PENANG MONTHLY

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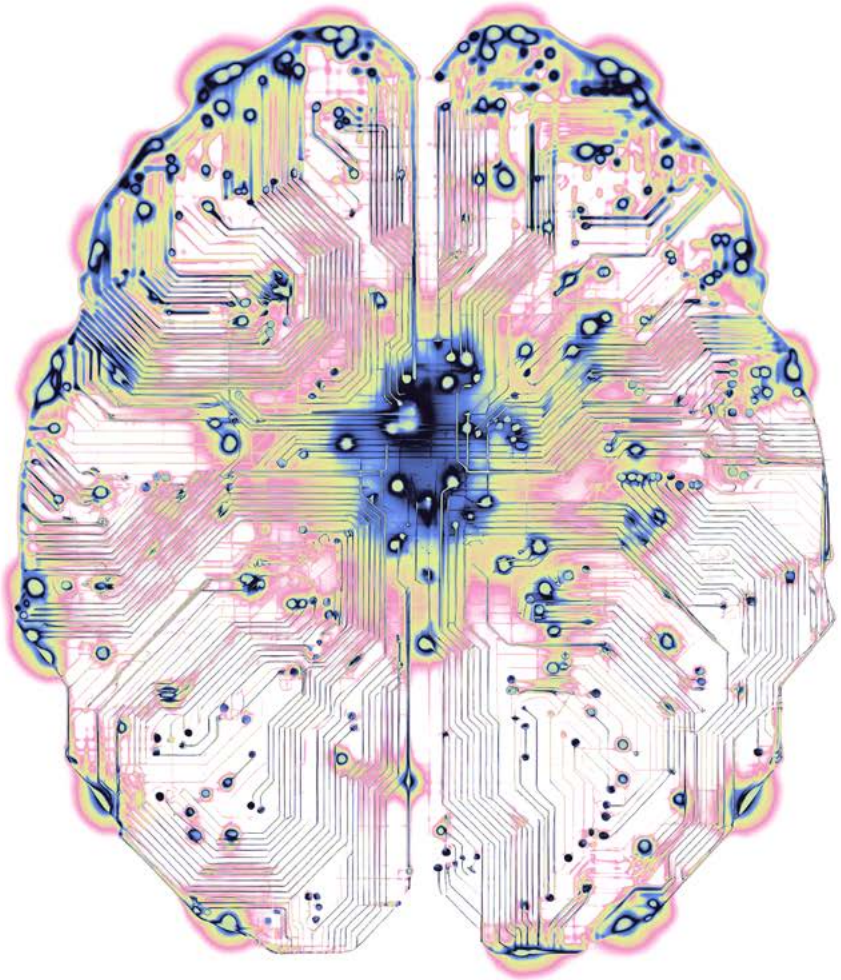
COVER STORY

AI IN CYBERSECURITY: IS IT A BLESSING OR A CURSE?

FEATURE

THE FINANCIAL REVOLUTION THAT IS UPON US: TOKENISING CURRENCIES WITH STABLECOINS AND CBDCS



FEATURE

FACING THE SPECTRE OF AI: THE REAL CHALLENGE IS TO RESTORE THE CONDITIONS UNDER WHICH THINKING HAPPENS

ENTERING THE AGE OF

ARTIFICIAL INTELLIGENCE

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3. Profile Penang personalities who have contributed, sometimes in very unassuming but critical ways, to the reputation and wellbeing of the state;
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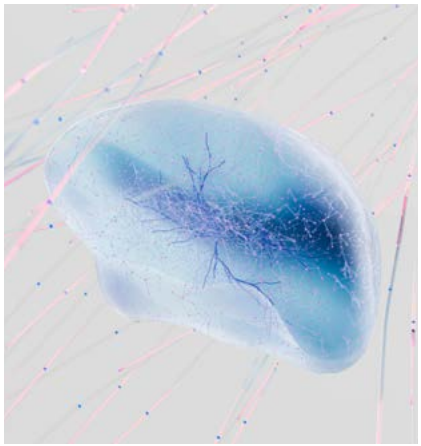

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HIGHS AND LOWS IN PENANG'S URBAN DEVELOPMENT

"If thinking brings knowledge, then the outsourcing of thinking to AI signals a reversal of universal literacy's egalitarian goals."

—DATO' DR. OOI KEE BENG IN THE EDITORIAL

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IS AI THE NEXT STAGE IN HUMAN ENLIGHTENMENT

OR A RETURN TO SOME DARK AGE?

BY OOI KEE BENG

MOST OF HUMAN civilisation has been powered by the advancement of group messaging, by the quality and nature of information flows within society.

As messaging improved, the size and complexity of society grew accordingly. Language expanded to become scripts. Scripts required scribes, and this privileged group soon decided what words to practise, what worldview to perpetuate and what daily discourses to popularise.

