

BUILDING FOR THE NEXT 144 YEARS

Dr. Maru

Global Knowledge Hub Forum 2026
Singapore



NEST GARAGE

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ON THE COVER

Dr. Yukihiro Maru

Group CEO
Leave a Nest Co., Ltd.

Dr. Yukihiro Maru is the founder and Group CEO of Leave a Nest. As the company marks its 24th anniversary in 2026, he is looking far beyond the present—to the next 144 years. On the cover, he holds 144 YEARS, a book that explores how ideas, systems, and people can come together to build a venture that endures across generations. Turn the page to discover the thinking behind “Building for the Next 144 Years.”

BUILDING FOR THE NEXT 144 YEARS

Some companies endure for more than a century. Some ideas live even longer. Yet the world around them never stops changing. What allows something to be passed from one generation to the next—not simply preserved, but reinterpreted, renewed, and carried forward?

Clock Building, Not Time Telling

In 2026, Leave a Nest marks its 24th anniversary. From the beginning, we have pursued an ambitious vision: *“Advancing Science and Technology for Global Happiness.”* A vision this large cannot depend on any one leader or generation. We needed to build a clock.

In *Built to Last*, Jim Collins and Jerry Porras describe this idea as *“clock building, not time telling”*: building an organization that can endure beyond its founders and continue to thrive as times change.

With this idea in mind, we see the growth of Leave a Nest as the movement of a clock. One full turn of the hand represents twelve years. Our ambition is to keep that clock turning twelve times—to build a venture that endures for 144 years.

Why Does Japan Have So Many Century-Old Companies?

Japan is home to more than 46,000 companies that have been in business for over a century—more than any other country in the world.

Over a century, technologies change. Businesses evolve. The world around them is transformed. So what allows these companies to endure from one generation to the next? They change what they do, but hold on to the concept at their core. That concept is passed from one generation to the next, reinterpreted for a new age and given new form as the world changes.

Two of Leave a Nest’s partners embody this idea. Hasetora Spinning Co., Ltd., with more than 130 years of history, has expanded beyond conventional textiles under the concept of *“Changing the World through Materials.”* Yamada Shokai Holdings, with more than 120 years of history, has grown beyond gas infrastructure toward its vision of becoming an engineering company that *“enhances the resilience of people and the planet.”*

Their technologies change. Their businesses change. But the concepts they carry forward remain.

A Concept Built to Last 144 Years

This year, another remarkable story reaches the 144-year mark: the Sagrada Família in Barcelona, Spain. Construction began in 1882, and in 2026, its tallest and central tower, the Tower of Jesus Christ, reached a historic milestone.

So how has this church continued to be built for 144 years? We believe the answer lies in a concept that has been passed down through generations: a church that continues to be built.

But a concept alone cannot take shape. To make it possible, the Sagrada Família also developed a system in which its construction could be sustained by people's donations. This allowed people to keep participating in the project across generations.

A concept alone cannot take shape. A system alone cannot gather people. When the two come together, people gather around a shared concept and carry it forward. That is how the Sagrada Família has continued to be built for 144 years—far beyond the lifetime of any one person.

From “*Mine*” to “*Ours*”

Every idea begins with someone's question and passion. But no matter how powerful it may be, one person cannot carry it across generations alone.

When others gather around it, adding their own knowledge and ideas, “*my concept*” becomes “*our concept*.” What began with one person expands as more people take part—and that is when the world begins to change.

This is why we created NEST GARAGE: to record ideas, pass them on, and connect them with the people who may carry them next.

Then the clock moves again.

From one person to another.
From one generation to the next.

Toward 144 years.

The Story Continues

144 YEARS

The story behind Leave a Nest's journey to build a venture that lasts 144 years.

Speaking Inquiries

The 144-year perspective is also available as a keynote for organizations exploring what they want to carry into the future.

Read the Book



ASEAN ECOSYSTEM PARTNERS

SINGAPORE | THAILAND



MALAYSIA | INDONESIA



PHILIPPINES | VIETNAM





60 YEARS FORWARD: THE JAPAN-SINGAPORE PARTNERSHIP

On 26 April 1966, less than nine months after Singapore became independent, the young nation established diplomatic relations with Japan. Why did a country still finding its place in the world choose to build this relationship so early?

It was not simply a ceremonial decision. Singapore entered independence with a small and fragile economy, few natural resources and an urgent need to create jobs, develop industries and connect with international markets. Japan and Japanese companies were among the first to invest heavily in Singapore, bringing capital, technology and know-how that helped lay the foundations of the country's industrialisation.

The relationship also showed a willingness to look forward. The history between the two countries was not simple, and memories of the Second World War remained. Yet both sides chose to build trust through practical cooperation. What began with trade and investment gradually expanded into education, research, culture, healthcare, security, technology and regional development.

For many Singaporeans, Japan also became familiar through the lighter parts of growing up: futuristic cartoons, robots, bullet trains, video games and images of sakura in spring. Behind that cultural fascination was something deeper: an admiration for how Japan used science, engineering and imagination to make the future feel possible.

Over six decades, each country also found a complementary role. Japan brought deep technological capabilities, industrial experience and long-term research strengths. Singapore offered connectivity, an open business environment and a gateway to Southeast Asia. In 2002, the Japan-Singapore Economic Partnership Agreement became

Japan's first bilateral economic partnership agreement and Singapore's first with a major trading partner. By 2025, a record 726,200 visitors from Singapore travelled to Japan, reflecting how government and business ties have also grown into strong connections between people.

SJ60 is therefore more than an anniversary. It is a moment to understand what these 60 years made possible, appreciate the decisions and people that sustained the relationship, and ask what both countries should now build together.

That question became more urgent in March 2026, when Singapore and Japan elevated their relationship to a Strategic Partnership. The agreement identifies five pillars: free trade and economic cooperation, digitalisation and technology, security and defence, green transition and energy cooperation, and partnership and exchange. It also calls for stronger collaboration in agri-food, fusion energy, research, innovation and talent development.

The following pages examine what this next chapter could look like in practice. *"Beyond Education and Research: Rethinking University Partnerships"* considers how NUS and Science Tokyo can move from exchanging people and signing agreements towards building shared projects and capabilities. The Future Food & Fuel Summit brings Japanese companies such as Helical Fusion and ARK together with Singapore partners to address the connected challenges of clean energy, food production and limited resources.

The first 60 years were built by choosing cooperation when it mattered. SJ60 asks us to pause, realign and make that choice again, not only to celebrate a shared history, but to create the foundations of the next 60 years.

BEYOND EDUCATION AND RESEARCH: RETHINKING UNIVERSITY PARTNERSHIPS

By Shohei Maekawa, MSc

As Japan and Singapore mark 60 years of diplomatic relations, university partnerships are being asked to play a broader role. Against this backdrop, an event bringing together NUS Enterprise, the entrepreneurial heart of the National University of Singapore (NUS), and the Institute of Science Tokyo on 25th September offers a timely opportunity to consider what universities can achieve together across borders. The question is no longer simply how many students move between institutions or how many joint papers are published. It is whether universities can connect their knowledge and talent to concrete social change across borders.

What Is A University's "Third Mission"?

The traditional missions of a university are education and research. The "third mission" broadly describes how universities create value for society beyond these two core functions. Innovation, entrepreneurship and social engagement are among the ways universities fulfil this role. This mission should not be measured only by patents or university startups. Research can influence policy or clinical practice, while education can shape how graduates understand society and act within it. Entrepreneurship and commercialisation are important pathways, but not the only ones. Fundamental research and long term inquiry remain essential. The question is whether universities also have pathways to carry knowledge into society when it is ready to be used. Within NUS Enterprise, the university's entrepreneurial arm, plays a key role in this process.

As Mr Yutaka Oba, Country Director (Japan) of NUS Enterprise explains, "Enterprise" is not separate from education and research, but a function that converts them into societal value. Its activities include intellectual property management, entrepreneurship education, startup creation and growth support, investment and the development of global startup ecosystems.



Institute of Science Tokyo



NUS Enterprise

Different Systems, Complementary Strengths

NUS Enterprise and Science Tokyo illustrate different approaches to building such pathways. Through NUS Enterprise, the university operates programmes and platforms such as NUS Overseas Colleges (NOC) and BLOCK71. NOC allows students to work in startups while studying at partner universities overseas, while BLOCK71 connects entrepreneurs with investors, companies and innovation communities across 11 cities worldwide, including Tokyo and Nagoya in Japan. Science Tokyo has developed a different approach. Formed through the merger of Tokyo Institute of Technology and Tokyo Medical and Dental University, it brings together science, engineering, medicine and clinical environments.

Its Visionary Initiatives organise researchers around a "Better Life", a "Better Society" and a "Better Planet". Total Health Design, for example, brings together cross-disciplinary expertise around health and wellbeing, including AI-driven medical care and oral science.

NUS should therefore not simply be described as "innovation-focused" and Science Tokyo as "research-focused". Both seek to connect education and research with social value, but through different institutional approaches. Their distinct strengths raise a broader question: when universities with different capabilities meet across borders, what kinds of collaboration might become possible?

From Moving People to Moving Projects

Student exchange, joint degrees and researcher mobility remain important because they build relationships and trust. But mobility can also be connected to concrete projects. The NUS-Stanford Global Engineering Design Innovation (GEDI) programme offers one example. NUS Enterprise and Stanford students work in cross-border teams on challenges provided by industry partners, moving from problem definition and research to experimentation and prototyping. Mobility is therefore embedded within a structured project process rather than treated as an outcome in itself. The NUS-Imperial partnership offers another reference point. Exploratory research funding is combined with researcher and student mobility, workshops and laboratory exchanges, giving early stage collaborations resources and opportunities to develop further. These are not the only models, nor are they models that NUS Enterprise and Science Tokyo should simply adopt. Rather, they illustrate different ways of combining mobility, funding, industry engagement and project based collaboration. Their value lies in providing reference points for thinking about how university relationships can develop beyond exchange alone.

Success Begins Beyond the MOU

University partnerships are often evaluated by memorandum of understanding, student exchanges or joint publications. These indicators matter, but they do not necessarily show what has changed as a result of the relationship. The examples above share one feature: collaboration is supported by mechanisms that allow people to continue working together beyond an initial meeting or agreement. Mr. Oba suggests that Japan-Singapore university collaboration should ultimately be viewed as a broader pipeline extending from education and joint research to startup creation and value creation through corporate collaboration. One possible outcome would be global startups built on outstanding research and talent from both countries, with Japanese and Singaporean members participating as core team members. Such companies could generate revenue, attract investment, create employment and address social challenges. He also highlights the potential for Japanese companies to collaborate with startups from Singapore and Southeast Asia, helping both sides compete more effectively in global markets. University collaboration can therefore extend beyond bilateral academic exchange to connect research, talent, entrepreneurship and industry across the region. NUS Enterprise and Science Tokyo do not currently have a formal partnership. The examples above may offer useful reference points, but any future relationship will need to emerge from their own strengths, interests and opportunities.



Mr. Yutaka Oba
NUS ENTERPRISE
Japan Centre Director

A Starting Point for Future Collaboration

On 25th September, NUS Enterprise and Science Tokyo will come together for an event in Singapore. Rather than presenting an established university level partnership, the event can serve as a starting point for exploring what the two institutions might be able to do together. Its significance may lie in identifying where their respective strengths intersect and whether those intersections can develop into meaningful activities over time. After 60 years of exchange between Japan and Singapore, the next generation of university partnerships may not always begin with a formal agreement. They may begin with institutions understanding what each can contribute, testing ideas together, and allowing meaningful forms of collaboration to grow from there.

Building the Next 60 Years of Japan-Singapore Innovation

Date: **25th September 2026**

Time: **13:00-17:00**

Venue: **The i³ building, NUS**

FEEDING AND POWERING THE NEXT 60 YEARS

By Takumi Jindo, PhD and Priyavadana Meyyappan, MSc

Inspired by Singapore's spirit of **Majulah**, meaning "Onward", a simple question has grown into a shared **mirai**, the Japanese word for "future".

Both Singapore and Japan also face limited natural resources, ageing populations and climate-related pressures. Energy sits directly within the priority of green transition and energy cooperation, while food security depends on trade, technology, resilient supply chains and cross-border partnerships. The Future Food & Fuel Summit 2026 began with one straightforward question: How can Singapore and Japan work together to feed and power the future?

From an Idea to a Regional Platform

That question grew into conversations with researchers, startups, companies and ecosystem partners. It gained even greater significance following the recent meeting between the Prime Ministers of Singapore and Japan, where both governments reaffirmed their commitment to deeper cooperation in food security, clean energy, innovation and sustainability.

With the Embassy of Japan in Singapore coming onboard, the Summit has evolved from an early idea into a meaningful Singapore–Japan platform under the spirit of SJ60. Now, as we enter the final stretch towards delivery, the focus is on bringing the right people together to transform shared challenges into real opportunities.

Turning Technology into Collaboration

The companies featured on the following pages, Helical Fusion and ARK, will both be present at the Summit. Helical Fusion is advancing the clean energy foundation needed to power a more sustainable future, while ARK is rethinking how seafood can be produced closer to consumers through compact, distributed aquaculture. Their participation reflects exactly what FFFS hopes to achieve: bringing ambitious technologies into the room, connecting them with the right partners and creating new pathways for collaboration between Singapore and Japan.

Every Square Metre Matters

On 2 October 2026, the Summit will bring together leaders from industry, research, government and the startup ecosystem. A key highlight will be the cross-sector roundtable, "*Feeding and Empowering the Future: Every Square Metre Matters*." Singapore and Japan both face constraints in land, resources and energy, making it essential to view food and energy as one connected value chain. The roundtable will explore how energy can enable more



efficient food production, how food and agricultural waste can be converted back into energy and valuable resources, and how both countries can jointly build a more circular, resilient system in which limited space is used to its fullest potential.

From the Summit to the Ambassador's Residence

The daytime Summit will be held at Padang & Co, our ecosystem and venue partner, followed by an evening reception at the Official Residence of the Ambassador of Japan to Singapore.

This is more than a one-day event. It is an opportunity to strengthen the "*kizuna*", or bonds, between Singapore and Japan by building partnerships, testing new ideas and creating tangible collaborations that can extend across Asia. If you are working in future food, future energy, sustainability or innovation, we invite you to be part of this shared mirai.

Scan the QR code to register your interest and join us at the Future Food & Fuel Summit on 2 October 2026. Together, let us shape the future of food and energy.

The following sections feature two technologies approaching the future of food and energy from different directions: Helical Fusion is advancing a clean-energy foundation through fusion, while ARK is rethinking seafood production through compact, decentralized aquaculture.

