Impact for the Future

NUS IMPACT REPORT 2023

Impact for the Future

The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and enterprise, with a focus on Asian perspectives and expertise. We have 16 colleges, faculties and schools across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established more than 20 NUS Overseas Colleges entrepreneurial hubs around the world.

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About this report

Impact is central to everything we do at NUS.

It inspires and informs our work, and shapes our goals and strategies.

In this impact report, we present our progress in nurturing talent, creating solutions, and advancing society from 2019 to 2023. We also offer examples of our impact in action — stories that show how we've brought ingenuity and humanity to bear in creating meaningful change for those around us.

Our greatest work remains to be done. This report is at once an assessment of how far we've come and a blueprint for the future.

Our impact at a glance

NUS graduates are ranked

9th in global employability

100 %

of our students engage in service learning since Academic Year 2021/2022.

Every year,

3,000

undergraduates pay $0 in tuition fees due to enhanced financial aid.

1 in 4

of our research publications are multidisciplinary in nature.

International collaborations in research have risen to

69 %

from 55% in 2013.

Nearly

1 in 3

of our faculty participate in sustainability-linked research, a 30% increase in the last 5 years.

NUS is among the

top 3

filers of patents in Singapore.

1,600

start-ups, with a collective valuation of US$29 billion, supported by NUS globally since 2011.

100

collaborative research projects with government, shaping public policy.

NUS alumni make up

half of the 14th Singapore Parliament

and more than half of the current cabinet.

SECTION I

Shaping Future Talent

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Nurturing future-ready talent

Our approach to our core mission — to educate — has been honed over time, and will continue to evolve.

We have created a unique educational experience that continually yields strong graduate outcomes: NUS graduates are rated highly in the world for employability, and command a strong — and rising — employment rate and wage premium.

More importantly, they emerge as well-rounded individuals through experiencing global exposure, a rich student life, and rigorous interdisciplinary thinking.

Service learning rounds out the educational journey. In getting students involved in community engagement projects and addressing important social causes, we seek to nurture individuals who have the skills, knowledge and heart to make a difference.

Graduate outcomes on the rise

UNDERGRADUATE ENROLMENT

31,625 undergraduates enrolled in NUS each year:

> 40 %, the largest share

of total university enrolment in Singapore.[1]

GLOBAL EMPLOYABILITY

NUS graduates are ranked

9th in global employability

improving five places since 2019, joining the ranks of Harvard University, the University of Oxford and the University of Tokyo.[2]

EMPLOYMENT RATE

9 in 10

of our graduates find employment within six months of graduation.[3]

WAGE PREMIUM

Fresh NUS graduates in full-time positions

earn 9 % more

than graduates from other local autonomous universities.[4]

1 Annual average, Academic Year 2018–2022
2 Global Employability University Ranking and Survey 2023
3 Joint Autonomous Universities Graduate Employment Survey 2023
4 Joint Autonomous Universities Graduate Employment Survey 2023

Nurturing well-rounded individuals: The undergraduate experience

INTERDISCIPLINARY EDUCATION

8 in 10

students are enrolled in an interdisciplinary college.[5]

GLOBAL OPPORTUNITIES

1 in 2

students venture abroad at least once during their time at NUS.[6]

HOLISTIC DEVELOPMENT

Nearly

1 in 3

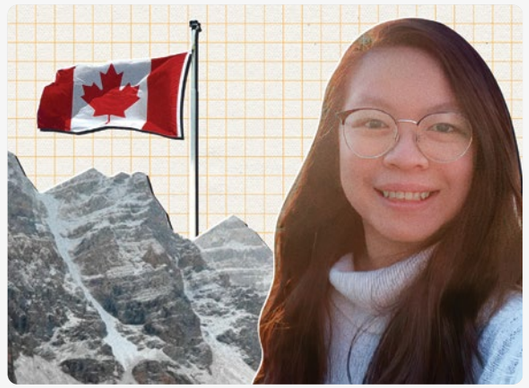
students live on campus for at least a year, experiencing a unique blend of academic, co-curricular and social activities for holistic development.[7] Our aim is to afford every student the opportunity to live on campus.

SERVICE LEARNING

100 %

of our students have engaged in service learning as part of their curriculum, learning about social issues while working with community partners to advance social services and community building.[8]

[5] Academic Year 2023
[6] Annual average of graduating cohorts from 2019 to 2021; 2022 and 2023 cohorts excluded as they were most impacted by pandemic travel restrictions
[7] Annual average, Academic Year 2018–2022
[8] Since Academic Year 2021/2022



"My student exchange experience in Canada and the e-STEER Sub-Saharan Africa programme made me realise how small we are compared to the rest of the world; there are so many cultures, experiences, lifestyles and stories to learn. I now view the world through a more inquisitive lens, and am a lot more empathetic to the social issues different places face."

Tan Shin Yee, Clairene
Faculty of Arts and Social Sciences

Promoting health and wellbeing

With the formation of a Health and Wellbeing unit in 2020, the rolling out of mental wellness campaigns, and increasing avenues for support, awareness and accessibility has improved.

RAISING AWARENESS

Students report

lower levels of stigma

and social distancing from conditions of depression, or those with depression.

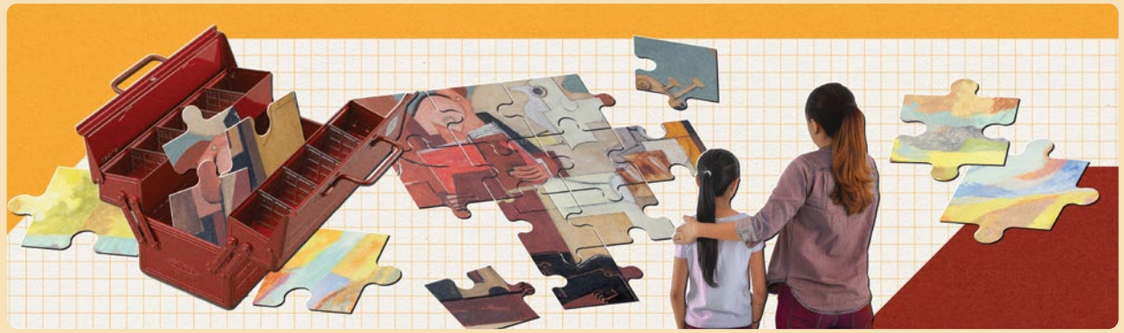
IMPROVING ACCESS

Average wait time for counselling sessions has

more than halved

from 2022 to 2023, at 7.7 days in 2023.

Moulding lives through mentorship



Celest Chiam's journey with Teach SG was one measured by incremental gains and unexpected rewards. To the medical student, her progress in mentoring secondary school students was defined by the tiny things — one mentee slowly opening up, another mentee finally passing math.

Celest (pictured below) had joined the programme, which equips NUS students with the resources, funding, and skills to mentor disadvantaged children and youth, in hopes of giving back. **"My group members and I recognised that we were extremely privileged and were able to receive many opportunities when we were younger. We wanted to pay it forward,"** she said.

Celest and her team planned for the sessions meticulously, using a two-pronged approach involving academic coaching and interactive sessions. Teach SG's role: providing the support and resources they needed. Besides being trained in coaching and mentoring skills, volunteers are also provided with a toolkit which includes resources like instructional materials, budgeting guides, and survey templates.

"Besides providing us with funding for teaching and activity materials, Teach SG also helped us search for beneficiaries to work with and provided us with feedback on our activities. The encouragement and feedback loop helped us continuously improve our project," Celest added.

This process slowly bore fruit amongst Celest's mentees. A mentee, Isabella Aw, shared, **"Celest and I have regular conversations and I like having someone whom I can relate to. After spending time with her, I started taking my studies seriously. She motivated me to come to the mentoring sessions and pursue my dreams of becoming a psychiatrist."**

Piloted in early 2021, Teach SG was guided not only by the NUS community's aspiration to give back to society, but also by a consensus to increase students' social consciousness.

"Children and youths from lower income households may not enjoy a level-playing field due to various challenges," said NUS President Professor Tan Eng Chye.

"We started Teach SG... to give them a better head start in life by bridging learning gaps, building character, developing good study habits, and inspiring them towards attaining tertiary education in the future. Furthermore, it will seed positive social responsibility in NUS students while giving back to society."

In the span of three years, Teach SG has empowered nearly 1,650 NUS students to mentor 3,600 beneficiaries. It has also been made available as a practicum under the Communities and Engagement Pillar within the General Education curriculum, taken by all undergraduates. The Communities and Engagement Pillar engages students in addressing issues such as inequality and poverty.

> "My experience with Teach SG has taught me that there is so much joy in giving, and I have been motivated by my mentees' eagerness to learn and positive attitude to learning."
>
> **— Celest Chiam**
> Teach SG mentor

Developing lifelong learners

We are committed to embracing learning as a lifelong endeavour.

From the point a student is admitted for undergraduate or postgraduate studies at NUS, he is enrolled for 20 years and beyond — and is automatically eligible for continuing education courses after he graduates, and well into his career.

Our lifelong learning offerings run the gamut, and are nimbly attuned to the global economy's demands. Specialised pathways exist in the form of graduate programmes: doctoral degrees, master's degrees and graduate diplomas. On the other end are a wide variety of short courses, career transition and conversion programmes, and certificates that can be stacked towards higher qualifications. These seek to meet learners at different stages of their lives and careers, and to ensure that learning is always within their reach.