Scribes became holy men; scripts generated holy books and scriptures, and control over what scribes wrote became the base for power, for "hegemony" in Antonio Gramsci's sense of the word. Coherence in group messaging, cohesion in political purpose, and control of the arms of government came to rely greatly on what got written.

With the invention and re-invention of printing—first in China, and then in the West—universal literacy, though not achieved even today, became a long-term possibility.

The concept of sustained rationality in thought was increasingly experienced through reading and writing. This was tantamount to a great levelling among the classes. Over time, this strengthened the notion of equality of humans, if not of democratic thought.

Paradoxically, universal literacy also meant more effective means of control over increasingly larger groups of humans were now at hand. What has driven modern human culture over the last century is the aptly named ICT—Information and Communications Technology.

The world and its many human civilisations and languages have been simplified within the larger painful and violent processes we have called colonialism and globalisation. With the internet and social media revolutionising global messaging, the pressure on individuals to adapt has been great.

"Disruption" was the common phrase used to denote how digitalisation was radically upsetting most areas of human endeavour. To comfort ourselves, we talked of *creative* disruptions; the old had to be cast aside for the new to thrive.

And oh-so-suddenly comes artificial intelligence (AI). The word "disruption" no longer suffices. AI is more revolution than innovation. How best to describe the impact of this new tool which ingests all words and all human knowledge, and mimics human discussion and thinking?

Some welcome it; some fear it. But none will stay outside of its profound impact. And it is still early days where its power is concerned.

If money is power, one should be deeply concerned by the amount of money being pumped into developing AI. Power is being crystallised, and will become subtler, succinct and unavoidable. Are we seeing the purification of power taking place in our age?

If knowledge is power, then whoever—or whatever—has the say in how knowledge is regurgitated, is not to be trifled with.

If thinking brings knowledge, then the outsourcing of thinking to AI signals a reversal of universal literacy's egalitarian goals.

"Disruption" will need to be replaced, in the case of AI, if I stay within the European historical tradition—with notions opposed to "Renaissance" and "Enlightenment". Words like "Blackout", "Darkening" and "Extinguishment" spring to my mind. "Intellectual vacuuming" as well.

We may remain literate in a sense, but most of us will not bother to push our minds to formulate thoughts that are not rehashed versions of ideas minced in a super-computer.

Surviving this new age will require an ability to keep some distance—in thought and in action—from this monopolising of human knowledge.

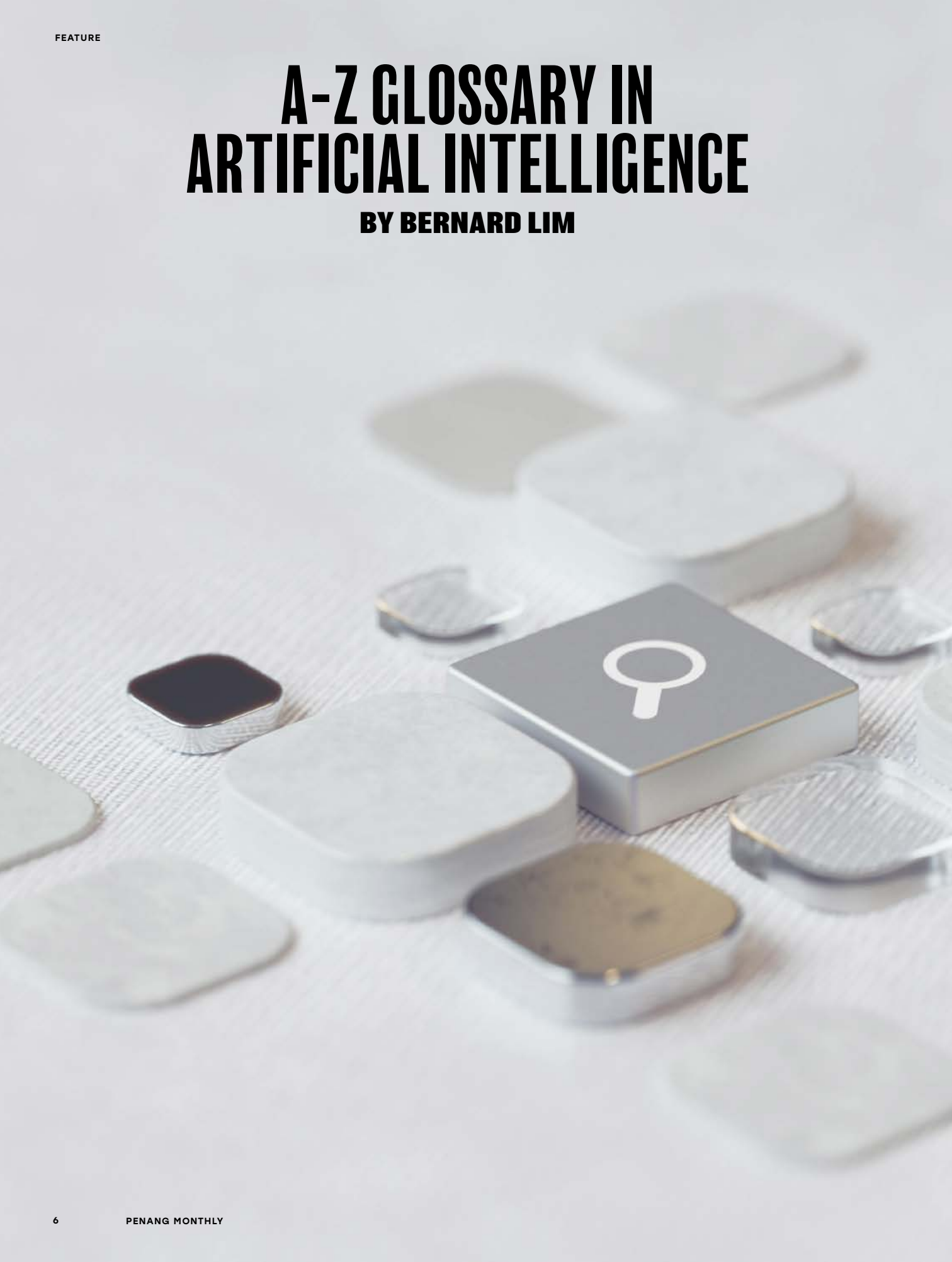
Indulging in the analogue, giving up on the universal, embracing the immediate and concrete… that seems the only refuge in the near future.