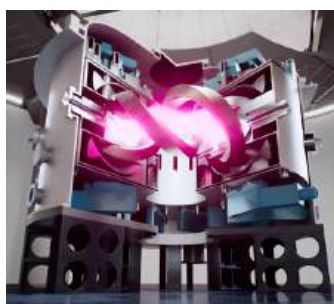
Future Energy: Creating the Sun on Earth, Helical Fusion

● Technology

Helical Fusion is developing a fusion power plant leveraging “*Helical Stellarator*” technology, building on decades of research and expertise accumulated in Japan, including at the National Institute for Fusion Science (NIFS). Its challenge can be expressed in one vivid phrase: Creating a New Sun for Our Horizon. Fusion could provide stable, high-density energy using fuel derived from seawater, with no CO₂ emissions during generation and no runaway accident in principle. The company’s Helix Program is a roadmap for commercially viable fusion power in the 2030s. It focuses on three requirements that every power plant must meet: net electricity supplied outside the plant, steady-state operation throughout the year, and maintainability that enables high uptime. The program advances through Helix HARUKA, an integrated demonstration device around 2030, and Helix KANATA, the first power-generating plant targeted for the 2030s.

● Co-Creation Starting Point: Clean Energy for Future Systems

Japan and Singapore are resource-scarce island nations with strong technological capabilities, capital, infrastructure, and international networks. These shared characteristics create a natural foundation for collaboration on energy resilience and new industrial models. Built on decades of Japanese research, Helical Fusion could serve as a starting point for Japan–Singapore co-creation, bringing together policymakers, infrastructure companies, investors, researchers, and energy-intensive industries such as data centres and food industry stakeholders. Early collaboration could shape fusion as a future energy backbone while developing regulatory, financing, supply-chain, and deployment models. As a regional hub, Singapore could help extend these models across Southeast Asia.



 **Helical Fusion**

Future Food: Let the Ocean Rest by Creating New Seas on Land, ARK

● Technology

ARK develops compact, decentralized recirculating aquaculture systems, including ARK Zero and ARK-V1. These systems circulate and reuse water, control water quality and temperature, and make it possible to produce seafood close to where it is consumed. Rather than depending on large, centralized facilities, ARK enables small to mid-scale production sites distributed across cities, regions, and countries.

ARK’s solution is not just a tank. It combines hardware, software, species selection, remote monitoring, operational know-how, and business support, allowing companies without prior aquaculture experience to enter seafood production. The company has focused especially on grouper, a high-value fish widely consumed across Asia and the Middle East and well suited to dense land-based cultivation.

● Co-Creation Potential: Local Seafood Production as Urban Infrastructure

Singapore and nearby countries have limited land and water, strong seafood demand, and food systems that depend heavily on external supply chains. ARK’s compact RAS model could support local production in urban or peri-urban spaces, reduce logistics risk, and create seafood brands adapted to local cultures. Because aquaculture requires electricity, temperature control, water circulation, and data management, ARK sits directly at the intersection of future food and future fuel. In Singapore, the model could be refined with local regulators, food producers, retailers, chefs, and sustainability players, creating a path for decentralized seafood production to grow in both Singapore and Japan and later expand to other markets.



 **ARK**



SCIENCE AND ETHICS

CAN GOOD SCIENCE BE DESIGNED?

Scientific discovery extends far beyond lab notebooks, mathematical equations, and raw experimental data. It is deeply woven into the fabric of our communities, our environment, and our shared global future. The core question, “Can good science be designed?”, examines the vital bridge between individual curiosity and societal responsibility.

Good science does not happen by accident. It is shaped through intentional education, thoughtful mentorship, and robust ethical frameworks. When we guide young minds to look past immediate answers and consider the broader consequences of their research, we help them connect fundamental inquiry with meaningful real world applications. From renewable energy and modern healthcare to sustainable urban development, true innovation must be grounded in human purpose. By nurturing intrinsic curiosity alongside ethical awareness, we empower the next generation of researchers to transform their earliest questions into lasting solutions that uplift society and safeguard tomorrow.

In this section, readers will dive into the foundational Kininaru philosophy of student research at Science Castle Asia, examine the ethical integration of AI in modern education with Prof Farhan Ali, and explore how everyday observations in nature spark scientific breakthroughs with Dr Uzair. You will also discover finalist highlights from Science Castle Asia alongside key announcements for upcoming regional milestones, including Science Castle Philippines 2027.

**CURIOSITY SPARKS THE QUESTION.
ETHICS SHAPES THE IMPACT.**

SCIENCE CULTIVATED BY QUESTIONS, NOT ANSWERS: THE PHILOSOPHY OF THE KI NI NARU PROJECT

By Alliyah Romaine Delin, BSc

What If The Most Important Thing A Research Program Leaves Behind Isn't A Research Paper?

Years after leaving the same classroom, two former teammates now find themselves walking very different paths. Martin Pontigon studies psychology, while Jomar Apao studies aircraft maintenance technology. One seeks to understand the human mind; the other, the precision behind flight. Their paths may look different, yet they continue to share something else: **a lingering question.**

A question born from curiosity marks the beginning of the scientific method. But when cultivated through an environment of equally curious peers and mentors, it becomes something far more enduring: a lifelong habit of inquiry.

Both Martin and Jomar were naturally curious students, actively seeking ways to learn beyond the classroom and understand the world around them. But their shared Ki Ni Naru experience brought a subtle yet powerful shift, not in their curiosity but how they approached it.

Martin learned not to accept answers at face value, but to seek them for himself. He vividly recalls a keynote speaker explaining that when the phrase “ki ni naru” is added to a sentence, it turns into a question. That simple realization shaped the way he approached the world as he began asking why people make certain choices. Years later, that same habit has led him to psychology, where he now wrestles with some of humanity’s oldest questions.

Jomar remembers something similar. Through conversations with students from different schools and backgrounds, he discovered the value of exchanging ideas and making decisions based on evidence rather than assumptions. Today, that same mindset guides him in aviation, where every aircraft and every flight presents another opportunity to observe and investigate.

Different disciplines. Different futures. But the same way of thinking. Both learned to sit with uncertainty, seeing it not as something to fear but as an opportunity to learn. To cultivate not only the skills that make a researcher but the mindset that stays with them wherever life leads, this is the philosophy of Ki Ni Naru.

As both students reflected, the pursuit of meaning in life is more likened to the question than the answer. Answers end conversations, but questions begin them. Science may work the same way. **Answers lead to conclusions, but questions create momentum.**



Martin Luigi D. Pontigon
BS Psychology Student
Ateneo de Manila University



Jomar U. Apao
Associate in Aircraft Maintenance Technology
National Aviation Academy of the Philippines

What if the most important thing
a research program leaves behind
isn't a research paper, but a person
who never stops asking questions?

DESIGNING GOOD SCIENCE: NURTURING THE WAY YOUNG SCIENTISTS THINK

By Nur Ahmad Zaim Hussin, BEng

When a slope near a school to shift after heavy rain, science is no longer only learned from a textbook. It becomes a real problem that can affect the safety of the surrounding community. For teacher Iwana Ivy Abdullah, a Science Teacher at SMK Tebobon, Kota Kinabalu and Duta Guru under Yayasan PETRONAS and the Ministry of Education, science should ultimately be able to give benefit to others. From her experience on guiding students in research, good science begins not only with experiments of finding right answer, but with understanding the problem. It begins with understanding the problem, asking meaningful question and considering how the research can contribute to society.

From Exposure to Meaningful Questions

Before students are able to identify a research problem, they first need exposure. Teacher Iwana believes that students should have opportunities to gain exposure beyond textbooks and classrooms. When students are exposed to different environments, experiences and people, they begin to notice things that may not be visible in their normal surroundings.

This exposure can come from observing their surroundings, joining outdoor activities, visiting universities, meeting researchers or experiencing real scientific phenomena. Through these experiences, students may develop interest in something they observe. Interest can then develop into curiosity, and curiosity can eventually lead them to ask meaningful research questions.

Instead of immediately asking students to create a project, teachers can encourage them to ask: What is happening? Why is it happening? Who is affected by the problem? What do we still need to understand? These simple questions can become the foundation of meaningful scientific research.

Designing Research Around Real Problems

One example came from a landslide-related problem encountered by Teacher Iwana and her students around her previous school. Rather than immediately thinking about creating a product, they first needed to understand the situation and monitor what was actually happening.

This reflects an important principle in research. Before designing a solution, students should understand the problem itself. They need to study the background, learn the science related to the issue, understand what previous researchers have discovered and identify what still needs to be investigated.

Approaches such as Design Thinking and the Engineering Design Process can help students develop this habit. Students learn to identify problems around them, understand who is affected and develop empathy before deciding what solution is appropriate. Therefore, designing good science is not only about designing the experiment. It also involves carefully designing the questions that come before it.



Teacher Ts. Iwana Ivy Abdullah
SMK Tebobon, Kota Kinabalu



Teacher Iwana with her students at a science competition
at Universitas Warmadewa, Indonesia.

Science Is Also About Learning Together

Research does not mean that teachers need to know every answer. During the landslide research, Teacher Iwana and her students sought guidance from Emeritus Professor Dr. Felix Tongkul from Universiti Malaysia Sabah, who could contribute specialised knowledge to their understanding of the issue.

This shows that scientific research can also become a collaborative learning process. Students learn from teachers, teachers learn together with students, while researchers and experts contribute their experience.

The role of teachers, therefore, is not simply to provide answers. Teachers can guide students to ask better questions, search for reliable information, connect with suitable experts and continuously develop their understanding of the problem.



Teacher Iwana during an international education and knowledge exchange in the UK.

Innovation Does Not Always Mean Starting Again

Another misconception among young researchers is that innovation must always mean creating something entirely new. Especially when participating in competitions, students may feel that every year requires a completely new project.

However, scientific progress often happens through continuous improvement. An existing project can still become valuable when students improve its methodology, collect better data, introduce better technology, add useful functions or develop a deeper understanding of the problem.

The landslide project itself continued to develop over several years instead of ending after one competition or presentation. In this process, an important question is not only, “What is new?” but also, “What has improved?”

This mindset teaches students that research is a continuous journey. Even when an experiment does not produce the expected result, there is still something to learn, reflect on and improve. This process can help students develop resilience and become lifelong learners.



Teacher Iwana receiving the “Teacher Icon for Co-curriculum” award.

Innovation Does Not Always Mean Starting Again

So, can good science be designed? Perhaps the answer is yes, but designing good science also means designing the way young scientists think. Curiosity encourages students to question. Exposure helps them discover meaningful problems. Empathy reminds them to consider who will benefit from their research. Collaboration teaches them that knowledge does not need to be developed alone, while continuous improvement helps them understand that science is never truly finished.

The final goal of science education should therefore not only be producing impressive projects or competition winners. More importantly, it is about nurturing young people with integrity, resilience, empathy and the willingness to continue learning. When students learn to question thoughtfully, research responsibly and use science for the benefit of others, we are not only designing better research. We are developing the responsible scientists and innovators that society will need in the future.



Teacher Iwana with her students at Science Castle Asia 2024.

AI IN THE SCIENCE CLASSROOM: TOOL, TEACHER OR TEMPTATION?

By Nadine Febrinka, MSc

A student can encounter an unfamiliar science term in class, open a free AI chatbot and receive a confident explanation within seconds. Yet speed and fluency do not guarantee learning. Can the student judge whether it makes sense, ask a useful follow-up question or turn the response into understanding of their own? As schools move quickly to introduce AI into lessons, these questions may matter more than the sophistication of the technology itself.

Assistant Professor Farhan Ali of Singapore's National Institute of Education studies how students learn in digital and informal environments. Through projects such as TeacherGAIA (Ali et al., 2023), he examines what students and teachers must bring to an AI-supported learning experience and what technology cannot provide by itself.

Access Is Not the Same as Readiness

TeacherGAIA is a generative-AI (GenAI) platform that allows teachers to design guided, inquiry-based interactions. Rather than relying on a general chatbot that may immediately provide a complete answer, teachers can configure it to offer hints, ask questions and invite students to explain or reflect on what they understand.

They can also adapt the interaction to their learners. A student overwhelmed by an open-ended question might first receive two or three manageable options. Another may need encouragement, a single prompt at a time or a stronger invitation to explain their reasoning. The teacher remains responsible for deciding what kind of support is appropriate. Prof. Ali has observed that students do not all use such tools in the same way. Some sustain detailed exchanges, question the responses and ask for clarification. Others give one-word answers, repeatedly request the solution or try to push the system towards completing the task for them.



Various functions of the TeacherGAIA app, developed by NIE to support student-centred learning, including inquiry-based learning, knowledge construction and self-assessment.

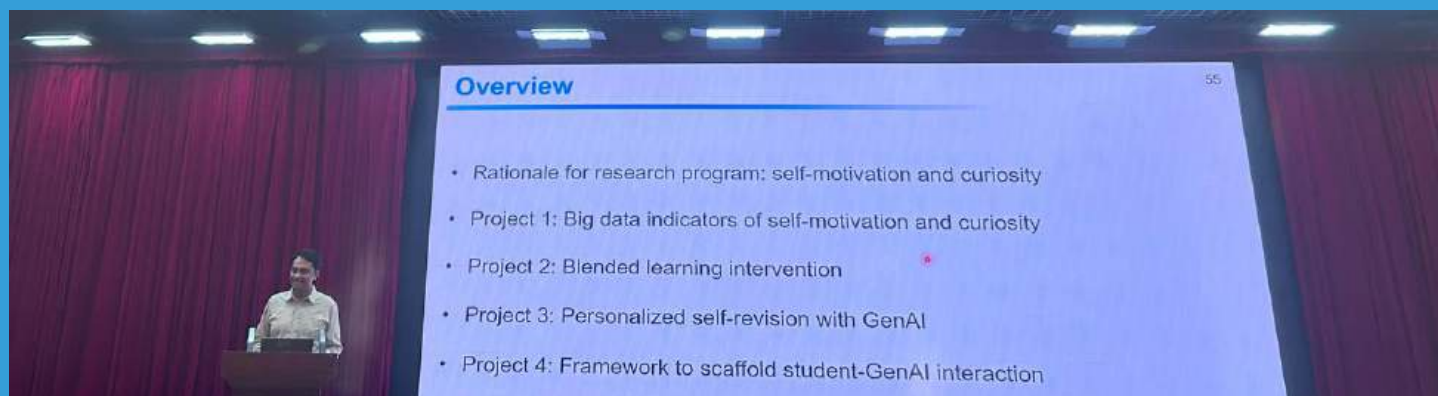


Assistant Professor Farhan Ali
Learning Sciences and Assessment Academic Group
National Institute of Education (NIE)

How much students gain from AI therefore depends partly on what they already know, whether they have the language to express their confusion and whether they are motivated to engage. Prof. Ali calls this “epistemic readiness” (Ali & Yang, 2026): having enough prior knowledge, motivation and critical judgement to learn from an AI response rather than simply accept it.

“Students who are already better equipped before GenAI tend to benefit more,” he explains. Those with stronger subject vocabulary and clearer intentions can ask more specific questions and challenge what the chatbot produces. Others may not yet know what to ask or how to recognise whether an answer is reasonable.

This is why increasingly capable AI does not make the teacher less important. Before students type their first prompt, teachers still need to build the subject knowledge and habits of questioning that allow them to use the tool meaningfully.



Asst. Prof. Farhan Ali delivering an international talk on his work on curiosity and motivation using technology.