Continuing education at NUS

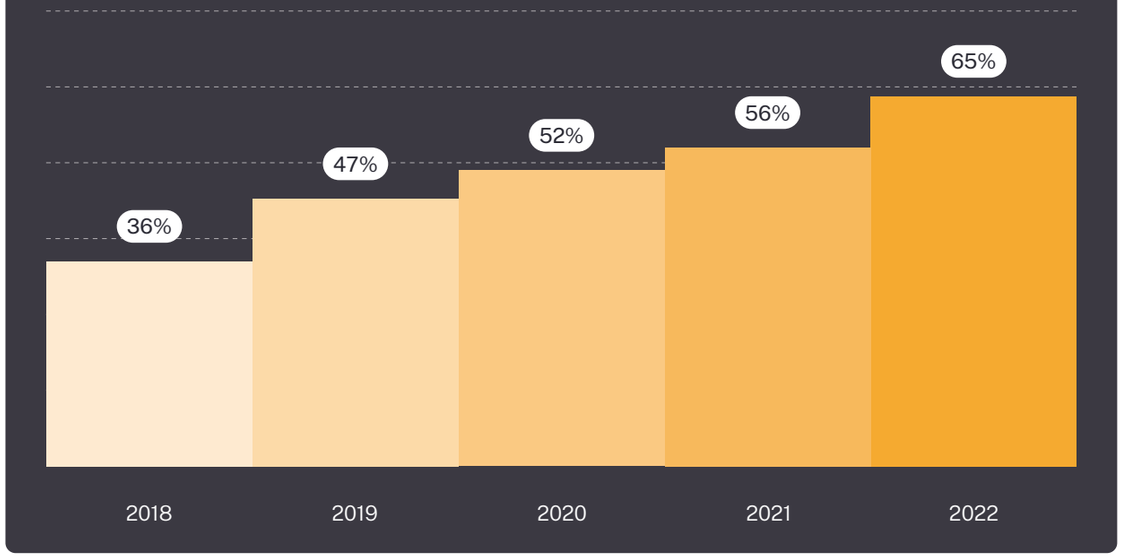
GRADUATE ENROLMENT

Graduate enrolment has increased by 50% over the past five years, with a total of

42,757

people enrolled in graduate programmes.[9]

A steadily increasing proportion of those enrolled in graduate programmes find these programmes beneficial to their careers.[10]



[9] Academic Year 2018–2022. Refers to doctoral degrees, master's degrees (by coursework) and graduate diplomas.
[10] Post-Graduate by Coursework Employment Survey 2022

CAREER RELEVANCE

Nearly

80 %

of postgraduates indicate that their career is still related to their graduate research, three to six years after graduation.[11]

LIFELONG LEARNING FOR ALL

Besides our graduate programmes, we provided over

175,000

people across NUS and Singapore with continuing education opportunities in the last five years.[12]

"Having worked in the insurance field for years, I knew that its future lay in digital insurance and wanted to advance my career by upskilling in that area. I chanced upon a digital transformation course at NUS, which gave me the confidence, knowledge and skills to work with new tools and frameworks, which I now frequently use to formulate and drive digital business strategy. I also learnt how to leverage digital technologies to streamline processes and meet both our business goals, as well as customers' needs, better."

Lynette Keh Siew Ling, 55
Graduate of the NUS Digital Transformation Programme (2022/2023)

[11] NUS Longitudinal Postgraduate Survey 2022 of graduates from Academic Year 2013–2017
[12] Academic Year 2018–2022. Refers to short courses, career transition and conversion programmes, and professional, executive and graduate certificates.

OUR IMPACT, IN DEPTH

Fulfilling a long-held dream

Nurulhuda Binte Mail always held aspirations to gain a deeper understanding of the intricacies of human nature, societies and cultures, knowing it would enrich her career and personal life. For almost two decades, her ambition to pursue a degree in this area took a backseat until 2022, when a life-altering medical emergency forced her to re-evaluate her priorities. This spurred her to apply for a degree course through Advance@NUS, an admissions pathway for adult learners.

Launched in 2020, Advance@NUS allows working adults to be admitted into full-time undergraduate programmes based on their work experience, granting candidates the opportunity to earn their first Bachelor's degree.

Now in her late 30s, Nurul is a first-year anthropology major at NUS' Faculty of Arts and Social Sciences studying alongside her Gen Z peers. Her initial misgivings about attending university as a mature student have been assuaged by the strong support of her classmates and professors. She has gained a "profoundly enriching experience" through her studies, and has also realised that her wealth of real-world experience grants her a unique vantage point in her field of study.

"On a personal level, I hope to become a good role model for my nephews and nieces, showing them that it's never too late to learn or pursue their dreams… In time, I hope to harness the knowledge I've gained to make meaningful contributions to society."

— Nurulhuda Binte Mail
Faculty of Arts and Social Sciences

Empowering our staff

Our staff contribute immeasurably to our impact. To ensure they remain skilled and competent in the face of the changing nature of work, we have developed a talent competency framework, supporting their learning and development so they can adapt and thrive amid a volatile environment.

Between 2020 and 2021, we launched the Data Literacy Programme and the Artificial Intelligence Competency Course, first-of-its-kind initiatives that are part of a holistic employee development roadmap. Almost all of our executive and administrative staff have since completed foundational training in these areas.

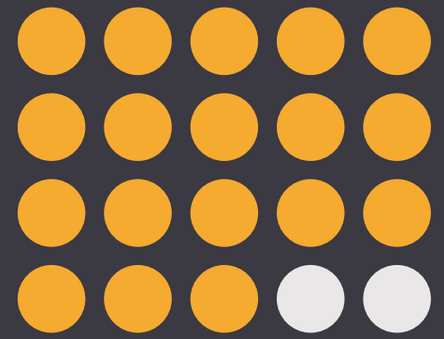
With enhanced staff support for deep skilling and personal development — such as our Skills Transformation Fund for continuing education and training, and the new bond-free NUS Master's Sponsorship staff scheme that fully funds part-time Master's programmes — we have seen a fourfold increase in the number of executive and administrative staff who have completed professional training in the last five years.

Staff learning and development

"Attending the Data Literacy Programme was a highly beneficial experience for me. The knowledge I acquired on how to effectively manage and interpret data has proven invaluable, especially in today's data-driven age. I gained practical tips from the instructors, from simplifying data presentations to extracting useful insights from data, all of which are indispensable in my work, which focuses on audience insights and analysis. The course was so beneficial to me that I volunteered to take the advanced course to learn more."

Mariana Fitriany Sahaimi
Deputy Director, Office of University Communications

91% of our 5,290 executive and administrative staff have completed professional training in data literacy and artificial intelligence.[13]



More than 1,000 executive and administrative staff members took up tuition assistance for degree programmes in the past five years.[14]

"In the course of my work, I have grown to become passionate about the ways we can use data-backed communication strategies to inform and shape narratives, and I look forward to contributing in that manner as I progress through my studies, and beyond. I urge fellow colleagues to consider the myriad ways they can upskill in NUS and join me in the further pursuit of knowledge."

Bell Yeo
Assistant Senior Manager, Office of Student Affairs,
Master of Social Sciences (Communication) '24,
recipient of the NUS Master's Sponsorship

[13] As at Financial Year 2022
[14] Academic Year 2018–2022

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Shaping Future Solutions

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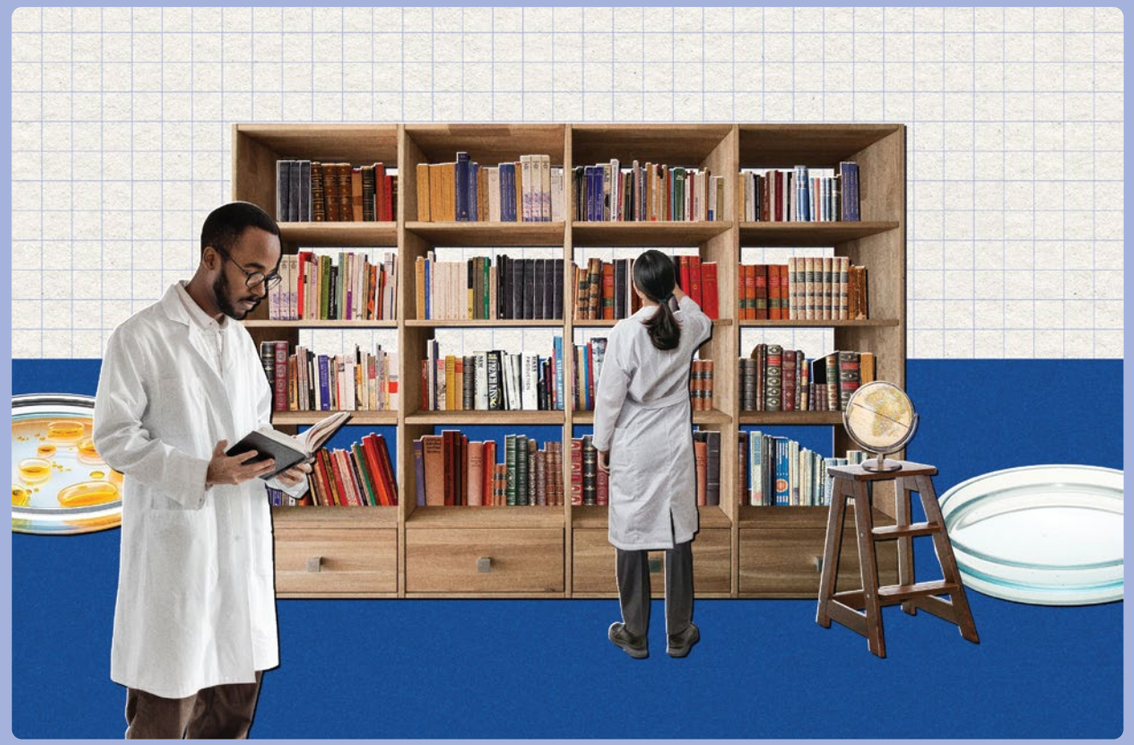
Advancing knowledge

Our research is integrated and interdisciplinary, in service of the world's most pressing problems.

Centred on four clusters — health innovation, materials research, smart nation, and urban solutions and sustainability — research at NUS is also supported by cutting-edge infrastructure, and longstanding collaborations with government, industry and academia. These include research centres of excellence, corporate laboratories, and international collaboratories like CREATE, which bring leading global research institutions together.

