

Did you know?
A day in the shuttle equals 16 times around the world.