The Teacher Sets the Stage

Similar differences in engagement appear in ordinary classrooms. Some students readily attempt an answer; others avoid eye contact or respond with a quiet *“I don’t know.”* These reactions do not necessarily reflect ability. A student may be confused, afraid of being judged or unconvinced that the activity is worth the effort.

Prof. Ali has noticed that some students who are reserved in class communicate more openly with a chatbot, possibly because the interaction feels private and carries fewer social risks than answering in front of classmates. His team is investigating whether chatbots can support aspects of students’ social and emotional experience alongside academic guidance.

“Students who are already better equipped before GenAI tend to benefit more.”

However, a chatbot cannot fully determine why a learner is hesitant, overwhelmed or disengaged. The teacher knows the student’s history, disposition and current understanding, and can decide whether they need encouragement, a smaller first step, more foundational teaching or a greater challenge.

Whether learning takes place in a physical classroom or a digital space, teachers must create conditions in which students feel safe, motivated and understood enough to participate. Technology may offer another channel for interaction, but it cannot make a learner curious or ready to learn.

Knowledge Must Outlast the Chatbot

The value of AI-supported learning ultimately depends on what science education is for. If science were simply a collection of facts, repeating a polished explanation might be enough. But science is a process of asking, testing, revising and communicating ideas. AI becomes useful when it helps students participate more fully in that process.

For Prof. Ali, a successful activity should produce more than a completed task. Students should leave with *“knowledge they can use without referring to the chatbot; something they have constructed in their brain.”* They should also develop capabilities they can apply elsewhere: asking clearer questions, weighing evidence and communicating what they understand.

AI-generated responses should therefore be treated as claims to examine, not answers to accept. Students must compare them with what they know, question their assumptions and test them against evidence. As Prof. Ali puts it, they should use the tool to *“construct knowledge, debate it and test it.”*

The true measure of an AI-supported lesson is not what the chatbot produces, but what the student can still question, explain and investigate after the screen is closed.

Assistant Professor Farhan Ali’s profile can be found at <https://dr.ntu.edu.sg/entities/person/Farhan-Ali>

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SCIENCE CASTLE ASIA 2026: WHERE TOMORROW'S SCIENTISTS MEET TODAY'S INNOVATORS

By Izzaty Ismail, PhD



Figure 1. Science Castle Asia 2025 welcomed participation from 10 countries

**“THE FUTURE OF SCIENCE IS NOT BUILT WITHIN THE WALLS OF A LABORATORY.
IT IS BUILT THROUGH COLLABORATION.”**

This belief comes to life at Science Castle Asia 2026, where more than 1,000 students, teachers, researchers, and industry leaders from across Asia will gather in Malaysia under this year's theme, *“Advanced Science.”*

For over a decade, Science Castle has provided young researchers with a platform to present their discoveries. In 2026, however, the event goes beyond a student research conference. It becomes a dynamic ecosystem where education, research, government, and industry come together to nurture the next generation of innovators.

This year, more than 300 research projects were submitted by students from 103 schools across 11 countries. Following a rigorous selection process, 150 outstanding teams have been invited to present their research, demonstrating the growing passion for science among young people across Asia.

Advanced Science Begins with Collaboration

The theme *“Advanced Science”* represents more than technological advancement. It reflects the belief that tomorrow's global challenges can only be solved through collaboration.

Science Castle Asia 2026 brings together organizations at the forefront of science and technology, including Tenchijin, a Japanese space technology company using satellite data to solve environmental challenges; Lockheed Martin, a global leader in aerospace and advanced technology; and the Malaysia Space Agency (MYSA), which continues to strengthen Malaysia's space ecosystem and inspire future scientists.

Learning Beyond the Classroom

Beyond presenting their research, participants will immerse themselves in a series of hands-on workshops led by scientists, engineers, and industry experts.

This year's workshops span a diverse range of emerging fields, including renewable energy, biodiversity, biotechnology, robotics, water sustainability, space law, satellite technology, and artificial intelligence.

Highlights include:

- Solar Powered Car Workshop by Yayasan Mr. D.I.Y. & USIM
- Biodiversity & Portable Microscopy by Focus Systems
- Hydrogel Science by Merc Greenfield
- Water Sustainability by University of Tsukuba, Malaysia
- Robotics Workshop by Spacenome Lab. (GaraSTEM)
- Space Law & Emerging Space Technologies by MYSA
- Japan Space Technology & AI by Tenchijin

These interactive sessions allow students to engage directly with professionals, explore cutting-edge technologies, and discover how scientific knowledge is transformed into practical solutions that benefit society.

Building Asia's Future Scientific Community

Science does not advance in isolation. It advances when ideas are shared, cultures connect, and curiosity meets opportunity.

Every presentation, conversation, and workshop contributes to a larger vision of building a scientific community that transcends borders. By connecting students with researchers, universities, government agencies, and global technology companies, Science Castle Asia provides young innovators with invaluable opportunities to learn, collaborate, and imagine new possibilities.

***BECAUSE TOMORROW'S BREAKTHROUGHS
BEGIN WITH THE COLLABORATIONS WE
CREATE TODAY.***



Figure 2. IR Academy workshop conducted by our Science Castle Asia partner last year (2025)

THE CASTLE DOOR OPENS ONCE AGAIN: SCIENCE CASTLE PHILIPPINES RETURNS IN 2027!



Every breakthrough begins with a question. Behind every scientific discovery is someone who dared to ask, “What if?”

On April 3-4, 2027, those questions will once again find a home as Science Castle Philippines returns to bring together young scientists from across the country.

More than a research conference, Science Castle Philippines is a place where ideas come alive through conversations, mentorship, and collaboration. It is where students present their work, learn from fellow researchers and experts, and discover how science connects people just as much as it explains the world around us.

This year, Science Castle Philippines proudly presents its 2027 theme:

BUILDING THE CASTLE: CONNECTING YOUNG SCIENTISTS, BRICK BY BRICK

Science is built not only on discoveries, but on the people who share them. It advances through the ideas shared, the partnerships formed, and the people who inspire one another to see beyond their own fields.

This spirit defines Science Castle Philippines 2027 and its theme, “Building the Castle: Connecting Young Scientists, Brick by Brick.” Like every brick in a castle, each research project strengthens the foundation of scientific progress. Together, these individual contributions create opportunities for collaboration, fresh perspectives, and innovations that reach far beyond the conference.

More than a research conference, Science Castle Philippines 2027 is where young scientists come together to build connections that help shape a happier tomorrow through science and technology.

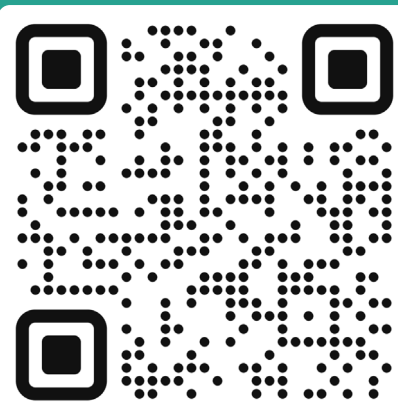
Event Details (Tentative)

Date:	April 3-4, 2027
Venue:	Metro Manila
Target Participants:	60 Research Teams
	▶ 48 Poster Presenters
	▶ 12 Oral Presenters

Whether you are joining Science Castle for the first time or returning to the castle once again, we warmly invite you to be part of this exciting journey. Share your discoveries, connect with fellow young scientists from around the world, and help strengthen the global scientific community, one brick at a time.

Stay tuned for the official opening of registrations, submission guidelines, and more exciting updates. Follow the Science Castle Asia Official Facebook Page at <https://www.facebook.com/ScienceCastleAsia> and visit the Science Castle website at <https://castle.lne.st/> for the latest announcements.

**INTERESTED IN PRESENTING YOUR WORK?
SCAN AND REGISTER HERE!**



<https://global.lne.st/BePartofSCPH2027>

EVERY NEST TELLS A STORY: THE BEACH IS CHANGING

By Fariz Syafiq, MSc

Most of us visit the beach to enjoy the scenery. We admire the waves, feel the sea breeze, and perhaps collect a few trash lying around before heading home. But what if the beach is telling us a story all along and we simply have not learned how to truly listen to it? For Assoc. Prof. Dr. Mohd Uzair Rusli, Head of the Centre for Marine Conservation at Universiti Malaysia Terengganu (UMT), says every scientific discovery begins with observation, like before searching for turtle nests or collecting data, he simply pauses and pays attention.

“The first thing I notice is actually the smell of the beach,” and *“Every beach has its own character.”* He then observes the sand, its texture, condition, and the shape of the coastline. To him, science starts by being present and listening to what nature is quietly revealing.

These simple observations often provide the earliest clues that something has changed. A healthy beach carries the familiar scent of the sea. If that smell suddenly becomes unpleasant, it may indicate wastewater or sewage entering the surrounding environment. Long before instruments confirm the problem, the beach itself has already given us a warning. Turtle nesting can also reveal changes happening on a beach. Early in the nesting season, debris may accumulate after the monsoon. For a casual visitor, it may simply look untidy. For a researcher, it raises questions: Can turtles still reach suitable nesting areas? Are more turtles turning back without nesting?



From Observation to Discovery

The same habit of noticing differences led Dr. Uzair to an important discovery. He observed that hatchlings emerging from the same nest did not all behave in the same way. Instead of overlooking that variation, he asked a simple question: **why?**

His research revealed that hatchlings disperse in different directions after entering the ocean and are capable of swimming continuously for up to seven days. These differences, together with the varying ocean currents they encounter, may improve their chances of survival. What began as a simple observation on the beach eventually

deepened our understanding of one of the most critical stages of a sea turtle's life.

For Dr. Uzair, this illustrates how science should begin. Rather than starting with textbooks alone, researchers should spend time in the field, using all their senses to observe before asking questions and searching for answers. Even a single morning at the beach offers opportunities to notice patterns. Feel whether the sand is coarse or fine. Look at how it changes across the beach. Watch the waves and try counting them. These may seem like ordinary observations, but nature has a variety of patterns. Paying attention to them can lead to an important question: **Why is this happening?**



Assoc. Prof. Dr. Mohd Uzair Rusli

Look Closer, Ask Why

For students who think science only happens inside laboratories, Dr. Uzair offers another perspective. Curiosity comes first. We notice something, ask why, and find a way to test our ideas. The laboratory is simply one of many places where scientists search for answers. The next time you walk along a beach, do not just look at the view. Look for clues. The beach may be giving you your first research question. Your surroundings are full of mysteries.

What story will you uncover?

ONE BEACH. MANY QUESTIONS.



Sometimes, research begins simply by noticing something and asking why.

DESIGNING HUMAN GROWTH

WHAT KEEPS CURIOSITY ALIVE AS WE GROW?

In a world where knowledge is instantly accessible and change is constant, the question is no longer simply what people know, but how they continue to grow. Human growth is presented not as a passive outcome of schooling, but as an intentional process of cultivating curiosity, adaptability, resilience, purpose and lifelong learning. This shift in perspective forms the foundation of Designing Human Growth, where development is shaped through environments and experiences that encourage people to keep learning, questioning, and adapting throughout life.

Designing Human Growth refers to the intentional creation of environments, systems, and experiences that help individuals develop beyond academic knowledge or technical skills. It focuses on cultivating curiosity, adaptability, resilience, creativity, critical thinking, confidence, and a sense of purpose so that people can continue learning and responding meaningfully to change. In this perspective, growth is not something that happens automatically through education, instead it must be continuously nurtured through opportunities that encourage exploration, reflection, and independent learning.

In this section, we explore how education, technology, mentorship, and wider innovation ecosystems contribute to this process. Student-centred learning encourages exploration and problem-solving, while digital tools and artificial intelligence can strengthen growth when they stimulate inquiry rather than replace human judgement. Beyond the classroom, connections between education, research, industry, and innovation create pathways for continuous development. Together, these approaches show that meaningful human growth depends on remaining curious, adaptable, purposeful, and committed to lifelong learning.

**STAY CURIOUS.
KEEP GROWING.**

HOW SOUTHEAST ASIA IS RETHINKING HUMAN GROWTH AND WHY IT MATTERS TO YOUNG LEARNERS

By Krizia Lianne P. Quina, BSc

We arrive at some point asking ourselves, “What does it truly mean to grow as a person? Is it something that we measure by the number of years we spent in school or the skills we listed on our resumes?” In an era where knowledge is just one search away, and technology can do the increasingly complex tasks on our behalf, human growth can no longer be assessed by education alone. As today’s students and young professionals prepare for an increasingly unpredictable future, human growth is no longer something that simply happens, it is something that must be nurtured intentionally now more than ever.

Southeast Asia at a Turning Point

Southeast Asia, being the home to over 700 million people, with 60% under the age of 35, gives the region a young and rapidly growing workforce. However, this demographic advantage also brings in a pressing challenge for the entire region: preparing people for a future where the skills needed for work continue to rapidly evolve. With the advent of emerging technologies, the skills required across the region are projected to change by as much as 72% between 2016 and 2030. Inevitably, traditional education systems are now being pushed to move beyond preparing students for employment alone.



Beyond Skills and Towards Wholeness: Redefining Growth

This shift reflects a growing recognition that human development extends beyond employment statistics and academic achievement. UNESCO frames quality curriculum in education as a lifelong process that develops not only skills and knowledge, but also holistic competencies. Curiosity, creativity, adaptability, and a sense of purpose are some competencies that enable people to thrive and are much needed now. This viewpoint helps us realize that lifelong learning is ultimately about developing the whole person.

How the Region is Designing Human Growth

Across Southeast Asia, governments and institutions are now beginning to translate this vision into practice. In the Philippines, the MATATAG Curriculum is putting greater emphasis on 21st-century competencies and foundational skills that support lifelong learning, while Singapore’s SkillsFuture programme encourages its citizens to continuously work on developing new skills even in adulthood. Even as these initiatives differ in approach, at its very core, they share the same goal, which is to create environments where people can continue to learn beyond the four-walled classrooms.

Taking Ownership of Growth

However, even the newest and most improved systems cannot grow on behalf of individuals. Despite all these educational reforms and lifelong learning opportunities available, it can only become meaningful when people choose to engage with them. As Southeast Asia continues to create stronger pathways and ecosystems to aid its young citizens in lifelong learning, the next step belongs to each individual: for them to remain curious, seek opportunities to learn, and take ownership of growth even after formal education ends. The greatest challenge young individuals are facing now is not keeping up with change, but remaining curious enough to keep learning.