Girding this is the vital spirit of autonomy and discovery, which empowers our researchers to do their best work. The result: steady increases in research funding clinched and research output, and more peaks of excellence.



Research excellence

RESEARCH FUNDING

S$4.3 billion

in competitive research funding clinched.[1]

RESEARCH PUBLICATIONS

> 56,000

research and academic papers published, a **26% increase** from the previous five years.[2]

INTERNATIONAL COLLABORATION

69 %

of our research publications emerge from international collaborations — **up from 55%** ten years ago.[3]

PROMINENCE IN PUBLISHING

42 %

of our research publications feature in the top 10% most cited journals worldwide.[4]

1 Financial Year 2018–2022
2 Calendar Year 2018–2022
3 Calendar Year 2022
4 Annual average, Calendar Year 2018–2022

AN INTEGRATED APPROACH

1 in 4

of our research publications are multidisciplinary in nature.[5]

"Two experts from different disciplines could observe the same material behaviour but draw different conclusions or focus on entirely different aspects. However, the beauty of interdisciplinary work lies precisely in this diversity of perspectives. The collaborative spirit prevalent at NUS has enabled the formation of interdisciplinary teams, and these diverse perspectives have significantly enriched my research. By blending insights from diverse fields, we are not just pushing the boundaries of individual disciplines, but are also shaping a future where resources are sustainably harnessed, utilised and conserved."

Professor Ho Ghim Wei
NUS Department of Electrical and Computer Engineering, Founder of the Sustainable Solar Systems Laboratory, which harnesses solar power to drive sustainable technologies

CITATION IMPACT

Our Field-Weighted Citation Impact — which measures how well cited a publication is compared to similar publications — is

2.0

It has risen by 13.6% over the past five years.[6]

HOMERUNS

388

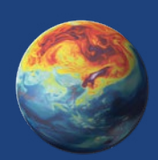
homeruns (journal articles with 20 times more citations than the average in a particular discipline), almost double that of the previous five years.[7]

[5] Annual average, Calendar Year 2018–2022
[6] Average of Calendar Year 2018–2022. A FWCI value of 1.0 indicates the global average across all publications. Here, the FWCI value of 2.0 means that an NUS publication is cited two times more than the global average of similar publications (in terms of publication year, type and discipline).
[7] Calendar Year 2018–2022

Expanding our research footprint —in Asia and the world

We are leading the charge on issues of global importance through first-of-their-kind research platforms that are driven by innovation, collaboration and real-world impact.

These include:



Heat Resilience and Performance Centre
Leading Southeast Asia's efforts to combat rising temperatures, the Centre is the regional node for the WHO's Global Heat Health Information Network.

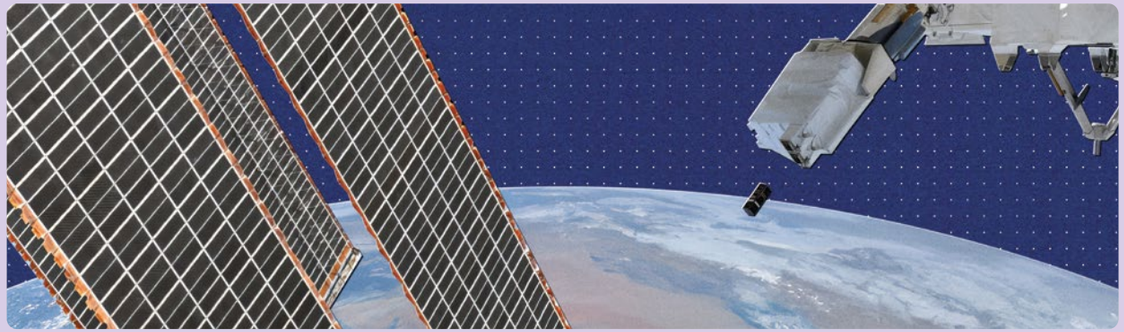
Centre for Hydrogen Innovations
The first of its kind in Southeast Asia, the Centre aims to bring green hydrogen from the laboratory to society.

Centre for Sustainable Medicine
Seeking to pave the way for more climate-resilient health systems, the Centre is the first of its kind in Asia, and the largest in the world.

Sustainable Tropical Data Centre Testbed
The first facility in the world dedicated to creating sustainable cooling solutions for data centres in tropical environments.

Institute for Functional Intelligent Materials
The world's first institute dedicated to the design, synthesis and application of intelligent materials.

A quantum leap in space towards a more secure internet



Imagine a shoebox-sized device paving the way for global data security. This compact nanosatellite may even lay the foundation for building a global quantum internet — that is, a network for connecting together quantum machines that are beyond the capabilities of current fibre infrastructure. Thanks to the work of Associate Professor Alexander Ling, Principal Investigator at the NUS Centre for Quantum Technologies (CQT), and his team, this vision is being fleshed out.

In 2019, the team launched an experimental nanosatellite into orbit 400km above Earth and confirmed it could create entangled pairs of photons in a compact instrument onboard — the first of its kind in the world. Quirkily named SpooQy-1 in a nod to Einstein's description of entanglement as "spooky action at a distance", the nanosatellite weighed only 2.6kg and measured no larger than a shoebox.

This stands in stark contrast to its predecessor, the Chinese Micius satellite, which tipped the scales at over 600kg. Whilst SpooQy-1 was not loaded with some of the telescopes and pointing systems that were on Micius, the NUS team also found ways to miniaturise the crucial quantum components.

The success of the SpooQy-1 project heralds a new age in quantum communications. **"We are seeing a surge of interest in building quantum networks around the world,"** said Assoc Prof Ling. **"Satellites are part of the solution to making long-range networks, creating connections across country borders and between continents."**

Today's high-speed internet relies on photons to carry data through optical fibres, but signal loss can occur due to physical limitations like cable length and size. SpooQy-1 has demonstrated the successful generation of entangled photon pairs in the challenging conditions of space, highlighting the potential of small, lightweight satellites as a cost-effective solution to creating an orbiting network that can transmit quantum data around the globe.

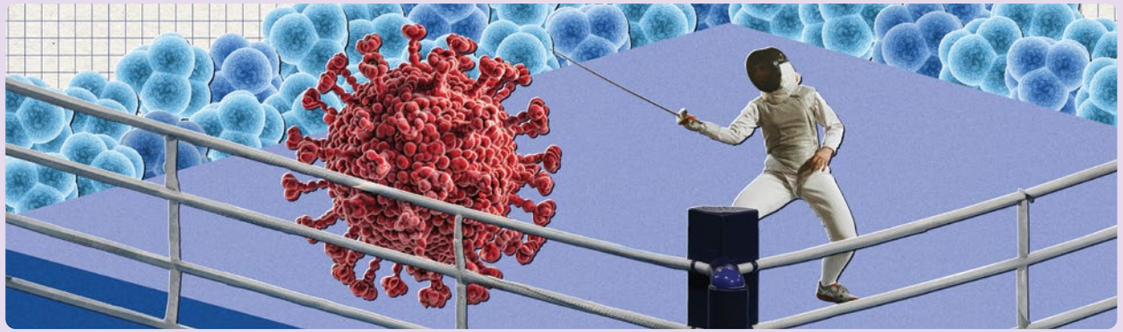
SpooQy-1 also laid the groundwork for the next phase of the project — quantum key distribution (QKD) between distant cities, which could provide an additional layer of security for critical communication networks.

"This is a new capability that is being developed," said Assoc Prof Ling. **"When you transmit information using quantum particles, it is a very secure process. Anyone who tampers with the quantum particles in transmission will alter their states. So, you will actually have evidence that someone has been tampering with your system."**

This security will be pivotal for SpooQy-1's future successors, including two upcoming missions planned by SpeQtral, a spin-off company that now leads the development of quantum nanosatellites in Singapore. Assoc Prof Ling is one of the cofounders of SpeQtral, which will be collaborating with the UK's national laboratory RAL Space for one mission; the other mission will be supported by Singapore's Office for Space Technology & Industry.

These two satellites will beam entangled photons from space to Earth-based receivers and test the secure distribution of cryptographic keys over globe-spanning distances, opening possibilities for secure communications to take place anywhere in the world.

Making affordable cancer monitoring a reality



It began with an accidental discovery, fuelled by heat. Assistant Professor Cheow Lih Feng from the Department of Biomedical Engineering at NUS' College of Design and Engineering and his team were studying some DNA sequencing samples when they spotted something interesting — a sample that had been heated had had its non-informative genomic sections destroyed. What remained, however, were areas of the genome which tend to harbour most cancer-specific signatures.

For the researchers, this discovery hinted at exciting possibilities for cancer testing. **"A comprehensive, yet low-cost, cancer detection in a non-invasive manner is not available in the market right now,"** said Asst Prof Cheow.

Cancer cells release DNA into the bloodstream that can be detected by analysing blood samples. However, sifting through all this genetic material is expensive and labour-intensive. Some clinicians instead target cancer-specific signatures in cell-free DNA, almost like scanning a large crowd to locate individual faces instead of inspecting every single person.

There are blind spots in such methods. **"Some patients may have cancer signatures that look slightly different and allow them to slip through the screening process,"** he explained.

Inspired by their discovery, Asst Prof Cheow and his team developed the Heatrich-BS assay, which sequences, in his words, the regions that matter the most — clinical samples that have been heated in order to isolate cancer-specific signatures found in a patient's blood. The method also has the potential to work universally across all types of cancer.

Priced at around S$50, the Heatrich-BS assay is significantly cheaper than other sequencing methods that can cost up to S$1,000. It could thus be potentially used in regular cancer monitoring, and has been trialled at the National Cancer Centre with colorectal cancer patients, allowing doctors to monitor patients for their response to treatment and tailor therapy regimes accordingly.