CHUMBAKA: REDEFINING EDUCATION THROUGH CURIOSITY AND INNOVATION

By Josemaria Sison, BA



Building a Future-Ready Generation

Education plays a defining role in shaping how young people respond to an increasingly unpredictable future. Yet preparing students for tomorrow requires more than academic excellence, it begins with cultivating curiosity, resilience, and the confidence to explore unfamiliar challenges. For Dr. Yen Seng Chew, CEO of CHUMBAKA, a Malaysian social enterprise, the organization is guided by the belief that “all children will have the right skillsets and values to navigate the future.” This philosophy has become the foundation of CHUMBAKA’s approach to education. Rather than measuring success solely through academic performance, CHUMBAKA seeks to develop adaptable learners who possess the confidence, creativity, and resilience needed to thrive in a rapidly changing world. Since its establishment, the organization has combined educational innovation with social impact by offering technology-based learning programs, curriculum materials, and innovation competitions that encourage students to solve authentic community problems. At the same time, CHUMBAKA balances its role as both a business and

social enterprise by providing educational services while organizing nationwide initiatives that promote creativity and innovation among students of different age groups. Over the years, CHUMBAKA has expanded its reach through partnerships with 14 organizations across Malaysia and collaborations in Singapore, while long-term support from various foundations has enabled it to deliver quality education even to students from underserved communities. This steady growth reflects not only the relevance of its mission but also the increasing recognition that education must prepare students for challenges beyond the classroom.

Redefining the Role of Educators

Behind every successful CHUMBAKA program are mentors who do far more than teach technical concepts. Before entering the classroom, educators undergo a comprehensive mentor development program designed to align them with CHUMBAKA’s educational philosophy and reconnect them with the personal motivations that inspired them to teach. Transitioning from a traditional teacher-centered model to a student-centered learning environment has presented challenges not only for mentors but also for students and parents accustomed to conventional education systems that prioritize examinations and memorization. In contrast, CHUMBAKA encourages mentors to become facilitators who learn alongside their students, acknowledging that technological advancements often progress faster than any individual’s expertise. Instead of positioning teachers as the sole source of knowledge, the learning process becomes collaborative, allowing students to ask questions, explore emerging technologies, and develop confidence in finding answers independently. This shift empowers learners to become independent problem-solvers while enabling educators to cultivate curiosity, communication skills, and lifelong learning habits rather than simply delivering information.



Dr Chew engaged with teachers at CHUMBAKA’s workshop in the GTS 2024

From Curiosity to Lasting Impact

The effectiveness of this educational philosophy is best reflected in the transformation experienced by CHUMBAKA's students. Rather than beginning with abstract theories, students are first encouraged to explore practical applications and pursue projects based on their own interests, allowing curiosity to naturally guide the learning process. This approach is particularly valuable within Malaysia's education system, where science education has traditionally emphasized examination results, often leading students to memorize concepts instead of understanding them. Through programs such as the Young Innovator's Challenge, secondary students design technological solutions for real community issues, while Junior Innovators develop creativity among younger learners through game creation focused on meaningful themes such as biodiversity. By engaging in these hands-on experiences, students not only strengthen their technical knowledge but also build confidence in communicating their ideas, presenting their projects, and collaborating with others beyond their local communities. The long-term impact of this approach can be seen in students from rural areas who have earned prestigious scholarships to internationally recognized universities. Perhaps even more telling is the number of alumni who choose to return to CHUMBAKA as mentors, interns, and supporters. Their willingness to contribute to the organization that shaped their growth demonstrates not only the effectiveness of CHUMBAKA's educational model but also the lasting sense of purpose, gratitude, and community that it instills in every learner.

"...its impact extends beyond academic achievement to shaping individuals capable of creating positive change within their communities."

— Dr. Chew, on the importance of Education



Mr. Neil, representing CHUMBAKA, conducting a workshop at the Great Teacher Summit 2026

Growing Through Purpose and Partnership

As CHUMBAKA continues to grow, its commitment to educational innovation remains stronger than ever. The organization's development has been sustained through the continued support of Malaysian foundations, expanding regional partnerships, and the growing network of alumni who



The CHUMBAKA Awards were presented to outstanding educators at the Great Teacher Summit 2024

actively give back to the organization. These collaborations have enabled CHUMBAKA to broaden its reach while ensuring that even more students, particularly those in rural and underserved communities, have access to meaningful opportunities in technology and innovation. Looking ahead, the organization aims to expand its operations even further so that more young people can benefit from an education centered on curiosity, adaptability, and lifelong learning. For Dr. Chew, education holds a societal importance comparable to healthcare because its impact extends beyond academic achievement to shaping individuals capable of creating positive change within their communities. By continually refining its programs, strengthening partnerships, investing in mentor development, and remaining committed to the learning journey of every student, CHUMBAKA is cultivating a generation of innovators, compassionate leaders, and lifelong learners equipped to navigate an ever-changing world.



Dr. Chew Yen Seng
Chief Executive Officer of CHUMBAKA

COMPARING PAST AND PRESENT STUDENTS, HAS CURIOSITY CHANGED? BUILDING A LIFELONG LEARNING MINDSET

By Siti Shazwani, PhD

Prof. Fazli on Malaysian students, artificial intelligence and the lifelong learning mindset Malaysian university students are not less curious than they were a decade ago; they are simply expressing curiosity differently. That is the view of Prof. Dr. Mohamad Fazli Sabri, Dean of the Faculty of Human Ecology at Universiti Putra Malaysia (UPM), who has spent 26 years teaching and mentoring successive generations of students.

A professor specialising in personal financial planning, Prof. Fazli has served as Dean since 2021. He has led 37 research projects, published more than 135 indexed journal articles and received 39 national and international awards. Behind these achievements is an educator who believes the most important outcome of university is not simply knowledge, but the desire to keep learning.

A Different Generation, Not a Less Curious One

According to Prof. Fazli, comparisons between past and present students should not be framed in terms of “better” or “worse.” Students today have grown up in a different environment. Ten years ago, lecturers, libraries, textbooks and journals were the main gateways to knowledge. Today, students can reach information instantly through smartphones, digital libraries, online courses, videos and generative artificial intelligence.

This access has created a generation that is digitally confident, adaptable and globally connected. Many students are comfortable exploring ideas across disciplines and seeking practical solutions to real-world problems. They are also more entrepreneurial and socially aware, with strong interest in sustainability, mental health, financial well-being, diversity and social justice.

Yet abundance creates a new challenge: having information is not the same as understanding it. When answers appear within seconds, students may stop at the first explanation they receive. Prof. Fazli argues that genuine curiosity should move beyond “What is the answer?” to “Why?”, “What if?” and “How can this be improved?”

Fewer questions in a lecture hall do not necessarily mean curiosity has declined. Many students now conduct their first search online before approaching a lecturer. Their questions may emerge through research projects, group discussions, reflective writing, community activities or independent learning. Often, they are less interested in definitions and more interested in application, impact and implications.



Prof. Dr. Mohamad Fazli Sabri,
Dean of the Faculty of Human Ecology, UPM



From Information to Intellectual Independence

This shift also changes the role of lecturers. No longer simply transmitters of information, lecturers must become facilitators, mentors and designers of meaningful learning experiences. Their task is to help students evaluate evidence, identify misinformation, connect ideas and apply knowledge responsibly.

Prof. Fazli describes this as developing “*intellectual independence*”, using technology to support thinking without allowing it to replace human judgement. Artificial intelligence can explain concepts, summarise literature and stimulate ideas, but students still need to verify sources, recognise bias and consider ethical consequences. Its value depends on how thoughtfully it is used.

Universities therefore need to move beyond rote memorisation and passive instruction. Prof. Fazli advocates inquiry-based learning, real-world case studies, interdisciplinary collaboration, industry projects, research and community engagement. Assessment must also evolve. When examinations reward only recall, students memorise. When assignments demand critical analysis, creativity, communication and problem-solving, students learn to explore.



Grades May Open Doors, But Curiosity Sustains Growth

Academic success and curiosity are not identical. Grades demonstrate discipline and mastery, but a curious learner continues asking questions after the examination is over. From Prof. Fazli's experience supervising postgraduate students, valuable research does not always come from those with the highest marks. It often comes from those willing to challenge assumptions, persist through uncertainty and revise their views when presented with new evidence.

For university students, curiosity is especially important because higher education is not only about acquiring knowledge, but learning how to question, explore and apply it. Curiosity encourages students to look beyond lecture notes, connect ideas across disciplines and investigate real-world problems more deeply. It also helps them become more independent learners, an increasingly important quality in a world where technology, industries and the skills demanded by employers are constantly changing.

In the age of artificial intelligence, curiosity becomes even more valuable. Information can be generated almost instantly, but students still need to know what questions to ask, how to evaluate different answers and when to challenge what they are being told. A curious student is therefore better prepared not only to succeed academically, but to adapt, innovate and continue learning long after graduation.

He also rejects the idea that students must choose between employability and curiosity. Students are understandably career-focused amid economic uncertainty, rising living costs and technological disruption. However, sustainable careers depend on the capacity to learn, unlearn and relearn. Rather than asking only, “*What job can I get?*”, Prof. Fazli encourages students to ask, “*What problems can I solve?*”

For him, a future-ready Malaysian graduate combines intellectual curiosity, critical and creative thinking, integrity, adaptability, resilience and global competence with local responsibility. Such graduates do not merely respond to change; they help shape it while remaining committed to their communities and country.

Protect Your Curiosity

His advice to students is simple, “protect your curiosity.” Do not define success only through grades, and do not fear mistakes. Use technology wisely, build meaningful relationships and remain open to feedback and change. A degree may open the first door, but curiosity determines how far a person continues to grow.

In a world where facts can be retrieved instantly and skills can become outdated quickly, the enduring advantage is the willingness to keep questioning. This, he believes, is what prepares graduates to lead with wisdom and humanity. For Prof. Fazli, that is the true purpose of higher education: not to produce graduates who possess every answer, but people who remain curious enough to seek better ones throughout their lives.

BEYOND BUILDING STARTUPS: HOW CYBERVIEW AND LEAVE A NEST ARE CULTIVATING MALAYSIA'S NEXT GENERATION OF INNOVATORS

By Haruka Sakurai, MSc

When people think about innovation ecosystems, the conversation often centres on startups, investment and commercialisation. While these are important outcomes, they represent only one stage of a much longer journey. Behind every successful startup is a pipeline of curious students, capable researchers and aspiring entrepreneurs who have been given opportunities to learn, experiment and grow.

We spoke with Shafinaz Salim, Head of Technology Hub Development Division at Cyberview Sdn Bhd ("Cyberview"), about how Cyberview's partnership with Leave a Nest has evolved over the past five years and why talent development has become central to building a sustainable innovation ecosystem.

From Startup Development to Ecosystem Building

Cyberview, a government-mandated Tech Hub Developer, spearheads the development of Cyberjaya as Malaysia's Global Tech Hub by building an ecosystem where businesses, investors, talent and communities can innovate together.

Its partnership with Leave a Nest began in 2020 through TECH PLANTER Malaysia, focusing on supporting local startups while creating opportunities for Japanese deep-tech companies to expand into Malaysia.

"Our expectation at the beginning was for Leave a Nest to work with us in nurturing startups while bringing Japanese startups to expand their businesses in Cyberjaya," recalls Shafinaz.

As the partnership matured, however, both organisations recognised that startup support alone was not enough. Building a sustainable innovation ecosystem requires continuously nurturing the next generation of innovators.

Rethinking Where Innovation Begins

Today, the partnership extends well beyond startup acceleration. For Cyberview and Leave a Nest, supporting different stages of the innovation journey is key. Through Science Castle Asia (SCA), Science & Technology Entrepreneurship Training (SCENT), Add Venture Forum (AVF) and TECH PLANTER Malaysia, students are able to first develop curiosity through STEM, learn how research can create societal impact, connect with entrepreneurs and industry, and eventually commercialise their own technologies.

While many innovation ecosystems focus on moving from research to startups and investment, Cyberview believes innovation begins much earlier—with curiosity, scientific thinking and entrepreneurial mindsets. For Cyberview, investing in people is not separate from innovation policy; it is the foundation of a resilient innovation ecosystem.



Shafinaz Salim

Head of Technology Hub Development Division
Cyberview Sdn Bhd

A Model for Southeast Asia's Innovation Ecosystems

Cyberview's long-term vision is to ensure that talent nurtured through Cyberjaya's universities continues contributing to its Global Tech Hub ecosystem by connecting students, researchers, startups and industry.

As Southeast Asia continues investing in science parks and innovation districts, Cyberview and Leave a Nest's experience offers an important lesson: supporting startups alone is not enough. By expanding its partnership with Leave a Nest beyond startup acceleration into talent development, Cyberview offers a compelling model for government-linked companies and innovation agencies seeking to build stronger innovation ecosystems through long-term investment in people.

Because before a groundbreaking startup is founded, there must first be a curious student inspired to imagine what is possible.



SCENT Demo Day 2024 at Centre of Garage Malaysia Mr. Ang Kah Heng, Head of Innovation and Industry Development from Cyberview Sdn Bhd was appointed as one of judges during the SCENT Demo Day 2024

CAN CURIOSITY BE DESIGNED?

PELANGI'S APPROACH TO LEARNING IN THE AGE OF AI

By Arief Izzairy Zamani, PhD

Malaysia's education ecosystem is rapidly transitioning toward digital-based learning solutions. This article interviewed Dr. Poh Swee Hiang from Pelangi Publishing Group Berhad to gain insight on how the group supports human growth by combining education, publishing, digital platforms, and artificial intelligence.

Transformational Spirit And Digital Evolution Of Pelangi

Poh began by explaining the establishment of Pelangi Publishing Group (PPG) in 1979 specifically to support the Malaysian Education System in which the education medium was transitioning from English to Bahasa Melayu. Over the years, PPG has expanded regionally to become a prominent regional publisher with active offices in Thailand, Indonesia, and Singapore. Poh shared that PPG has a long history of embracing a transformational spirit. Among the key milestones is in digital evolution include launching the e-commerce platform PelangiBooks.com in 1998, developing multimedia products during the Smart School initiative from 2008 to 2014, and proudly supporting the Ministry of Education's (MOE) Interactive Digital Textbook (BTDI) initiative starting in 2016. Since 2015, PPG has actively supported educators with digital teaching and learning materials, establishing a dedicated resources portal called ePelangi+ in 2021 to provide teachers with daily classroom instruction materials to aid their teaching.

Nurturing Curiosity Amidst Information Overload And Adoption Of AI

Today, PPG aims to support digitally savvy students by addressing the challenge of information overload, which often distracts learners from meaningful educational content. To achieve this, PPG is developing Awan-AI, an adaptive and personalised AI learning companion built around Pelangi's educational resources. According to Poh, beyond answering questions, Awan-AI fosters curiosity through an interactive, two-way learning experience. Rather than providing instant, generic answers, it encourages students to ask increasingly specific questions, rewarding deeper inquiry with richer explanations. The platform also proactively poses tailored follow-up questions, hints, and prompts that challenge students to think critically, connect ideas, and explore concepts beyond classroom lessons. By guiding learners through reasoning processes instead of simply delivering solutions, Awan-AI empowers students to generate ideas independently, investigate topics at their own pace, and develop confidence as self-directed learners. This personalised approach transforms AI from a passive answer provider into an active learning mentor that nurtures lifelong curiosity.



Action To The Reader

Poh emphasizes that while technology can make learning faster and more convenient, the true purpose must be to empower human growth. Collaborative measures are imperative in managing digital tools; technology must be designed to encourage students to remain curious, think independently, ask critical questions, and build lifelong learning habits. Together, educators and adaptive platforms can work in tandem to guide the next generation of curious minds.