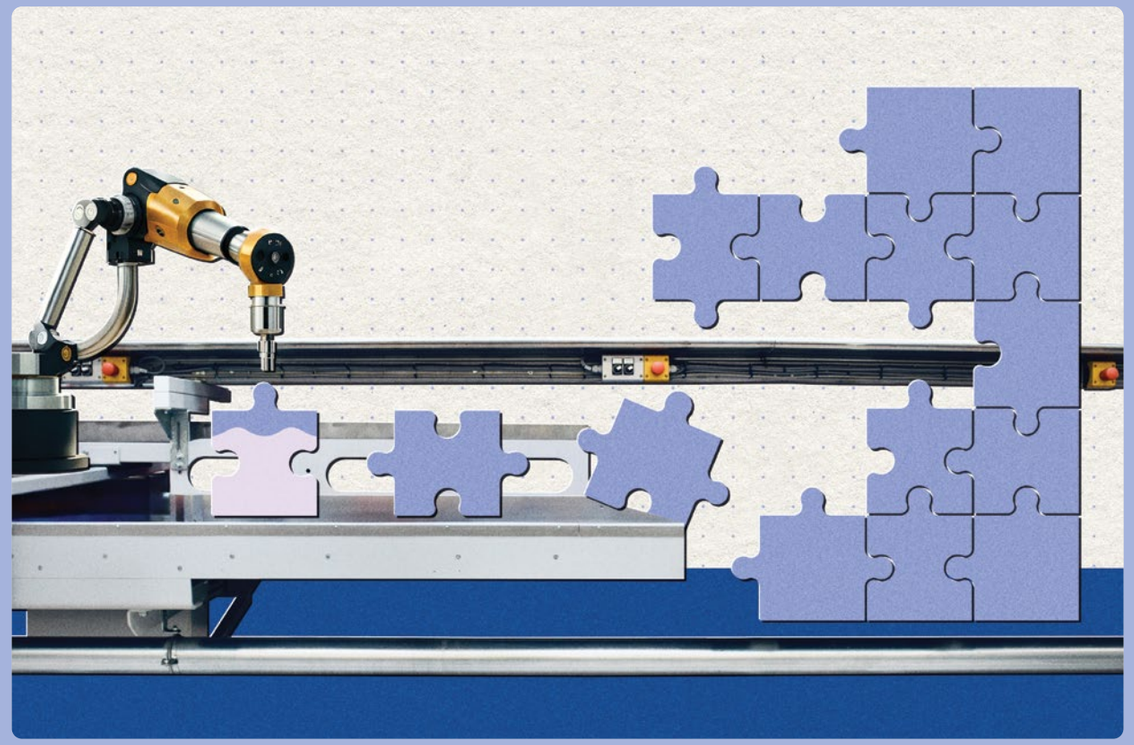
> "Having started my PhD just months after losing my grandfather to cancer, the opportunity to work on that very disease was truly humbling and rewarding. Heatrich-BS will hopefully contribute towards making cancer management more affordable and effective."
>
> **— Elsie Cheruba**
> Research team member

Creating solutions

Translating research into practical solutions is a vital driver of our impact.

The past five years have been marked by a steady increase in the number of new patent applications filed by NUS, more than half of which are in the physical sciences. Bearing this out is the University's position among the top three filers of patents in Singapore, according to the World Intellectual Property Organization and the Intellectual Property Office of Singapore.[8]

Our technology transfer efforts are shored up by a robust system of support that provides researchers and budding entrepreneurs with expertise, funding and connections with established industry stakeholders.



[8] World Intellectual Property Organization, Intellectual Property Statistical Country Profile 2022: Singapore. Intellectual Property Office of Singapore, Statistics 2021–2022.

Translating research into solutions

PATENT APPLICATIONS

2,369

new patent applications.[9]

PATENTS GRANTED

504

patents granted.[10]

LICENSE AGREEMENTS

542

license agreements signed.[11]

TRANSLATIONAL FUNDING

S$22 million

in translational funding from national research funds awarded to NUS teams.[12]

[9] Financial Year 2018–2022
[10] Financial Year 2018–2022
[11] Financial Year 2018–2022
[12] Financial Year 2018–2022

Diving intelligently into the deep end

The growth of BeeX, an innovative underwater autonomous systems start-up, bears testament to the robustness of NUS' entrepreneurial ecosystem in nurturing impact-driven start-ups.

Founded by NUS alumni Grace Chia and Goh Eng Wei (both pictured on the right), BeeX has been pushing the envelope in underwater self-driving technology. Their goal is to improve the safety of large-scale underwater operations like port infrastructure inspections.

"Traditionally, underwater inspections are carried out by divers or robots that are controlled by men on board, but these require support off a working boat which is quite expensive to deploy," explained Grace.

"To overcome these challenges, we put intelligence inside the vehicle itself, specialising in low-visibility waters, high-current environments, and complex situations that require us to provide smarter mission plans." Besides reducing human risk, this also cuts carbon emissions by over 90%.

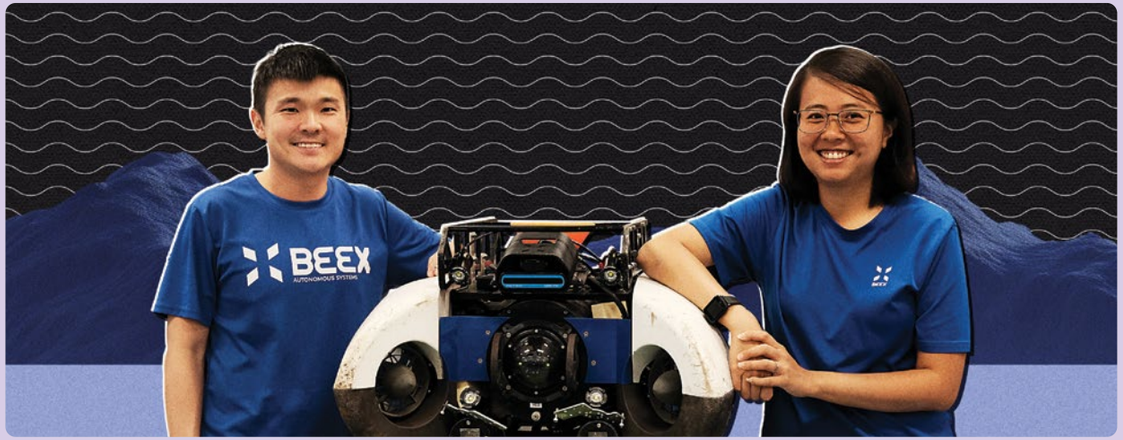
With this idea on hand, the founders sought to spin off the technology from NUS, through platforms like Technology Transfer and Innovation — NUS Enterprise's technology translation and commercialisation arm — and PIER71, a vibrant ecosystem of maritime veterans and experts, technology, entrepreneurial know-how and investment opportunities. **"PIER71 provided us with wider exposure to the maritime sector for growth, outside of our core work with energy and infrastructure players,"** said Grace.

The NUS Graduate Research Innovation Programme (GRIP) also offered step-by-step guidance in the process, situating BeeX in the broader deep tech community of innovators, accelerators, investors, corporate customers and government agencies.

Grace's appetite for entrepreneurship had been whetted early on. As an undergraduate, she interned and studied in Beijing for a year under the NUS Overseas Colleges programme, learning about the ins and outs of running a viable company.

Today, BeeX is growing from strength to strength. It clinched a seven-figure seed funding from Cap Vista, the strategic investment arm of Singapore's Defence Science and Technology Agency, in 2021, and received the prestigious Enterprise Singapore-Innovate UK grant in 2023.

The dynamic young start-up is also turning its attention to the renewable sector. In the works are plans to deploy BeeX robots in offshore wind farms — such as those along the Gulf of Mexico — and floating solar farms in Singapore.



"I strongly believe in the potential of companies to be the biggest changemakers in the world… Our technology takes men and women out of dangerous environments, slashes carbon footprint, and ultimately creates a sustainable way to differentiate without cutting corners."

— Goh Eng Wei
Co-founder, BeeX

Powering enterprise

Efforts to nurture start-ups and spin-offs run the gamut at NUS, from experiential education for undergraduates to dedicated acceleration and incubation programmes for those in the thick of creating start-ups.

NUS plays a sizeable role in Singapore's emerging tech start-up scene. We are one of the key sources of early-stage emerging tech start-ups, with a marked lead in the advanced manufacturing and sustainability sectors.[13] In 2022, almost half of the emerging tech companies incorporated in the agrifood sector in Singapore were spun off from NUS.[14]

The university's incubation programmes have paid off. The first NUS-supported unicorn, R&D intelligence platform PatSnap, appeared in 2021; our unicorn count has since grown to 11.

[13] NUS is the source of 35% and 36.5% of emerging tech start-ups in the advanced manufacturing and sustainability sectors respectively, according to SGInnovate's Singapore Early-Stage Emerging Tech Startups 2022 report, p.10.
[14] SGInnovate, Singapore Early-Stage Emerging Tech Startups 2022, p.10.

NUS-supported start-ups gaining in quantity and quality

SPIN-OFF COMPANIES

165

spin-off companies were set up based on NUS technology.[15]

"As a graduate of NUS who was exposed to entrepreneurship during my own time at university, I believe that it is meaningful to continuously give back and grow the entrepreneurial scene in higher education. KooBits is one of the host companies for the NUS Master of Science in Venture Creation programme. We host graduates from the programme and provide them with internship experience. We believe this is the best gift we can give: a near-real-life working experience, which can inform their career. Through these exchanges, we hope to foster an entrepreneurial spirit in our young graduates while exposing them to a vibrant start-up environment."

Stanley Han
Founder and CEO of KooBits, an NUS-incubated start-up providing AI-powered educational technology

[15] Financial Year 2018–2022

BLOCK71 start-up ecosystem

START-UPS SUPPORTED

Our BLOCK71 start-up ecosystem has supported some

1,600

start-ups globally, with these start-ups reaching a collective valuation of **US$29 billion** since 2011.

SERIES A FUNDING

More than

150

NUS-supported start-ups have made it to Series A and beyond.[16]

VENTURE FUNDING

Annually, BLOCK71 Singapore start-ups have grown to attract more venture funding. In 2022, the annual funding raised was **US$1.5 billion**, or

14 %

of Singapore's total deal value.

GOING BEYOND NUS

We nurture innovation within our community and beyond, with

70 %

of our incubated start-ups hailing from outside NUS.

[16] As at December 2023

Graduate Research Innovation Programme

GRIP is a venture creation and acceleration programme that helps NUS post-graduate students and researchers leverage research to build deep tech start-ups.

GROWING DEEP TECH START-UPS

110

start-ups have emerged, securing **S$55 million** in external funding and grants, since GRIP began in 2018.[17]

START-UP FUNDING

Our companies have achieved significant external validation and traction, with

over 90 %

of their funds raised coming from external sources in 2022 and 2023.

NUS Overseas Colleges

A programme that offers undergraduates experiential learning by enabling them to intern at leading entrepreneurial hubs around the world.

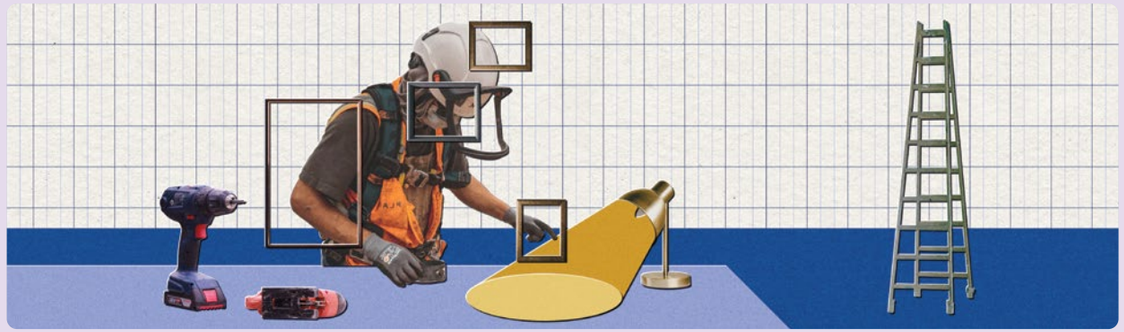
NOC ALUMNI START-UPS

>1,000

start-ups founded by NUS Overseas Colleges alumni, raising **>S$3.5 billion** in equity funding since the programme was first established in 2002.[18]

[17] As at December 2023
[18] As at December 2023

Imbuing vigilance in the workplace



One of the many start-ups that entrepreneurial programmes like NUS Overseas Colleges (NOC) and the NUS Graduate Research Innovation Programme (GRIP) have successfully incubated is Invigilo, an AI-powered solution builder for enhanced workplace safety and productivity.

Named after the Latin term for "watch after," Invigilo aims to do exactly that. It leverages real-time AI video analytics to identify and avert potential dangers and accidents in high-risk environments such as construction and manufacturing sites.

"Safety professionals can rely on our products to receive alerts whenever a safety hazard is detected, leading to early intervention, prevention of accidents, and ultimately saving lives," explained Invigilo's founder, Vishnu Saran (pictured below, third from right). **"The symbiosis of technology with traditional industries is critical to ensure a safer future for all."**

Invigilo's technology is also customisable to each industry's specific safety requirements, including construction, maritime, and manufacturing sites, and stands out for its compatibility with businesses' existing dashboards and software.

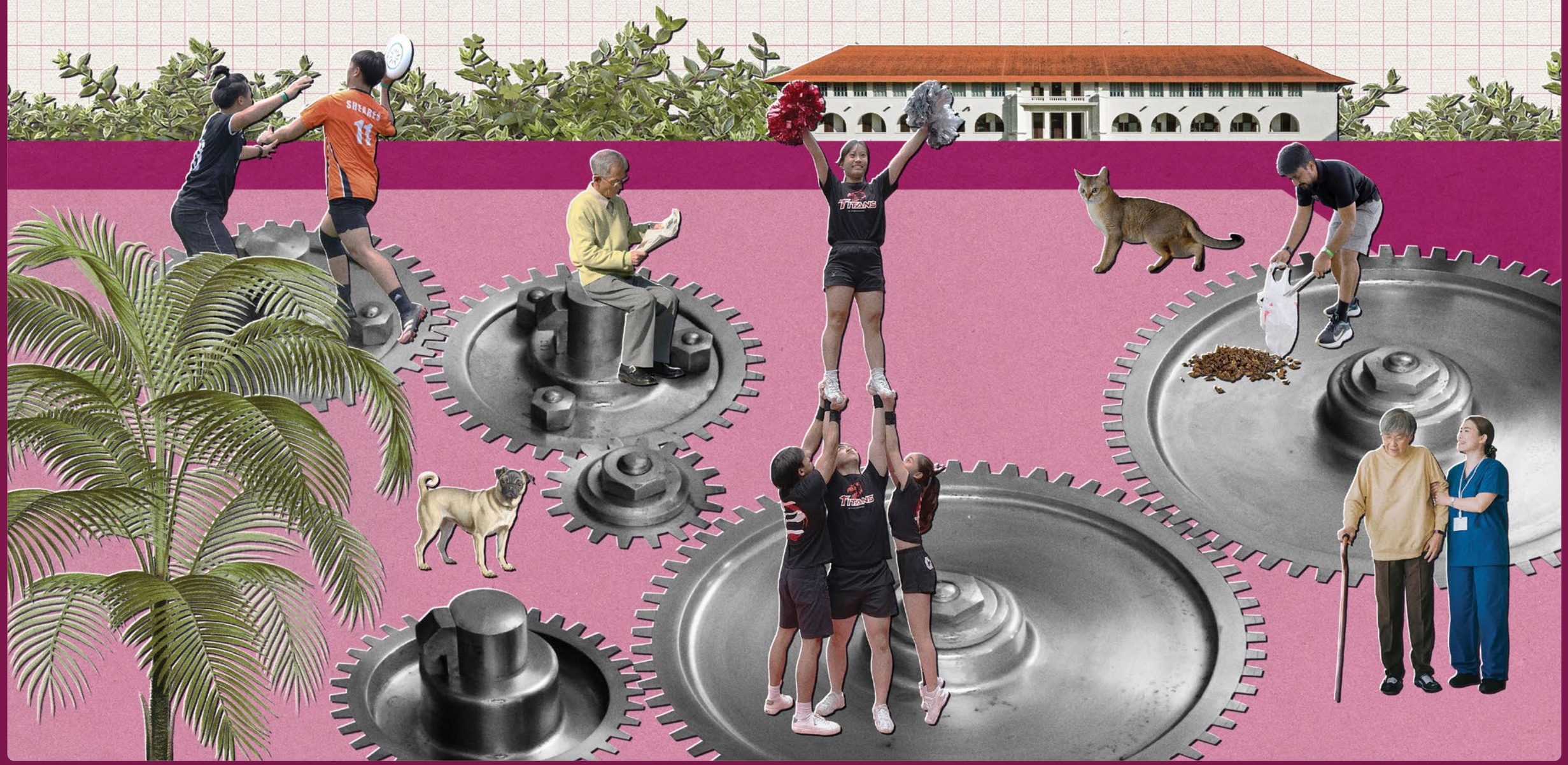
The NOC experience was instrumental in planting the seed of inspiration for Vishnu. Through this programme, NUS undergraduates get to live, work and study in over 20 key entrepreneurial hubs worldwide, benefitting from the synergy present in these mature innovation ecosystems. Their internship experience equips them with a firsthand understanding of entrepreneurial skillsets and processes, laying the foundation for their own ventures.

The concentration of talent, ideas and capital during Vishnu's internship stint at Silicon Valley fuelled his passion and drive, galvanising him to turn his ideas into reality.

"NOC was one of the best experiences I had, as it opened my eyes to a very different setting," he reflected. **"Everyone was extremely passionate and driven about what they were working on and it gave me a lot of energy to pursue this start-up path."**

Vishnu also credits GRIP with playing a role in Invigilo's success. A unique venture creation programme that enables postgraduate students and researchers to transform research into deep tech companies, GRIP afforded Vishnu the support he needed to get his start-up off the runway, from providing crucial introductions to vibrant entrepreneurial networks, to hosting community events where he could connect with other start-up founders.

To date, Invigilo has worked with the Housing Development Board and the Land Transport Authority to deploy its safety solutions across manifold industries in Singapore, helping to reduce accidents, increase safety coverage for workers, and improve cost savings for companies. Looking ahead, the team is working to scale Invigilo across regional markets, as they continue towards their vision of an accident-free world.



SECTION III

Shaping Future Society

A trusted voice 40
A force for good 46

A trusted voice

Our expertise is shared far and wide for the greater good.

At home, our public policy research has shaped outcomes in areas like education, social resilience, the labour market and financial literacy, among others, through increased collaboration with the state. Over the last five years, we embarked on 100 collaborative research projects with governmental organisations, more than double that of the previous five years.

Further afield, capacity building efforts range from shaping public policy education in Central Asia to setting up health offices in Laos and Cambodia in aid of local communities. A new Office for Global Health was set up in 2023, further boosting the range and volume of our activities in the field.

In other arenas of global concern, we convene, converse and advocate. This includes outreach and advocacy for climate action, informed by solid science-based perspectives. We also offer support tools and frameworks to policymakers in the here and now.