Pelangi was founded in 1979 by 3 former teachers. The "Pelangi" was derived from its place of origin in Taman Pelangi, Johor Bahru, Malaysia

GLOBAL KNOWLEDGE HUB FORUM FEBRUARY 2027 IN SINGAPORE AWAITS!

By Koki Mandai, BA



A Platform for Cross-Border Innovation

In an increasingly interconnected world, innovation rarely happens within a single organisation, industry, or country. New solutions emerge when entrepreneurs, researchers, corporations, investors, and public-sector leaders come together, bringing different expertise, resources, and perspectives to the same table.

The Global Knowledge Hub Forum (GKHF) will return to Singapore in February 2027, creating a dynamic platform for participants seeking to build connections across the global business and innovation ecosystem. GKHF brings together startups, established companies, universities, research institutions, investors, government-linked organisations, and ecosystem builders from Singapore, Japan, and the wider Asian region. Through panel discussions, technology showcases, exhibition booths, startup pitches, and curated 1-on-1 meetings, the forum is designed for identifying concrete opportunities for collaboration.

From Initial Meetings to Long-Term Collaboration

Past GKHF programmes have demonstrated how an initial conversation can develop into something much more significant. Connections formed through the forum have contributed to discussions surrounding MoUs, potential joint research projects, technology validation, market-entry support, investment opportunities, and long-term corporate partnerships. For instance, Metagen, a Japanese gut-health research startup, utilised GKHF in February 2026 as an avenue to connect with and showcase their “Gut Design Project ASEAN” with major food industry players such as Calbee Inc. and Meiji Holdings Co., Ltd. Specific programmes such as the Global Innovation Alliance (GIA) and D-O. Venture Building Programme has also utilised GKHF as a platform to reach out to potential collaborators.

For Singapore-based organisations, it has opened pathways to technologies, partners, and market opportunities in Japan and other regions outside of Singapore, such as Europe and North America. For overseas companies entering Singapore or SEA, GKHF has provided access to local stakeholders who understand the region’s business environment.

Opportunities at GKHF February 2027

GKHF February 2027 will continue to carry the global vision by providing a space where participants can introduce their technologies, explore shared challenges, exchange insights, and develop relationships that extend beyond the event itself.

Whether you are seeking research partners, innovative technologies, potential customers, investment opportunities, market-entry support, or new perspectives from SEA/Japan/Europe, the forum offers a valuable gateway into the Japan–Singapore/SEA innovation network. Participants are encouraged to attend with an open mind and a willingness to engage. A booth visit may lead to a pilot project. A panel discussion may reveal a shared research interest. A short business meeting may become the foundation of a lasting international partnership.

Join the Global Knowledge Hub Forum in February 2027 and become part of a community committed to transforming knowledge, technology, and connections into real-world collaboration!

MORE INFO



Contact: Koki Mandai | mandai@lne.st

UNLOCKING ENDLESS CURIOSITY THROUGH KNOWLEDGE MANUFACTURING AT KNOWLEDGE MANUFACTURING (KMLx) FORUM

By Muhammad Basril Muhammad Asri, MSc

Defining the KMLx Forum

The Knowledge Manufacturing Leaders X (KMLx) forum provides an exclusive, private environment for startups, government agencies, and researchers to step back and focus on the long-term future. Dedicated to empowering the next generation of global leaders, KMLx bridges diverse sectors to tackle critical challenges like climate change, healthcare gaps, and food security. Ultimately, the forum acts as a launchpad that transforms bold ideas into sustainable, real-world action across science and technology.



Looking Back:
KMLx Philippines Table Brainstorming.



Looking Forward:
Growing the Regional KMLx Community



Looking Forward:
Designing Future-Oriented Solutions

Looking Back: The Breakthrough at KMLx Philippines

This impact driven framework was brilliantly demonstrated during the first KMLx session in the Philippines, held on Tuesday, 10 March 2026 at One Corporate Center. Bringing together a dynamic mix of stakeholders from Japan and Southeast Asia (SEA) countries, including pioneering organizations like Wela School Systems, SolX, and UPSCALE, the event focused on the grand vision of “Creating New Concepts and Cultivating the Next Generation Leaders”. The Table Leaders were divided into four groups mainly Agriculture and Youth, Education and Future-Readiness, Philippine Power Pathways, Regions and Development. During the brainstorming segments, section table leaders actively used advanced Artificial Intelligence tools to instantly filter out operational noise and map complex concept structures. By delegating raw data synthesis to AI, these leaders were empowered to focus entirely on high level strategic insights and collaborative group presentations, proving to students, teachers, researchers, and startups alike that technology can be successfully leveraged to protect and amplify the core spirit of human curiosity.

Looking Forward: Shape the Future at KMLx Malaysia 2026

Last year's KMLx Malaysia established a powerful foundation under the theme “Reimagined SEA in 2050 through Knowledge Manufacturing,” which brought valuable insights into key industry challenges and drove future-oriented, solution-driven predictions. While the Philippine session focused on expanding this momentum through localized ecosystem growth, the upcoming KMLx Malaysia 2026

connects these regional achievements, scaling cross-border collaboration to the next level.

Building upon the regional success of the Philippine session, the strategic momentum moves to Kuala Lumpur for the Knowledge Manufacturing Forum KMLx Malaysia. Scheduled for Wednesday, 14 October 2026 from 09:30 AM to 12:30 PM at Leave a Nest Malaysia in Cyberjaya, this premier forum invites forward-thinking decision makers, corporate innovators, and industry shapers to amplify their thought leadership. It serves as an elite launchpad to forge long-term ecosystem partnerships across Japan and the Southeast Asia region through exclusive, closed-door dialogues engineered for immediate action. This forum offers an exclusive platform for direct engagement with visionary leaders driving future transformation.

Should you require further information, please do not hesitate to contact Dr. Ilia (ilia@lne.st) or Mr. Muhammad Basril (basril@lne.st)





Add Venture Forum

BEYOND DEGREES: BUILDING REAL-WORLD TALENT



EVENT DETAILS



DATE

14th November 2026



TIME

8:30 AM - 4:30 PM



VENUE

Cyberjaya



ABOUT AVF

Ready to build what's next?

Join students, researchers, industry giants, and government innovators for an unforgettable networking experience. Together, we are bridging the gap between fresh talent and global corporations to exchange insights, spark innovation, and unlock meaningful career opportunities that will shape our world.



WHO SHOULD ATTEND



UNDERGRADS/POSTGRADS



STARTUPS/CORPORATES



JOB SEEKERS



CONTACT

Dr. Siti Shazwani (shazwani@lne.st)

Ir. Dr. Ilia (ilia@lne.st)



KEY EVENT HIGHLIGHTS



KEYNOTE SPEECH

Rethinking Talent: Building a Workforce That's Ready on Day One



FORUM DISCUSSION

Bridging the Gap: Are We Aligning Talent with Industry Needs?



HYBRID HACK CHALLENGE

Specialized competition (hackathon) session designed to screen and mentor top university students in presenting concrete solutions to address real challenges



VALIDATE YOUR CRAZY IDEA

A roundtable pitching session that helps participants test, evaluate, and refine their unique ideas alongside industry experts



PARALLEL INTERACTIVE CLINICS

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Organizer

Leave a Nest
MALAYSIA



WHEN INHERITED KNOWLEDGE MEETS NEW QUESTIONS

HOW DOES RESEARCH TURN TRACES, MEMORY AND VALUES INTO UNDERSTANDING FOR THE FUTURE?

Time seems universal. Shadows move, tides return, materials weather and memories fade. Yet the ways we recognise and organise time are deeply cultural. We divide it into calendars, generations, eras, seasons, growth cycles and deadlines. These systems help us compare change, but they also shape what we notice, what we preserve and what we expect to happen next.

Research begins when we look beyond the clock. A single observation tells us what is present; repeated observations reveal what is changing. An object carries traces of the conditions it has passed through. A landscape holds records in its layers. A practice repeated across generations can preserve knowledge even when it was never written as a formula. Time is not only something research measures. It is also part of the evidence.

Culture adds another dimension. It influences which questions matter, whose knowledge is trusted and how discoveries are interpreted. To be open-minded is not

to accept every claim equally. It is to recognise that understanding can be expressed in different forms, then examine each with patience, method and evidence. Sometimes the unfamiliar is not unscientific; it is simply waiting to be understood in another language.

Research therefore asks us to move between scales: a moment and a century, a measurement and a memory, what can be counted and what must first be understood. Curiosity allows us to notice connections. Discipline helps us test them. Together, they keep inherited knowledge from becoming fixed and new knowledge from becoming detached from context.

So, was time discovered or invented? Perhaps the passing of time was discovered, while our ways of naming and understanding it were invented. Research lives in that tension. It asks what changes, what endures, and how the questions of one generation can become the knowledge of the next.

TIME LEAVES TRACES. CULTURE GIVES THEM MEANING. RESEARCH TEACHES US HOW TO READ BOTH.

WHERE CHEMISTRY MEETS HERITAGE: DECODING THE ANCIENT MALAY WORLD

By Hadi Akbar Dahlan, PhD



Assoc. Prof. Dr. Zuliskandar Ramli

Assoc. Prof. Dr. Zuliskandar Ramli, a Senior Research Fellow at the Institute of the Malay World and Civilization (ATMA), Universiti Kebangsaan Malaysia (UKM), occupies a truly unique position in the field of heritage and historical research. What sets him apart from many of his peers is a rare academic trajectory: he holds a Bachelor's degree in Chemistry, before transitioning to complete both his Master's and PhD in Archaeology.

A Passion Rooted in Fieldwork

Dr. Zuliskandar's fascination with archaeology was not a sudden career change, but a calling nurtured early in life. Even while pursuing his first degree in Chemistry, his heart remained firmly tied to history and discovery.

During his undergraduate years, he regularly shadowed his uncle, Mr. Tuan Haji Zulkifli bin Jaafar, a respected archaeologist. Joining his uncle on field missions, Dr. Zuliskandar provided extra assistance at active excavation sites, acquiring invaluable hands-on experience in the practical and methodical nature of field research.

Bringing Scientific Analysis into Archaeology

Historically, humanities research in archaeology relied heavily on ethnography and the visual comparison of cultural patterns carved onto the artifacts. While these methods are invaluable, Dr. Zuliskandar notes that scientific techniques bring the “*definitive proof*” to archaeological hypotheses. Interestingly, humanities scholars do not oppose this “scientific intrusion”, rather, they warmly welcome it, as it provides definitive, empirical backing to their historical theories.

The application of scientific and technical methods to study and analyze archaeological materials is called archaeometry. While archaeometry in Malaysia is not new since, western archeologists had done archaeometry since the 1930s, local scholars like Dr. Zuliskandar are now pushing its boundaries to uncover the true capabilities of early Southeast Asian societies.

Unlocking Trade, Rituals, and Tech Transfer Through Science

Through archaeometry, several kinds of scientific analysis such as X-ray fluorescence (XRF), compound-specific isotope analysis (CSIA), raman and infrared spectroscopy alongside advanced absolute dating methods like Radiocarbon (C-14), OSL (Optically Stimulated Luminescence), TL (Thermoluminescence), and Potassium-Argon are actively employed in local archaeological research.

By examining chemical “*fingerprints*” in soil, bricks, and trade beads at sites like the Bujang Valley (Lembah Bujang), his team proved that sophisticated local construction existed as early as the 4th century. Among his key discoveries is concrete evidence of sophisticated interaction between ancient communities. During an excavation at a forest site, chemical analysis of pottery remnants revealed that the clay used was not native to the local geography, but had originated from a completely different region. This provided definitive proof that trade networks and inter-community relationships extended far deeper into the hinterlands during ancient times than previously believed.

Conversely, Dr. Zuliskandar also uncovered artifacts that displayed distinct foreign cultural motifs, yet bore a chemical fingerprint unique to local clay. This fascinating contrast revealed that ancient local artisans were not merely importing goods; they were adopting and adapting foreign designs using local raw materials. This is a clear indication that technology transfer and cultural exchange were thriving centuries ago.

Beyond trade and technology, scientific dating techniques have unlocked deep insights into ancient spiritual rituals and social structures. At Gua Keledung Kecil Dr. Zuliskandar

participated in excavating one of the region's most complete ancient human skeletons. Found in an isolated grave, the skeleton was clutching hematite, a mineral used both for cosmetics and drawing. Further analysis shows that the hematite material matches with the material used by nearby cave paintings. This inferred that the ancient skeleton might be a revered wise person within the community. Ultimately, these scientific revelations prove that the Malay ancestor were not only highly intelligent and technologically skilled, but also part of a dynamic, culturally rich civilization.

The Challenges Ahead: A Race Against Time

Despite archaeometry's breakthrough contributions, Dr. Zuliskandar remains deeply concerned about its future in Malaysia. The field's primary hurdle is limited access to advanced, high-throughput scientific equipment, forcing local research to progress at a slower pace.

Furthermore, a generational divide threatens the discipline. While modern archaeology demands cross-pollination among chemists, biologists, and geologists, STEM students rarely see the vital role their skills play in historical preservation.



The process of retrieving the prehistoric human skeleton at at Gua Keledung Kecil in the Nenggiri Valley, Kelantan.



Dr. Zuliskandar with National Heritage Department Director General at Candi Kampung Baru, Kota Kuala Muda, Kedah

Unlocking the Past to Inspire the Future

Ultimately, archaeology is not just about unearthing the past. It is about understanding who we are across time. By pairing hard science with human culture, Dr. Zuliskandar's work proves that the ancient inhabitants of the Malay Peninsula were part of a dynamic, technologically sophisticated civilization. Bridging the gap between the scientific lab and the excavation site ensures that as time marches forward, the rich heritage of the Malay archipelago isn't lost to memory, but scientifically preserved for generations to come.

If you are interested in exploring the intersection of science and heritage further, Assoc. Prof. Dr. Zuliskandar Ramli welcomes opportunities for research collaboration and interdisciplinary initiatives. As a Senior Research Fellow at UKM, his expertise covers Archaeology & Early History, Scientific & Environmental Archaeology, and Malay World Heritage & Culture. He can be reach via email at ziskandar@ukm.edu.my.

HALAL CERTIFICATION: BRIDGING TRADITION, SCIENCE, AND THE FUTURE OF FOOD

By Priyavadana Meyyappan, MSc

حلال

حلال (ḥalāl) — Arabic for “lawful” or “permitted”; securely attested in the Qur’an in the early 7th century CE.

From Tradition to Certification

What is the first thing that comes to mind when we hear the term “*Halal certification*”? For many people, the immediate association is religion, a logo on food packaging indicating that a product is suitable for Muslim consumption.

However, Halal is much more than a label. It is a body of cultural knowledge that has guided how food is produced, handled and consumed for centuries. As food production evolved from local communities to complex global supply chains, this knowledge also had to evolve.

For researchers and innovators developing the next generation of food technologies, understanding Halal certification is becoming increasingly important. Commercialising a new technology is not only about proving scientific feasibility but also about understanding the cultural, ethical and regulatory frameworks that enable society to trust and adopt it.

The Foundations of Halal

The concept of “*Halal*” itself dates back more than 1,400 years and originates from the Arabic word meaning “permissible” or “*lawful*”. In Islam, Halal governs many aspects of daily life, although it is most commonly associated with food and beverages.

The principles are derived from the Quran and the teachings of Prophet Muhammad (peace be upon him), outlining foods that are permissible and those that are prohibited, such as pork, blood, intoxicants, and animals that are not slaughtered according to Islamic requirements.

Beyond these dietary rules, Halal also reflects broader ideas about cleanliness (*tayyib*), responsibility, ethical treatment of animals, responsible sourcing and the preparation of food that is wholesome and beneficial.



From left to right, Halal Certification Logos of Singapore, Malaysia and Indonesia

Why Certification Became Necessary

Historically, determining whether food was Halal was relatively straightforward. Communities were smaller, food was locally produced, and consumers generally knew the farmers, butchers or merchants who supplied their food. Trust was built through direct relationships, and there was little need for formal verification systems.

However, as industrialisation accelerated and global trade expanded throughout the twentieth century, food production became significantly more complex. Modern food products often contain dozens, if not hundreds, of ingredients originating from different countries and suppliers. Ingredients such as gelatine, emulsifiers, enzymes, flavourings and processing aids may be derived from animal, microbial or synthetic sources, making it increasingly difficult for consumers to determine whether a product complies with Islamic dietary requirements.

Preserving Trust Through Certification

This growing complexity gave rise to the need for an independent and structured certification process. Modern Halal certification emerged not to replace traditional Halal principles, but to preserve them within an increasingly industrialised food system.

Rather than relying solely on personal trust, certification bodies began conducting audits, inspecting manufacturing facilities, verifying ingredient origins, reviewing production processes and ensuring that products remained free from contamination with non-Halal materials.

Translating Principles into Institutions

Several countries have played significant roles in developing today’s Halal certification landscape. Malaysia was among the pioneers in establishing a nationally recognised certification system through the Department of Islamic Development Malaysia (JAKIM), which has since become one of the world’s leading authorities on Halal standards. Indonesia later strengthened its regulatory framework by introducing mandatory Halal certification for many

consumer products through the Halal Product Assurance Law, administered by BPJPH.

Meanwhile, Singapore, despite being a non-Muslim-majority nation, has established one of the most internationally respected Halal certification systems through the Islamic Religious Council of Singapore (MUIS).

Halal and Food Safety: Complementary Systems

Today, Halal certification extends well beyond religious observance. Many of the requirements embedded within Halal certification, such as ingredient traceability, stringent hygiene standards, documentation, prevention of cross-contamination and independent auditing, closely align with internationally recognised food safety systems, including Good Manufacturing Practice (GMP), Hazard Analysis and Critical Control Points (HACCP), and ISO 22000.

However, the two are not equivalent. Food safety systems determine whether food is safe to consume, while Halal certification also considers whether ingredients, processing methods and production practices comply with Islamic principles and ethical considerations.

New Technologies, New Questions

As food innovation continues to accelerate, Halal certification is entering an entirely new chapter. Emerging technologies such as cultivated meat, precision fermentation, alternative proteins, AI-driven food production and novel biotechnology ingredients are transforming how food is produced and consumed.

These advancements present exciting opportunities to improve sustainability and food security, but they also introduce new questions surrounding Halal compliance. How should cultivated meat be assessed? Can proteins produced through microbial fermentation be considered Halal? What standards should govern next-generation food technologies? Addressing these questions requires close collaboration between scientists, religious scholars, regulators, certification bodies and industry leaders.



Certification as Part of Innovation

Rather than slowing innovation, Halal certification has the potential to become part of how new food technologies are responsibly developed and commercialised.

For researchers, certification should not be viewed only as a final regulatory hurdle, as decisions made during R&D, such as the origin of cell lines, cell-culture media, microorganisms, fermentation substrates, processing aids, and purification methods, may influence future certification.

This introduces another consideration alongside performance, safety, scalability, and cost. Early engagement with certification bodies and regulators could allow researchers to understand what evidence and documentation may eventually be required while helping authorities better understand technologies that may not fit neatly within existing frameworks.

Looking Ahead

Halal certification has evolved alongside the food systems it serves, moving from community-based trust to documentation, traceability, auditing, and institutional verification as food production became more complex.

Today, technologies such as cultivated meat, precision fermentation, and microbial proteins may represent another turning point, raising questions about food origins and production processes that scientific evidence or existing certification rules cannot resolve independently.

For researchers planning to translate their work from the laboratory into research spin-offs and eventually the market, understanding Halal principles, documenting research processes, and engaging relevant authorities early could help identify important questions while there is still flexibility to address them.

TEACHERS OF THE SEA: WHAT THE CORAL REEFS TELLS US ABOUT RESEARCH, TIME, CULTURE, AND ENVIRONMENT

By Krizia Lianne P. Quina, BSc

Coral reefs are one of the Philippines' oldest living marine ecosystems. It is growing, changing for over thousands of years while quietly capturing the history of the vast seas. Yet understanding the reefs cannot be done in just one single trip or expedition. It requires years of returning to the same places, observing the subtle changes that occur, and recognizing patterns that only time can reveal. Professor Wilfredo Licuanan, one of the Philippine's foremost coral reef researchers, embodies this kind of scientific inquiry. His youthful dream that began as a wish to travel eventually became a lifetime of exploring something much deeper: the hidden patterns of nature that reveal themselves only to those who are willing to watch, wait, and return.

Looking at the Right Timescale

Many of us often think that longer observations means more change. But sometimes, it is actually quite the opposite. Modern coral reefs take at least 6,000 years to form, yet if one visits the same reef every summer, it may appear that nothing much has changed. Return every two months instead, and entirely different patterns begin to emerge.

As Dr. Licuanan explains, *"Dynamic is a definition that is dependent on what is your time step... things could be static or things could be dynamic, it's all relative."*

Corals don't live according to our calendars, just as groundwater doesn't move according to our schedules. We must know that good science begins by asking whether we're observing nature on its own timescale instead of ours. Some truths reveal themselves not to those who merely wait, but to those who are willing to keep returning, observing, and recognizing the patterns in nature with patience and consistency. When we observe long enough, the reef tells us stories.



Photo from <https://www.discoverphilippines.org>



Portrait of Dr. Wilfredo Licuanan
Photo from Manila Standard

The Reefs Remembers

Over the years, the coral reefs themselves become a record of time. When Dr. Licuanan first started exploring the reefs in one particular marine station, branching corals were dominating the seascape. Looking back at those same reefs today, he simply said, "They're gone". It was only after revisiting old photographs and long-term records that the extent of the loss became clear.

"What's worse, and unfortunately more memorable, is to see a reef die in a matter of months," he recalls.

Coral bleaching happens globally and it is wiping vast stretches of coral in an alarmingly short time. But still, ecology rarely offers simple explanations. A reef's decline may begin years before the damage becomes visible, which could be triggered by a chain of seemingly unrelated events. As Dr. Licuanan further explains, "You will not understand an event without long-term data". A coral reef becomes more than just an ecosystem, but a timeline, quietly preserving the history of recovery and change for those who are willing to learn how to read it.

Knowledge Beyond the Lab

Scientific research is not the only way people build knowledge through time. Even before the complex research methods, such as ecological surveys and monitoring systems, existed, coastal communities had already learnt to read the rhythms of the sea through generations of daily interactions with it. Dr. Licuanan recalls a book that had profoundly shaped his perspective as a young researcher; he shared that in the book it mentions how fishermen knew where certain species would spawn, when they would reproduce, and even how they behaved, which were knowledge that scientists were only beginning to understand.

“They may not be using the same terms as a scientist, but they may have a deeper understanding than you... they were scientists in their own way,” he says.

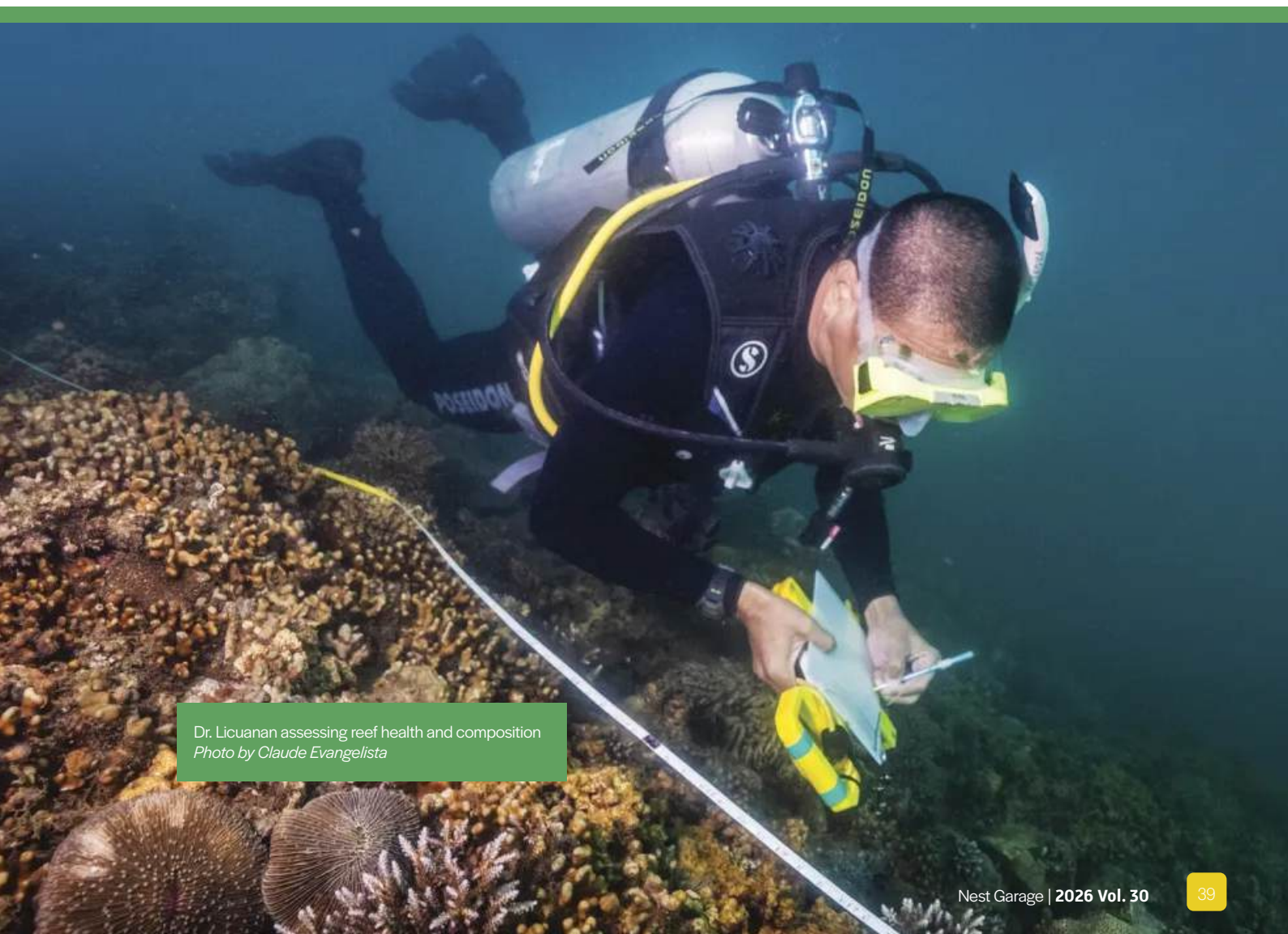
For Dr. Licuanan, communities reflect the same scientific curiosity that pushes for ecological research: by patiently recognizing patterns in nature through time and across many generations.

A Message Across Generations

Perhaps the greatest lesson decades of research could teach anyone is that nature is always capable of surprising those who continue to observe. One of Dr. Licuanan and his team’s most remarkable discoveries was what he called the “Phoenix effect” of corals. This is when corals that appeared dead after bleaching were still, in fact, still alive beneath their old skeletons. They would slowly regenerate until they seem to have risen from the ashes. This discovery could only be made possible by returning to the same reefs, year after year.

As Dr. Licuanan reminds young researchers, *“some things will not happen on your schedule.”*

It is important to have the humility to recognize that. In an era where information is instantaneous and answers arrive immediately, perhaps the greatest act of scientific curiosity is choosing to keep observing, to keep asking questions, and to let truth unfold at its own time and pace.



Dr. Licuanan assessing reef health and composition
Photo by Claude Evangelista

REIMAGINING FORESTS THROUGH INNOVATION: INTRODUCING THE FOREST INNOVATION SUMMIT 2026

By Nursyuhada Othman, PhD



Malaysia's forests are more than natural assets. They safeguard biodiversity, regulate water and climate, store carbon, and support communities and industries. Yet, as climate change, biodiversity loss and sustainability expectations continue to grow, protecting forests alone is no longer enough. We need to explore how science, technology and cross-sector collaboration can help us better understand, manage and create sustainable value from our forest ecosystems.

Recognising this need, Leave a Nest Malaysia will organise the Forest Innovation Summit (FIS) 2026 on 15 October 2026 at Center of Garage, Cyberjaya Malaysia, under the theme *"Integration of Technology for a Regenerative Future."* FIS 2026 aims to bridge the gap between forest research and real-world implementation by bringing together researchers, government agencies, industry leaders, startups, technology providers and investors from Malaysia, Japan and Southeast Asia. The summit will explore how technologies such as remote sensing, digital monitoring and other emerging solutions can support forest management, while opening conversations around biodiversity, sustainable business, forest value and future collaborative projects.

Participants can look forward to a keynote address, panel discussion, technology showcases, FIS Chat, community sharing, exhibitions and networking opportunities. The summit will also mark the relaunch of the LVNS Forest Project, strengthening Leave a Nest's effort to connect forest challenges with knowledge, technology and potential implementation partners.

For industry, FIS is an opportunity not only to showcase solutions, but also to discover new technologies, understand real forest challenges, meet researchers and potential end-users, and explore research, pilot and business collaborations.

FIS 2026 is where forest challenges meet science, technology and people and where conversations can become the starting point for real action.

Join us at FIS 2026 and be part of building a regenerative future for forests and society.



A platform that connects the forest ecosystem from research and technology to industry and policy. In same time, promote collaboration to translate innovative ideas into practical solutions and long-term partnerships.

LET'S JOIN!

To learn more about the Forest Innovation Summit 2026, visit:



HYPER INTERDISCIPLINARY CONFERENCE NOVEMBER (MALAYSIA & SINGAPORE)

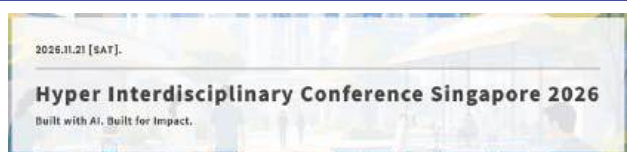
HIC SPLASH CALLING FOR SPEAKERS!