Shaping public policy

RESEARCH PUBLICATIONS

> 640

publications related to public policy research released.[1]

RESEARCH CITATIONS

> 13,000

citations related to public policy research received.[2]

GOVERNMENT COLLABORATIONS

100

collaborative research projects and studies with national government, **more than double** that of the previous five years.[3]

[1] Calendar Year 2018–2022
[2] Calendar Year 2018–2022
[3] Financial Year 2018–2022

Serving the unreached in Cambodia

Where are the missing people afflicted with tuberculosis? This question reverberates in Cambodia, where the disease is rife. While the country has achieved great success in tuberculosis control in the past decade, many people with tuberculosis are missed by its health systems, and as a result, do not receive the care they need.

These people — for whom tuberculosis is not detected — are among the preoccupations of researchers from the NUS Saw Swee Hock School of Public Health, who work at NUS' health office in Cambodia.

Set up in 2014, the unit, headed by Assistant Professor Yi Siyan, works with local and international partners to implement public health research, education and practice programmes in Cambodia and the region. One of their key projects centres on active case-finding strategies — an approach to finding tuberculosis cases proactively, instead of a passive approach where people with tuberculosis present themselves to a healthcare facility.

In randomised controlled trials throughout ten provinces in Cambodia, the team demonstrated the feasibility, effectiveness and cost-effectiveness of community-based active case-finding. For instance, the seed-and-recruit model — that mobilises community networks to find tuberculosis cases — was associated with early initiation of treatment, a greater likelihood of finding cases, and reduced risk of transmission within the community.

"The active case finding trial has provided valuable insights, offering a range of strategies and approaches not only for case identification but also the refinement of effective models," said Dr Sok Heng Pheng, Deputy Director of Cambodia's National Center for Tuberculosis and Leprosy Control, one of the partners in the effort.

Beyond research, the NUS health office also actively engages the community by bringing screening to residents, and strengthening the capacity of local researchers and health workers.

From 2019 to 2022, they have proactively screened over 150,000 individuals, diagnosing and caring for more than 3,000 people with tuberculosis, and facilitating preventive treatment for over 3,000 others. Through training, they have also empowered 500 community health workers to deliver tuberculosis services in 16 provinces throughout the country, and to become advocates within their community.

This expansive work is only made possible, Asst Prof Yi shares, with the help of local government, civil society organisations, and the larger community.

"Working closely with local partners at every stage of our research helps to foster ownership. It enables us to better translate research findings into policies and actionable steps, that can benefit those on the ground who need it the most," he said.

"With this project, for instance, the key to our success was the active involvement of stakeholders at all levels, from the local to the national and international, throughout the entire research process," he said.

"The success of this project can be attributed to exceptional leadership, clear direction, and active community engagement, which enabled us to fully realise our objectives."

— Sok Chamreun Choub
Executive Director, KHANA,
Key implementing partner

Projecting the future, for a better future

By 2026, Singapore will become a super-aged society — more than a quarter of its population will be aged 65 and older — joining the likes of Japan and Germany, mirroring a global population trend that will see two billion seniors aged 60 and above by 2040.

As Singapore and the world grey at an unprecedented rate, disability and social isolation numbers are rising in tandem, bringing into sharp relief the inexorable demand for long-term care (LTC) services. Will Singapore be prepared to meet the needs of its ageing population — and how will it do so?

In 2020, Dr Reuben Ng (pictured on the right), an assistant professor at NUS' Lee Kuan Yew School of Public Policy, and a team of researchers set out to project the profile of Singapore's older adults 40 years into the future. The study was one of the first known to consider not just functional factors — such as disability — but social ones, in projecting a country's LTC demand.

The study found, significantly, that disability prevalence is projected to increase five-fold in Singapore in the next 40 years, while the number of socially isolated seniors living alone will quadruple.

"These projections are crucial for estimating the demand for LTC services," said Dr Ng. "This is vital for Singapore's long-range policy planning." Dr Ng cites national schemes such as HealthierSG and the 2023 Action Plan for Successful Ageing as platforms where the study's findings came into use, informing and underscoring the need to focus not just on the healthcare demands of an ageing population, but on cultivating an age-inclusive society that bolsters integration.

Launched in 2023, HealthierSG emphasises preventive healthcare with the support of family clinics and community partners. The 2023 Action Plan for Successful Ageing works in concert to redefine ageing, empowering seniors to take charge of their health and stay connected to society. A collective effort between government, academia, businesses and community partners, the initiative includes promoting senior volunteerism and active ageing activities.

"Reframing ageing does not mean denying the challenges posed by an ageing population but rather adopting a more balanced perspective that embraces the unique needs and strengths of an older cohort," said Dr Ng.

But policies are only as good as their application. With community partners often struggling to implement policies due to the complexities of caregiving, platforms for knowledge exchange and discussions are also vital in policymaking. In 2022, Dr Ng led a health innovation workshop organised by the Lloyd's Register Foundation Institute for the Public Understanding of Risk at NUS, bringing together policymakers and community partners to explore the needs of seniors and their caregivers, and the gaps between policy and implementation.

"It's not often that policymakers get to hear the issues faced by policy implementors, so the aim of this workshop was to bring them together to create stronger, more responsive policies for an aged society," said Dr Ng.

"I marvel at how academia can partner with government and community partners to produce insights that shape policy agenda. This is the future of translational research in the social sciences. The most important beneficiaries are Singapore and Singaporeans, and that makes me so proud."

— Dr Reuben Ng
Assistant Professor, NUS Lee Kuan Yew School of Public Policy

A force for good

In seeking a kinder, more equitable society, we take the long view.

Individual acts of kindness matter as much as structural support and sustained programmes that build capacity for diverse groups across society.

Our financial aid scheme has evolved with time to not merely provide disadvantaged students with greater access to education, but also to a broader range of opportunities, including on-campus living and overseas exposure.

Through longstanding community projects, many student-led, we have woven a rich tapestry of relationships with local NGOs and beneficiaries, and built up a deep reserve of experience and resource. And pathways by which students, staff and alumni can engage with the wider society continue to proliferate. In 2021, a service learning component — where students work with community partners to address social issues — was integrated into the undergraduate curriculum, deepening our students' social awareness and sense of responsibility towards society.

Boosting access

FINANCIAL SUPPORT

1 in 2

of our undergraduate students tap on various platforms to finance their education[4], amounting to **>S$787 million**[5], a **28% increase** compared to the previous 5 years.

TARGETED ASSISTANCE

The yearly number of students who pay $0 in tuition fees has risen by

65 %

since 2018.[6] On average, **close to 3,000** undergraduates pay $0 in tuition fees every year.[7]

4 Annual average, Academic Year 2018–2022
5 Academic Year 2018–2022
6 Academic Year 2023
7 Annual average, Academic Year 2018–2022

OUR IMPACT, IN DEPTH

Financial support bolsters a lifelong dream

Jolene Gina Abelarde's childhood ambition was to become a lawyer. However, her family's financial situation meant that she had to bury this dream. Jolene went into a different field, but a brush with injury — and the legal issues that followed — reminded her of her long-buried childhood ambition, and of the immense value of a legal education.

Spurred on to give her dream another shot, she applied to NUS Law School and was surprised to receive, in addition to an offer an admission, scholarships and bursaries funding her tuition fees and schooling expenses.

The intellectual rigour of law school challenged and energised Jolene, but it was the connections she soon found with her peers and teachers that emboldened her to take on leadership roles that saw her advocating for improved student welfare. As Vice-President of the Law Club, she paved the way for greater inclusivity and support in various areas, from mental wellness to menstrual health and hygiene.

Spaces@BTC, a student group co-founded by Jolene, raised awareness on and provided mental wellness support to law students, and from it sprung a peer support group made up of law students trained by the Health Promotion Board and NUS' Office of Student Affairs.

"These student initiatives were my way of giving back for all the support I'd received. I'm glad they have helped strengthen the sense of community and care for students," she said. **"Lawyers are officers of the court and I know I am in a unique position to support people, groups and organisations with their legal issues and to further the public good."**

Upon graduating from NUS, Jolene received the prestigious National University of Singapore Society Medal for Outstanding Achievement. She is set to begin a career in international arbitration.

Serving our community

Service learning is a central part of the undergraduate curriculum. One of our most significant initiatives is Teach SG. Piloted in 2021, the programme has empowered NUS students to mentor close to 3,600 children and youths from less privileged backgrounds.[8]

Beyond the curriculum are many student-led community projects and initiatives. Two flagship events are the NUS Students' Union Rag & Flag, and NUS Cares.

NUS Students' Union Rag & Flag

A student-led fundraising event held yearly since 1958.

STUDENT PARTICIPATION

An estimated

4,500

students participate yearly.[9]

ANNUAL FUNDS RAISED

S$250,000

raised for charities per year.[10]

TOTAL FUNDS RAISED

> S$8.5 million

raised since 2000.

CHARITY PROGRAMMES FUNDED

22

charity programmes receive funding per year.[11]

[8] As at December 2023
[9] Annual average, Calendar Year 2018–2022
[10] Annual average, Calendar Year 2018–2022
[11] Annual average, Calendar Year 2018–2022

NUS Cares

A University-wide volunteering platform for students, alumni and staff, covering a range of community causes.

BENEFICIARIES

>5,000

beneficiaries per year.[12]

"I see every volunteering opportunity as a new chance to hear one more story and that story can help in understanding more about what we can do to help these individuals."

Tan Wei Shuang
Faculty of Arts and Social Sciences,
President of NUS Students' Community Service Club

[12] Annual average, Calendar Year 2018–2022

OUR IMPACT, IN DEPTH

Spreading joy through dance

Ask what gets the students of NUS Dance Synergy moving, and the answer is simple: A pure love for the art form, and a desire to uplift communities around them. The members of this contemporary dance group — which was founded in 1978 — are animated not merely by practice and performance, but the desire to spread the joy of dance.

Synergy's outreach and engagement efforts include dance workshops and interactive sessions with elderly and youth groups. A significant initiative is the award-winning Helping Hands, Moving Bodies.

In 2020, Vera Chiew and Shaelyn Lam — who headed engagement and outreach then — decided to leverage existing community efforts to construct a more cohesive programme. At that point, members of Synergy were already heading to the Fei Yue Seniors Activity Centre every week to guide the seniors in simple exercises and choreography.

Under the guidance of their Artistic Director Yarra Illeto, Synergy piloted Helping Hands, Moving Bodies, wherein students learnt theories of body movement and teaching pedagogies, and applied these towards conducting dance workshops for senior citizens. Describing community service as an integral part of Synergy's culture, Shaelyn said, **"As dance shapes the way we think and move, community outreach and engagement shapes Synergy's place in our community."**

The programme has since evolved through a few different iterations. In 2022, Synergy partnered with NUS' Alice Lee Centre for Nursing Studies and social agency Lions Befrienders to better understand the physical and cognitive needs of the elderly. The resulting dance programme was rolled out at Lions Befrienders' various senior activity centres. Expanding, Synergy teamed up with other beneficiaries such as Anglican Senior Centre and NTUC Health Senior Activity Centre the following year. Their efforts netted them Outstanding Community Arts Project of the Year for the third time in a row at the Tan Ean Kiam Arts Awards, this time with a Distinction.

Leong Qian Ning (pictured above, far left), who headed community engagement in 2023, notes their growth to date. **"Helping Hands, Moving Bodies has definitely become more refined over the years in terms of its structure and goals,"** she said, sharing that the next cycle will see them incorporate the programme into their official curriculum, as well as address the needs of specific subgroups, such as elderly with dementia.

These future plans are fueled by the payback to date — the chance to witness the enjoyment that dance can bring.

"Seeing the seniors having fun and enjoying the workshops honestly makes it so rewarding. Not forgetting the fun I had, working together with my groupmates in brainstorming original choreography. I had a very good time overall."

— Leong Qian Ning
Community Engagement Head, NUS Dance Synergy

Shaping our country through leadership

Besides serving as leaders in government, NUS alumni have also contributed to Singapore as captains of industry.

LEADERS IN GOVERNMENT

NUS alumni make up

half

of the 14th Singapore Parliament and **more than half** of the current Cabinet of Singapore.[13]

LEADERS IN GOVERNMENT

We have nurtured

6

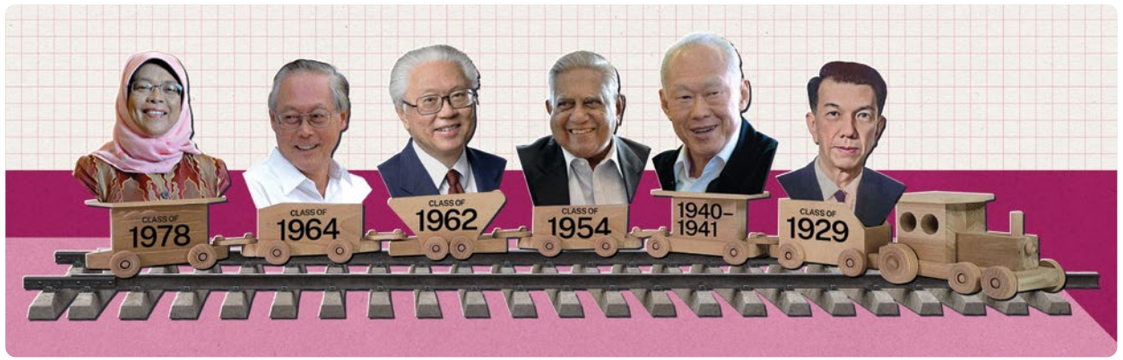
Singapore Presidents and Prime Ministers.[14]

LEADERS OF INDUSTRY

NUS alumni helm

23 out of the top 100

companies in Singapore by annual revenue.[15]



[13] Calendar Year 2023
[14] (From left)
Madam Halimah Yacob, Class of 1978, Eighth President of Singapore (2017–2023)
Mr Goh Chok Tong, Class of 1964, Second Prime Minister of Singapore (1990–2004)
Dr Tony Tan Keng Yam, Class of 1962, Seventh President of Singapore (2011–2017)
Mr S R Nathan, Class of 1954, Sixth President of Singapore (1999–2011)
Mr Lee Kuan Yew, 1940–1941, Founding Prime Minister of Singapore (1959–1990)
Dr Benjamin Sheares, Class of 1929, Second President of Singapore (1971–1981)
[15] 100 companies as ranked by market intelligence platform S&P Global in Financial Year 2023

SECTION IV

Shaping a Sustainable Future

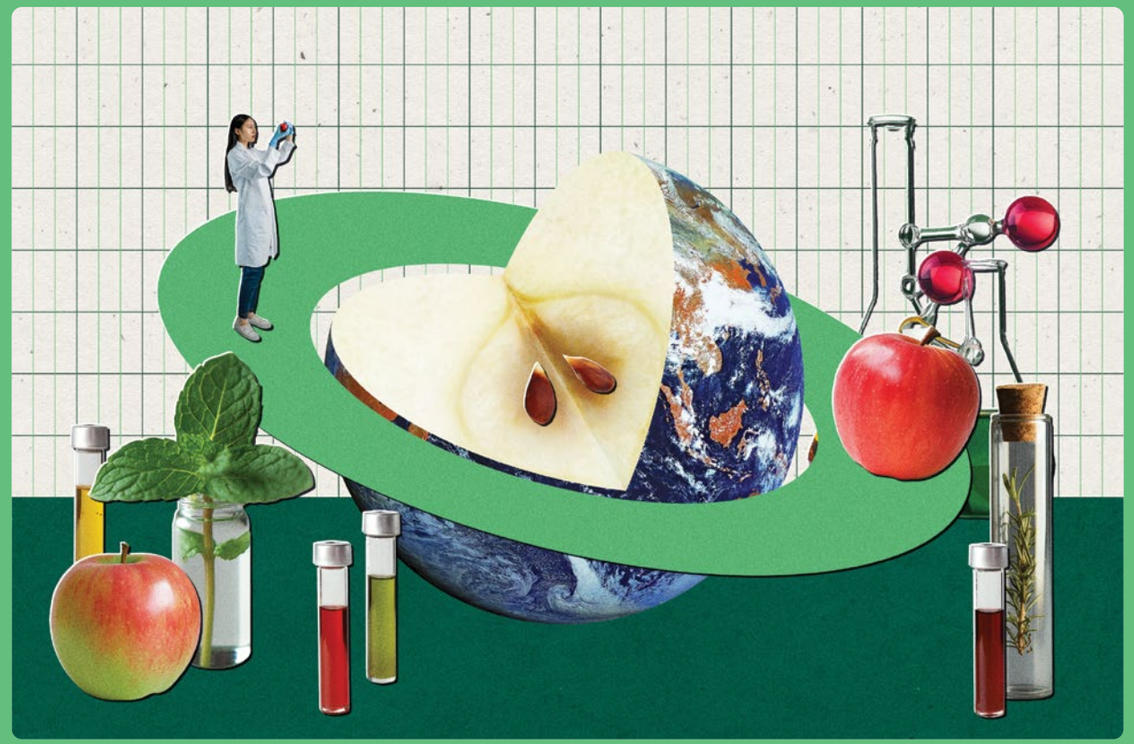
An integrated push towards a sustainable future

A more sustainable future is ours to shape through interdisciplinary solutions spanning education, research and campus operations.

Efforts to expand our sustainability education offerings are underway. With a growing suite of sustainability-themed programmes in fields that range from meteorology and climate science to green finance, we aim to cultivate talent that will lead and champion the global fight against climate change.

On the research front, we tackle the protean problem of climate change in myriad ways — from developing green energy technologies, to harnessing nature for carbon solutions, to improving heat resilience structurally, technologically and socially. Closer to home, the new Coastal Protection and Flood Resilience Institute, hosted at NUS, seeks to help low-lying countries — like Singapore and many others in Southeast Asia — bolster their defence against rising sea levels.

Our first testbed is our campus — a living lab where climate solutions, resilience and goals are actualised.



Sustainability education and research

SUSTAINABILITY COURSES

> 800

sustainability-centric undergraduate, postgraduate and continuing education courses across the spectrum, from social development and resilience to technology, environment and compliance.[1]

SUSTAINABILITY RESEARCH

Nearly

1 in 3

of our faculty participate in sustainability-related research, a **30% increase** over five years.[2]

[1] As at October 2023
[2] Calendar Year 2022

Harnessing the power of nature to fight climate change

Severe floods, intense heat waves, withering drought — the drastic effects of global warming are increasingly seen and felt around the world, lending urgency to the call to limit global temperature rise within this century to two degrees Celsius. Tackling this complex challenge demands solutions on all fronts — and NUS researchers are harnessing a solution in their proverbial backyard.

Since 2020, Director of NUS Centre for Nature-based Climate Solutions Professor Koh Lian Pin and his team have been exploring how to harness nature and natural processes to reduce or remove greenhouse gases. Restoring mangroves, for example, can help to absorb carbon at high densities, while also defending coasts from rising sea levels. Protecting our forests can reduce carbon emissions as well as preserve biodiversity, especially in Southeast Asia and South America.

"Unlike technologies that may not be ready for upscaling, nature-based solutions are, at the moment, our most feasible and cost-effective means to quickly avoid further emissions," said Prof Koh, who added that the Centre hopes to equip decision-makers in Singapore and the region with the science and tools needed to respond to climate challenges and opportunities.

CNCS is also at the forefront of a significant five-year research initiative known as Carbon Integrity SG. The S$15 million project monitors natural habitats around the region to map nature-based projects that can be developed as potential sources of high-quality carbon credits.

Using tools such as light detection and ranging technology, the team can generate more accurate estimates of carbon stocks that are specific to this region and its varied ecosystems. This could help allay the uncertainty that developers and investors have about the amount of carbon stored in a natural habitat, and through inspiring confidence, spur investment in such projects.