Researchers, innovators, students and technology-based startups from Malaysia and Singapore are invited to take the stage at HIC Splash 2026, which will be held as part of the Hyper Interdisciplinary Conference in Singapore and Malaysia this November.

Organised by Leave a Nest, the Hyper Interdisciplinary Conference, commonly known as HIC, is a platform that brings together researchers, industry representatives, government agencies, startups, investors and other ecosystem stakeholders. Unlike conventional academic conferences that focus on a single discipline, HIC encourages participants from different fields, industries and backgrounds to exchange knowledge and develop new approaches to addressing societal and industrial challenges.

Present Your Work Through HIC Splash!

- » Opportunity to introduce their work to a diverse audience in a concise and engaging format.
- » Communicate beyond the boundaries of your own fields.
- » Explore the research or technology in greater detail, exchange feedback and identify potential opportunities for collaboration, validation, commercialisation and implementation.



The conference will explore the growing role of artificial intelligence in healthcare, life sciences and scientific discovery.

The abstract submission deadline for
HIC Singapore 2026 is 21 October 2026 at 11:59 PM.



The conference will draw inspiration from nature to develop sustainable solutions and harness technology to preserve and regenerate ecosystems.

The abstract submission deadline for
HIC Malaysia 2026 is 31 October 2026 at 11:59 PM.



LET'S PARTICIPATE!

HIC Splash is open to university researchers, undergraduate and postgraduate students, research institute members, technology developers, inventors, startups and research-based ventures.

Applicants do not need to have a fully commercialised technology or established business. Early-stage research, emerging technologies and innovative ideas are also welcomed, particularly when the presenter has a clear vision of the challenge being addressed and the future direction of the work.



ELEPHANTS DON'T SWEAT. SO HOW DO THEY STAY COOL?

By Nadine Febrinka, MSc

40°C+

during the dry season

Life on the Savannah

For such a large animal, losing excess body heat is a challenge. Water is precious, so keeping it on the skin for longer helps elephants stay cool.



Unlike us, elephants lack sweat glands. Instead, they bathe, spray and wallow in mud to keep their skin wet, turning their skin itself into a cooling system.

The secret is in the skin.

African elephant skin is covered in wrinkles and tiny interconnected crevices that hold water and mud. The channels can retain 5–10× more water than a flat surface, prolonging evaporative cooling while mud helps protect against intense sunlight.

What if a building could do the same?

NTU researchers and bioSEA translated this cooling strategy into a wrinkled surface for tiles grown from mycelium and bamboo waste, designed to passively manage heat without using electricity.



From Wrinkles To Walls by NTU X Biosea X Mykílio

Led by Assoc Prof Hortense Le Ferrand at NTU, the team worked with biomimicry firm bioSEA to turn elephant-inspired cooling into biodegradable mycelium tiles. The textured tiles cooled 25% faster than flat ones in lab tests, with cooling improving a further 70% under simulated rain. NTU is now working with Singapore startup Mykílio to scale up the tiles and test them outdoors on building façades.





FROM VISION TO IMPACT:

Visionary founders showcasing homegrown agritech solutions that strengthen regional ecosystems.



BRIDGING EXPERIENCE AND INNOVATION:

Senior industry leaders exchanging knowledge with the next generation of tech entrepreneurs during a cross-border ecosystem program.



EXPANDING THE SOUTHEAST ASIAN DEEP-TECH FOOTPRINT:

A milestone partnership exchange aimed at connecting startups, industries, and regional innovators to foster a sustainable entrepreneurial ecosystem across ASEAN Countries.

VISIONARY FOUNDERS AND THE INHERITANCE OF VISION

The Frontier segment explores how deep-tech leadership evolves from a single spark into an enduring legacy. Centered on the theme of Visionary Founders and the Inheritance of Vision, this edition examines how the entrepreneurial torch passes across generations. Great companies rarely start by accident. Yet, some highly impactful leaders never intended to step into the spotlight. We trace the unique journey of the founder who never intended to become one while exploring the mechanics of building an ecosystem that produces founders. This path involves moving from SME to startup, carrying a vision across three generations, and spinning off from an SME to scale up. We also tackle a fundamental question: can entrepreneurship be taught? Through a series of dedicated letters to the next generation, leaders across Singapore, Thailand, the Philippines, Malaysia, Indonesia, and Vietnam share vital regional wisdom. Finally, we look at the ultimate test of leadership continuity: what happens when the founder steps away? Discover how knowledge manufacturing ensures a seamless transition so innovation thrives long after the architect departs.

FROM SME TO STARTUP: A VISION ACROSS THREE GENERATIONS

By Ambrose Chia, MSc

A Vision Expressed Through Action

When people speak about inheriting a family business, attention often centres on preserving its customers, capabilities and reputation. Yet every business model reflects the needs of its time. If the world changes, should the next generation protect the form of the business or the belief that brought it to life? For Li Feng, a third-generation member of CKE Manufacturing and founder of ConnectIQ, this question begins with his grandfather in 1946.

CKE began as a repair business established to help society. Its vision was expressed through action: find a problem, understand it and solve it. The second generation carried this instinct into engineering. In 1994, Li Feng's father developed a multi-axis wind indicator. It remained a personal project rather than a venture but showed how practical experience could create something new. Across both generations, vision meant making people's work better.

Learning to Believe in a Different Future

When Li Feng joined CKE in 2007, he inherited its machines, relationships and manufacturing knowledge, together with responsibility for its future. In 2013, he described his direction as combining "startup verve" with "Asian values": bringing startup energy and experimentation into a family business grounded in craftsmanship, resilience and respect.

The oil-and-gas downturn in 2016 made the need to think differently more urgent. Welcoming a second child also prompted him to consider the capabilities CKE would need for the future. He undertook welding training to better understand manufacturing. Believing in a different future did not mean distancing himself from the factory. It required understanding it more deeply.

A mentor later challenged Li Feng to stop relying on external solutions that CKE could not sustain and build its own problem-solving ability. In 2020, CKE began forming an internal digital-transformation team. Through experience, guidance and experimentation, the company was cultivating the capability to pursue a new direction.

Giving an Inherited Vision a New Vehicle

ConnectIQ emerged from this environment. The platform connects information from production activities, CNC machines, RFID systems and measuring instruments, helping manufacturers understand what is happening and anticipate when work will be completed. Its longer-term ambition is to create a manufacturing learning layer that captures the tacit knowledge of experienced machinists and helps new workers learn faster.



CKE's factory became a living testbed, where the team could deploy a solution, observe its use, receive feedback and improve it. The inherited strengths of an SME became advantages for venture creation: real problems, accumulated knowledge, experienced users and a place to test ideas through daily work.

ConnectIQ gave the internal solution a separate focus and a path to serve the wider manufacturing industry. Li Feng's vision and passion earned ConnectIQ the Leave a Nest Award at TECH PLANTER Singapore 2026.

What Is Actually Inherited?

ConnectIQ's tools differ from CKE's, but the purpose remains familiar. Each generation responded to the problems of its time by improving people's work. Repair services led to engineering invention, and engineering experience became connected to manufacturing.

Li Feng does not measure success like a typical startup founder. He asks whether his family, colleagues and community will feel proud of what they have built. Vision, therefore, is not inherited by repeating the original founder's journey. What passes on is the confidence to observe a problem, believe it can be solved and build the capability to act.

For next-generation leaders, succession may carry two responsibilities: understanding the deeper purpose behind what they inherited and finding a form that keeps it useful in a different future.

"What vision have I inherited, and what must I create for it to continue?"

BUILDING AN ECOSYSTEM THAT PRODUCES FOUNDERS

By Ruchira Karjee, BSc

Silicon Valley has consistently remained the world's leading startup ecosystem, home to many of the world's most influential technology companies. While its success is often attributed to its concentration of capital, world-class universities, and technical talent, these factors alone do not explain why it continues to produce generation after generation of entrepreneurs. Behind every successful founder lies the interaction between an individual's mindset and an ecosystem that nurtures it. Neither can succeed without the other.

The most impactful founders share common characteristics: curiosity to question the status quo, the courage to take ownership of difficult problems, the resilience to learn from failure, and the adaptability to continuously evolve. While these qualities differ from person to person, they are strengthened through repeated exposure to experimentation, collaboration, and real-world challenges.

The Role of the Ecosystem

An ecosystem alone cannot create founders. Equally, even the most capable individual may struggle without access to mentors, collaborators, customers, and opportunities. Successful founders emerge where individual potential meets an environment that encourages exploration, supports risk-taking, and creates opportunities for meaningful collaboration.

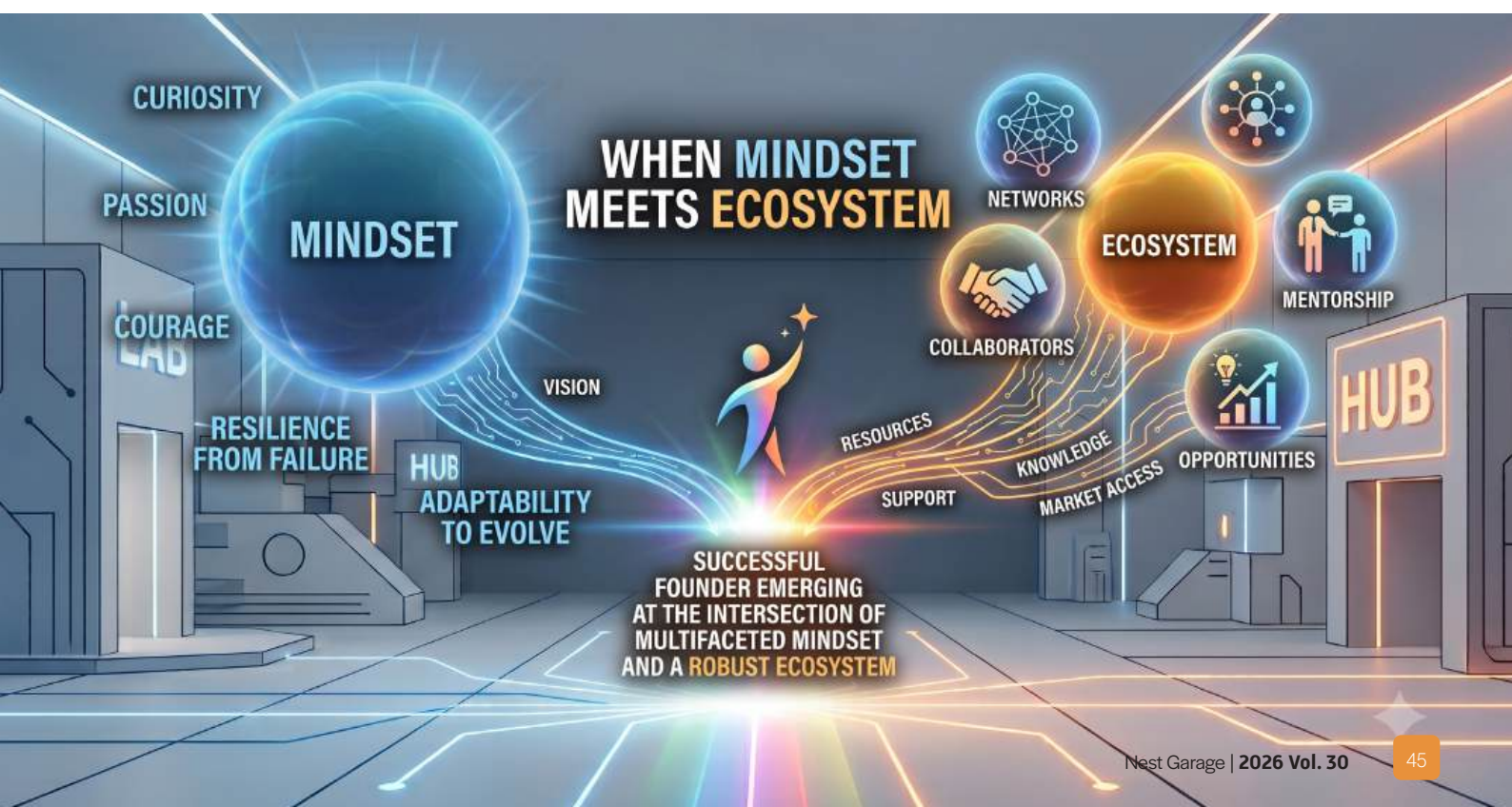
This is particularly important in the Asia-Pacific region, where world-class research, diverse markets, and pressing societal challenges present enormous opportunities for deep-tech

innovation. Building stronger ecosystems therefore means looking beyond startup accelerators and investment alone. Founder development should begin long before a company is incorporated.

At Leave a Nest, we believe founder development is a lifelong journey rather than a single programme. It begins by fostering scientific curiosity, encouraging problem-solving, and nurturing an entrepreneurial mindset from an early age. As founders progress, we support them through initiatives such as TECH PLANTER and TECH VENTURE MEET-UP, while also designing bespoke programmes that connect startups with corporates, researchers, investors, and overseas ecosystems based on their specific technology, market, and business development needs. By providing opportunities for collaboration, validation, market access, and cross-border partnerships, we aim to help deep-tech startups grow from promising ideas into sustainable businesses.

Building Ecosystems That Endure

Ultimately, startup ecosystems should not be judged solely by the number of companies they create, but by their ability to continuously develop people who are curious enough to ask difficult questions, courageous enough to act on them, and resilient enough to transform ideas into lasting impact. Building startups is important, but building founders is what creates an ecosystem that endures.



CAN ENTREPRENEURSHIP BE TAUGHT?

By Fernanda Susilo, MSc

The Challenge of Teaching Beyond Knowledge in an AI-Driven World

There was a time when entrepreneurship education could be neatly contained within the pages of a business plan. Students learnt how to prepare marketing strategies, calculate financial projections and present their ideas before a panel of lecturers. The classroom was where theories were taught, reports were submitted and grades were awarded.

But somewhere along the way, that stopped being enough. That traditional model eventually fractured as industries evolved, consumer behaviour shifted, and new business models emerged. As technical knowledge alone ceased to be sufficient, entrepreneurs required far more than mere information. They needed judgement, adaptability, and the quiet confidence to make decisions in uncertainty. Entrepreneurship education had to evolve alongside them.



Dr Nor Azah binti Jahari

Deputy Director

Selangor Business School, Universiti Selangor (UNISEL)

When Knowledge is No Longer Enough

Few have witnessed that transformation more closely than Dr Nor Azah binti Jahari, Deputy Director of Selangor Business School at UNISEL. Over two decades of guiding young minds, she has watched class after class walk out of lecture halls into an economy rewritten by digital platforms, fickle consumer habits, and persistent global shifts. Those changes, she believes, have reshaped not only entrepreneurship, but also the way it must be taught.

“We need to do more than deliver knowledge,” Dr Azah observes. “We need to enhance students’ skills in making decisions because the world is changing.”

The fundamentals remain necessary. Every entrepreneur must still understand capital, markets, and customers. What has changed is the expectation of what one does with that knowledge. At UNISEL, students step into the role of entrepreneurs long before they stand before a panel of judges. They develop products, promote them through social media and sell them to real customers, returning with hard sales figures and the raw experience of what worked and what failed. By the time they present their ideas, they are no longer defending a classroom assignment, but choices tested in practice.



Applying entrepreneurial skills beyond the classroom

Turning Failure Into Feedback

Experience inevitably brings friction. Products fail to attract interest. Feedback is rarely soft. Ideas that seemed convincing in the quiet of a lecture hall often look rather different when exposed to the market. Yet Dr Azah does not view these stumbles as interruptions to learning, but as the core of the curriculum itself. *“It is not your failure. It is feedback,”* she notes.

For Dr Azah, what matters is not whether a student’s first venture succeeds, but what they learn from it. Students are encouraged to reflect on the decisions they made, question the assumptions behind them, assess the risks they may have underestimated, and determine what they would do differently the next time.

That process is ultimately about building confidence. Confidence grows not from avoiding mistakes, but from learning how to make better choices because of them.

From Information to Entrepreneurial Mindset

Helping students develop that confidence has also changed what it means to teach. Teaching no longer ends with delivering knowledge or assessing assignments. Increasingly, it means asking difficult questions, challenging assumptions and guiding students through uncertainty. Knowledge still matters, but it must be complemented by entrepreneurial mindset skills that enable students to navigate uncertainty, make informed decisions and respond to challenges with confidence.

The emergence of artificial intelligence has only intensified this shift. New tools may have changed what is available to students, but not what is of value to them. AI can organise data, draft proposals, or generate product ideas in seconds, yet it cannot bear responsibility for a choice. Students may use digital systems to support their thinking, but they remain fully accountable for their reasoning. When facts and templates are easily generated, the human capacity to question, evaluate, and decide becomes the only true advantage.



Research Team and Dr Azah celebrate the culmination of their entrepreneurial journey

Developing People, Not Just Businesses

Asked what she ultimately wants her students to leave with, Dr Azah does not speak about unicorn startups, investment or even entrepreneurship itself. Her answer is disarmingly simple.

Not every student will become an entrepreneur. Some will become engineers, researchers, educators or professionals within organisations they did not create. Others will go on to establish companies and create jobs.

Different paths, each equally meaningful in Dr Azah's eyes. What matters is that wherever those paths lead, they do so with the resilience, judgement, and confidence to navigate the unknown. Entrepreneurship education is not merely about teaching people how to build businesses. It is about patient cultivation, preparing individuals to make sound decisions, adapt to change and navigate whatever path they choose.

"It's more to how you build human."



Dr Azah with the UNISEL entrepreneurship cohort, celebrating a journey of growth and learning

It is tempting to think that every entrepreneurial journey begins with an idea. Yet working across the ecosystem at Leave a Nest, it becomes clear that the starting point lies elsewhere. Day after day, students, researchers, founders and industry partners wrestle with problems that could scarcely be more different. Yet beneath those differences, the same work is quietly underway. It is not simply developing technologies, building companies or advancing research, but

cultivating the mindset needed to question assumptions, embrace uncertainty and turn ideas into action.

That is why Leave a Nest continues to encourage entrepreneurship among experts while nurturing the next generation of innovators. We believe that when people are given the opportunity to grow, ideas are given the chance to take root.

A Letter to the Next Generation

By Jomer Ruego, BSc and Neil Clarence Diaz, BSc



UMA ROA
Founder & CEO
Pic-A-Talk, Philippines

As the founder of Pic-a-Talk, a Philippine edutech startup which develops assistive communication solutions for individuals with speech and language disorders, Uma Roa believes meaningful innovation begins with understanding the people you are building for. She encourages future founders to *“choose to solve problems they genuinely understand. The money will come. As long as you’re solving a real problem, people will find value in it.”* Having built Pic-a-Talk from her own family’s experience, she believes that *“when you deeply understand the people you’re building for, innovation becomes more authentic.”*

She also encourages Southeast Asian founders to trust their own perspectives instead of simply adopting ideas from elsewhere, saying, *“We have unique challenges, diverse communities, and incredible talent capable of building world-class innovations. We shouldn’t have to import solutions because we’re the ones who truly understand the problems we live with.”* Ultimately, she reminds aspiring founders to stay grounded in their purpose, emphasizing *“Never forget the ‘why’ behind your startup.”*



DR. SUPAART SIRIKANTARAMAS
Co-Founder & CTO
InnoPhytoTech Co., Ltd., Thailand

As a researcher-turned-founder, Dr. Supaart Sirikantaramas co-founded InnoPhytoTech, a Thai food-tech startup, to transform agricultural produce into healthier food ingredients through enzyme technology. He believes the biggest challenge isn’t developing the technology, it’s learning to think beyond the laboratory. As he puts it, *“Technology is only the beginning. You can have good technology, but if no one wants it, then it doesn’t become an innovation.”*

Moving from the laboratory to the marketplace required a complete shift in mindset. Reflecting on his journey, he shares, *“In research, unsuccessful experiments are not failures, they tell us what to do next. Business is the same. Not everything has to be perfect. We revise our process many times, learn from experience, and keep moving forward.”*

For researchers considering entrepreneurship, he advised *“Start asking what consumers need, how your innovation creates value, and how it can solve real-world problems. That’s how research creates impact beyond the laboratory.”*



NIGEL WONG
Chief Product Officer
EtaVolt Pte. Ltd., Singapore

Through EtaVolt, a Singaporean energy tech startup which extends the lifespan of solar panels using AI-powered inspection, regeneration, and recycling technologies, Nigel Wong has learned building deep-tech solutions requires more than technical excellence, it requires creating technologies that customers can confidently adopt. He explains, *“Building a deep tech company is a marathon rather than a sprint. Innovation does not happen overnight. Turning research into commercially adopted technology requires patience, resilience, continuous learning, and close collaboration with customers.”*

Looking back, he believes aspiring founders often overlook one critical lesson. He points out that, *“Commercialization is just as important as innovation. Developing a strong technology is only the first step. Creating market demand, building strategic partnerships, and scaling internationally are equally critical to long-term success.”*

This perspective stems from EtaVolt’s own journey, where an early prototype proved technically successful but impractical in the field. He emphasizes, *“We need to continuously improve our product so that it is financially viable for our clients. There must be a measurable impact for us to scale.”*

Before the milestones, the funding, and the polished stories of success, every founder was once simply a person standing before a problem, unsure but willing to begin. This section brings together six founders from across Southeast Asia and looks beyond what they built to the choices, uncertainties, and sense of purpose that shaped the people behind their ventures. It is a reflection on what it truly means to start, endure, and leave something worth continuing.



DR. LE XUAN KHOA
Co Founder and CEO
VOX Cool, Vietnam

For Dr. Khoa, entrepreneurship did not begin with starting a company. It began with a decision to come home and build VOX Cool, a Vietnamese deep technology startup developing sustainable cooling solutions through Cold Battery technology and intelligent thermal management systems. While at Oxford, he held onto *“my long standing dream of returning to Vietnam to create something meaningful for my country.”* One question shaped everything that followed: *“How can you translate your research into impact for society?”*

That question became VOX Cool, where research now helps improve cooling for farmers and fisherfolk. *“Technology only creates real value when it improves people’s lives.”* For Dr. Khoa, success reaches beyond business. *“Success is not only measured by financial growth, but by how much value we create for people and the planet.”*

He leaves founders with patience. *“Building a startup is a marathon, not a sprint.”* Keep *“staying resilient, keeping your purpose clear, and continuously adapting.”* Above all, *“Think big, turn knowledge into action.”*



KHAIRUL ANWAR MOHAMAD ZAKI
Founder and CEO
Pandai Education, Malaysia

For Khairul, everything begins with education. Through Pandai Education, a Malaysian education technology startup, he and his co-founders developed an AI powered learning platform that supports students through personalized content, gamification, and detailed performance analytics. *“Education is one of the best ways to improve one’s life.”* Having grown up with teachers at home, he and his co-founders never saw education as simply a profession, but as something worth giving back to. *“We feel we’ve been privileged along the way, and we’ll try to return the favor in what way we can.”*

To those building next, he offers both permission and a challenge. *“I hope that the next generation will go on and solve big and real problems out there.”* Today, he believes the possibilities are even greater. *“You can actually create global products from Southeast Asia. It is possible.”*

But every journey begins with a first step. *“Start small. Don’t wait until the product is perfect. Launch early, listen, and improve.”* Most importantly, *“You have to fall in love with the customer’s problem instead.”*



MAX MANDIAS
Co Founder and CEO
Green Rebel Foods, Indonesia

Through Green Rebel Foods, an Indonesian food-tech startup producing economical protein from natural, plant-based ingredients such as mushrooms and soybeans, Max has spent the past thirteen years making sustainable food more accessible across Asia. Along the way, he learned that *“the motivation’s got to be more than just money.”* For him, that reason is *“the social impact, helping people, helping the planet, helping the animals.”* In difficult years, he returned to one question: *“If it’s not us, then who will?”*

His advice does not make the journey easy. It makes it possible. *“Start very early. If you fail, it’s fine. Totally fine. You see failure as one step to success.”* But choose what you are willing to struggle for. *“Pick the problem that actually touches your heart.”*

Even as technology advances, Max leaves one final reminder: *“Businesses are all about human.”* Perhaps it begins here: *“It’s okay to be vulnerable as founders.”* With the right people, *“Vulnerability creates a lot of trust.”*

WHEN THE FOUNDER STEPS AWAY: A SON, A LEGACY, AND THE COURAGE TO LEAD

By Khalid Khalil, MSc

Some inherit a business. Others inherit expectations.

For Mr. Asif Zulkifli, succeeding his father at Zull Design Autotronic meant carrying something far heavier than a title. It meant preserving decades of trust, innovation, and reputation built by a founder whose name had become synonymous with solving engineering challenges. Every decision would inevitably be compared with the generation before him.

“Honestly, it was a combination of pressure, challenge, and inspiration,”

—Asif reflected.

The pressure came from following a respected founder. The challenge was proving that he could lead without simply following in his father’s footsteps. Yet, rather than seeing succession as replacing his father, Asif chose to see it differently. His role was to continue the same purpose while preparing the company for a new era shaped by artificial intelligence, automation, digital engineering, and smarter manufacturing.

The Weight of a Legacy

As one of Centre of Garage’s manufacturing partners, Zull Design Autotronic has long demonstrated how local engineering expertise can transform ideas into practical industrial solutions. The company was founded by Mr. Zulkifli Haron with a clear belief: Malaysia possesses the talent to design and build world-class engineering solutions instead of relying solely on imported machinery. That mission continues to guide the company today.

What makes this transition remarkable is that it was never marked by a ceremonial handover. Leadership was earned gradually through years of engineering design, project execution, client engagement, and difficult decisions. *“It wasn’t about inheriting a title. It was about earning trust,”* Asif said, a lesson that reflects the true meaning of succession.

The father and son may approach engineering differently, but those differences have become the company’s greatest advantage. While Mr. Zulkifli relies on decades of hands-on experience and rapid prototyping, Asif begins with simulations, CAD modelling, and digital validation. Together, experience and technology create solutions that are both practical and forward-looking.

Building the Next Chapter

Even as the company embraces Industry 4.0, robotics, and AI, its foundation remains unchanged. Integrity, quality craftsmanship, continuous learning, and solving customers’ problems continue to define every project.

Asif’s ambition extends beyond business growth. He hopes to build a globally recognised engineering company while inspiring young Malaysian engineers to believe that world-class innovation can be created right here at home. In many ways, that is the true measure of a legacy not preserving the past exactly as it was, but giving the next generation the confidence to carry it further.



THE FOUNDER WHO NEVER INTENDED TO BECOME ONE

By Dania Qarrina Azman, PhD

Stepping Beyond the Familiar

For years, Dr. Muhamad Fazly Abdul Patah believed his contribution to society would come through research. As a Senior Lecturer in the Department of Chemical Engineering at Universiti Malaya, his work revolved around solving environmental challenges, supervising students, and publishing scientific discoveries. In academia, Dr. Fazly found comfort in a familiar rhythm of asking questions, testing ideas, and contributing new knowledge.

Entrepreneurship offered none of those certainties. When the opportunity arose to commercialise his research, Dr. Fazly found himself confronting a fear that had little to do with science.

“My biggest fear was stepping out of my academic comfort zone into the uncertainty of the commercial market,” he says.

Instead of allowing that uncertainty to discourage him, he chose to learn. He immersed himself in deep tech commercialisation, market analysis, and customer validation, believing his research deserved the opportunity to create meaningful impact beyond the laboratory.



Dr. Muhamad Fazly Abdul Patah, Senior Lecturer at the Department of Chemical Engineering, Universiti Malaya, and founder of Sustainaviro Technology Sdn. Bhd

When Perspective Changed

That shift did not happen overnight.

While collaborating with Lotte Chemical Titan (M) Sdn. Bhd., Dr. Fazly and his team began developing what would eventually become LiquePro, a technology that converts non recyclable plastic waste into alternative liquid fuel. As the research progressed, he realised the technology had the potential to solve a real industry problem beyond the laboratory.

Even then, commercialisation was not the destination. Dr. Fazly first joined TECH PLANTER, a deep tech innovation platform, simply to seek research funding and opportunities to further develop his technology. It was only later, through Universiti Malaya's Deep Tech (UMDT) accelerator programme, that his perspective on entrepreneurship began to change.

Through conversations with potential customers, Dr. Fazly realised that a technology can be scientifically sound, yet still fall short if it does not address a real market need. That lesson reshaped how Dr. Fazly viewed the purpose of research itself. Scientific discoveries become truly meaningful only when they leave the laboratory and improve people's lives.



Recognition for excellence in academia reflects Dr. Fazly's enduring commitment to teaching, research, and creating impact beyond the laboratory.

Success Beyond Publications

Becoming a founder did not replace Dr. Fazly's identity as a researcher. Instead, it reshaped the way he approaches every role in his life. As a husband and father, building a startup demanded more than business decisions. It required difficult choices about time. Every meeting, every trip, and every new opportunity had to be weighed against the moments waiting at home.

“When time is limited, every moment spent on the business must count so that I never compromise my presence at home,” he reflects.

The journey has not been without moments of doubt. During one presentation, an evaluator questioned why a technology developed in Malaysia had not already been commercialised elsewhere. Rather than seeing it as criticism, Dr. Fazly chose to see it as a reminder that local researchers must have the confidence to champion their own innovations.

Today, success is no longer defined solely by publications, citations, or research grants. It is measured by the meaningful impact his work creates beyond the university.

Looking back, Dr. Fazly hopes his greatest legacy will not simply be a successful company or a new technology. Instead, he hopes his children, students, and future researchers will see that they never have to choose between academic excellence and practical innovation. The two can coexist, creating knowledge that not only advances science but also serves society.

In the end, becoming a founder was never the destination. It simply became another way for Dr. Fazly to turn his research into solutions that could make a real difference beyond the laboratory.



“Clock Building, Not Time Telling.”

— Jim C. Collins and Jerry I. Porras, *Built to Last*