"Carbon Integrity SG will enable high environmental integrity for nature-based carbon projects, by ensuring that credits generated from these projects represent real and additional emissions reduction," said Benedict Chia, Director General for Climate Change at the National Climate Change Secretariat.

"Given the large potential for nature-based abatement in the region, this initiative can play an important role to accelerate climate action here."

Besides avoiding millions of tonnes of carbon dioxide, such projects also offer a host of other benefits, including water purification, food security, and biodiversity conservation. To Prof Koh and his team, it represents another step in their drive to meet the challenges and opportunities of climate change, in service of society.

"We have a much better understanding of the value of nature now, and the importance of harnessing nature as part of our solutions against climate change. When it comes to nature-based climate solutions, we are moving very quickly in the right direction."

— Professor Koh Lian Pin
Director, Centre for Nature-based Climate Solutions

Climate-proofing our habitat

At the turn of this century, rising sea levels, fuelled by rising global temperatures, are expected to affect over 600 million coastal dwellers worldwide. Around Singapore, mean sea levels are projected to rise by up to one metre by the year 2100 — well within the lifetimes of our children and theirs. Our island state is also vulnerable to flooding due to more intense rainfall, which could in turn fuel land and biodiversity loss, disrupt economic activity and livelihoods, and affect public health.

Through the newly established Coastal Protection and Flood Resilience Institute, a national initiative hosted by NUS, our researchers are developing solutions to protect our habitat, from creating models for coastal defence to forecasting rainfall levels.

Protecting our coast with nature-inspired solutions

"Our natural environment is something that we have yet to fully understand. The interplay between water flows and vegetation fascinates me," shared Assistant Professor Gary Lei from NUS' Department of Civil and Environmental Engineering, who leads a multidisciplinary team studying the effectiveness of blending natural elements, such as mangrove seedlings and seagrass, with fabricated coastal protection infrastructure. The study was inspired by seeing how mangrove shoots naturally sprout through cracks in rock revetments at Kranji Coastal Nature Park.

"A limitation of artificial hard structures is that they are not adaptive to rising sea levels. So, incorporating natural elements that can keep pace with changes in the environment has the potential for sustained coastal protection," said Asst Prof Lei. **"They also offer other benefits such as enhancing biodiversity, reducing sediment erosion, promoting carbon sequestration, and improving water quality."**

The team is also studying how such vegetation could survive against a coastal landscape that is constantly changing, as well as what it would take to monitor and maintain its performance over time.

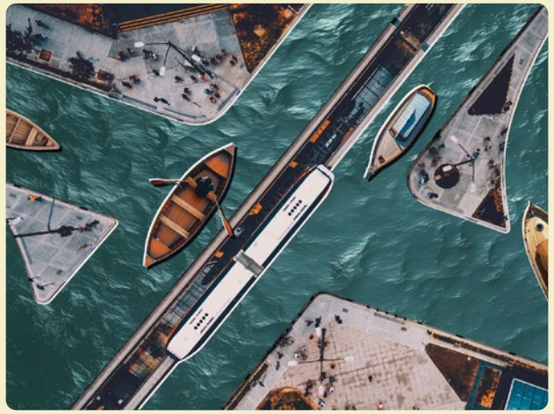
This study will pave the way for a set of guidelines to protect Singapore's shoreline in a manner that is both effective and eco-friendly. These guidelines could also potentially inform similar hybrid solutions globally, with adjustments made for climates, geographies, biodiversity, and policy factors.

Enhancing rainfall prediction to boost flood resilience

The weather is notorious for being unpredictable, but Professor Vladan Babovic, a leading scientist in the field of hydroinformatics from NUS' Department of Civil and Environmental Engineering, has taken on the mammoth task of staying one step ahead. He and his team are developing enhanced computer models that can predict short, intense localised downpours, known as convective rainfall, to inform Singapore's flood resilience measures.

"While today's buildings and infrastructure are designed to withstand severe flooding, we have yet to fully understand how rainfall will change in the next 50 to 100 years. Through our project, we aim to provide valuable insights for Singapore's urban planning, infrastructure development and water resource management," explained Prof Babovic.

The main challenge in developing rainfall prediction models is the multitude of non-stationary parameters to consider. Besides the uncertainty of atmospheric conditions, factors such as an evolving urban fabric, global warming, and greenhouse gas emissions can significantly alter rainfall properties.



By leveraging on existing rainfall monitoring networks and deploying new systems, Prof Babovic and his team aim to understand how these factors influence the extent and intensity of extreme convective storms. With this new knowledge, they can improve real-time and long-term forecasting that will directly contribute to Singapore's climate resilience strategies.

Campus sustainability highlights

NET-ZERO ENERGY BUILDINGS

Home to the

first net-zero energy building cluster in Singapore,

made up of two adaptive re-use buildings, SDE1 and SDE3, as well as SDE4, recipient of the Building Construction Authority Green Mark 2021 for achieving net-positive energy.

SUSTAINABLE COOLING SOLUTIONS

Home to the

Sustainable Tropical Data Centre Testbed,

the world's first platform focusing on sustainable cooling solutions for data centres in tropical environments.

SOLAR-POWERED WI-FI

The first university in Singapore whose outdoor Wi-Fi — covering a sprawling campus of 150 hectares — is

100 % solar-powered.

Opting for wireless technology instead of invasive underground cables, this pioneering initiative achieved 90% less deployment time and 50% cost reduction, saving S$2.8 million.

IN RECOGNITION

The first university to receive the

President's Award for the Environment 2023,

Singapore's highest accolade for environmental sustainability.

TRANSFORMING CAMPUS MOBILITY

As of 2023,

100 %

of our campus buses have been electrified.

"NUS is the only campus in Singapore with an extensive campus greening programme to bring nature closer to our community. By involving our community, campus tree planting activities can foster the spirit of responsibility and deepen a sense of belonging to NUS. We want to be part of the movement to realise a 'Campus in a Tropical Rainforest'."

Edric Ong
Faculty of Engineering

Our sustainability roadmap: A snapshot

NUS has drawn up a long-term Campus Sustainability Roadmap 2030, centred around the following key strategic initiatives: Carbon Neutral, Cool NUS, and Zero Waste. These aim to decarbonise our campus, improve climate resilience, and ensure sustainable waste management.

CARBON NEUTRAL NUS

30% reduction in Scope 1 & 2 emissions, and 20% reduction in energy usage intensity, from Financial Year 2019 baseline

CURRENT STATUS (SCOPE 1 & 2 EMISSIONS)
2% increase[3]

CURRENT STATUS (ENERGY USAGE INTENSITY)
Maintained[4]

OUR CONTINUING EFFORTS
As our campus grows to support the University's mission, from the expansion of research to student life facilities, including three new buildings launched in FY2022, our electricity consumption is projected to increase.

We are committed to mitigating this by:

- de-energising energy-intensive laboratories;
- achieving best-in-class energy performance with our net-zero building clusters;
- optimising operational energy efficiency;
- maximising campus renewable energy by testbedding solar photovoltaic systems of higher efficiencies and procuring overseas renewable energy.

COOL NUS

Improving outdoor thermal comfort

CURRENT STATUS
In progress

OUR CONTINUING EFFORTS
We have begun on a targeted process towards improving outdoor thermal comfort. The first step, baselining, entails installing an extensive, high-resolution network of over 50 microclimate sensors across our Kent Ridge campus. Its data will be used to establish the campus' baseline Outdoor Thermal Comfort Index.

Plant 100,000 trees, contributing 10% to Singapore's OneMillionTrees movement

CURRENT STATUS
35,100 trees planted to date (35% of goal)[5]

OUR CONTINUING EFFORTS
Tree planting continues, as do efforts to evaluate the benefits of trees in improving outdoor thermal comfort.

"Sustainability is at the heart of what we do. By shaping our buildings through new ideas, innovations and technologies that decarbonise campus operations, we hope to shape behaviour to reduce resource usage and wastage. In turn, our students and staff will be stewards of change for future generations."

Koh Yan Leng
Vice President, NUS Campus Infrastructure

[3] Financial Year 2022
[4] Financial Year 2022
[5] Financial Year 2022

ZERO WASTE NUS

50% recycling rate

CURRENT STATUS
32% recycling rate, the highest since Financial Year 2019[6]

OUR CONTINUING EFFORTS
To further drive a whole-of-university waste sorting culture, we have installed Resource Sorting Stations in two student residences to encourage the sorting and depositing of clean recyclables, achieving near zero contamination. We also aim to close waste loops for streams that are harder to recycle, such as plastic.

30% reduction in daily waste disposed per capita from Financial Year 2021 baseline

CURRENT STATUS
14% increase[7]

OUR CONTINUING EFFORTS
As campus activity rebounds post-pandemic, we have observed a rise in per capita waste disposal. To tackle this, we are implementing a viable container reuse system in our canteens and food courts. We have also established a Sustainable Procurement Framework to promote mindful procurement.

[6] Financial Year 2022
[7] Financial Year 2022

OUR IMPACT, IN DEPTH

Teaming up to recycle right

Low recycling rates are often caused not by the lack of recycling, but by inaccurate recycling practices. At NUS, plastic recycling bins had a whopping 57% contamination rate in early 2020. In other words, more than half the items in the recycling bin couldn't be recycled, a problem that persists across Singapore.

These were the findings of a group of students from different disciplines — industrial design, engineering and statistics — in partnership with the NUS Zero Waste Taskforce in 2020, as part of a study into recycling at NUS.

Hamashree A, a statistics student from the team, applied methods learned in class to produce evidence-based recommendations, while Bao Xinjing, an engineering master's student, led the contamination analysis and data collection process.

Based on the study's data and subsequent tests, the team proposed various recommendations to promote recycling on campus. These include a more intuitive recycling bin design with physical "speedbumps" reminding users of the right recyclables created by the industrial design students in the team, methods to step up recycling education, and the gradual phasing out of single-use plastics on campus.

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