As comfort, we should remind ourselves that universal schooling was not all it was made out to be. It served power and the market more than the populace, in essence.

Can AI be anything else? Maybe. But we need to discuss this, realising that even that discussion will in all likelihood be swallowed, and algorithmically regurgitated.

A-Z GLOSSARY IN ARTIFICIAL INTELLIGENCE

BY BERNARD LIM



ACCORDING TO *Encyclopaedia Britannica*, artificial intelligence (AI) is "the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings".

AI has roots going back decades. The idea of creating "thinking machines" can be traced to philosophers and mathematicians who explored logic and reasoning, but the formal field of AI began in the 1950s. Alan Turing's work on computation and his famous Turing Test laid the foundation for this, and the 1956 Dartmouth Conference officially marked the birth of AI research. Since then, AI has gone through cycles of progress and setbacks, known as "AI winters", before resurging with breakthroughs in machine learning and deep learning in the 2000s and 2010s.

AI is now woven into everyday life through countless applications. Most simply, search engines like Google use AI to deliver relevant results, while streaming platforms such as Netflix and Spotify suggest movies or music tailored to individual tastes. Virtual assistants like Siri, Alexa and Copilot help with tasks ranging from setting reminders to answering questions. In transportation, autonomous vehicles like those developed by Waymo use AI to navigate safely. Generative AI tools also showcase its power in creating text, images and even music—machines are mimicking human creativity.

At its core, AI systems learn from data and experiences, improving performance over time. They demonstrate reasoning, drawing logical conclusions and making decisions based on available information. AI also involves perception (eg. recognising speech, images or patterns) and autonomy, where systems act independently to achieve goals. Finally, AI shows generalisation, applying knowledge learned in one context to new, unseen situations—an ability that makes it adaptable and powerful across diverse applications.

Below is a glossary of A-Z words (non-exhaustive) associated with AI:

IR. DR. BERNARD LIM KEE WENG is COO and co-founder of Appscard Group AS (and its research/innovation arm), a tech outfit focusing on biometric smartcard technology.

THE A TO Z OF ARTIFICIAL INTELLIGENCE

A—ALGORITHM

A set of instructions a computer follows—like a recipe for solving a problem.

B—BIG DATA

Extremely large collections of information that businesses study to find patterns and trends. It is called "big" because modern tools let companies collect huge amounts of detailed data from many sources. This data comes in fast and can be stored in many different forms.

C—CHATBOT

A computer programme you can talk to, like a friendly robot that sends messages.

D—DEEP LEARNING

A smart way wherein computers learn by practicing many, many examples—similar to how one gets better at a video game.

E—EMBEDDING

A fancy way for computers to turn words or pictures into numbers so computers can understand the data.

F—FINE-TUNING

Teaching an AI to be extra good at one thing—like training it to help with solving mathematical equations or writing stories.

G—GENERATIVE AI

A type of technology that uses AI to create content, including text, video, code and images. A generative AI system is trained using large amounts of data, so that it can find patterns for generating new content.

H—HALLUCINATION

When AI says something confidently, but that it is factually wrong.

I—INFERENCE

The moment AI provides you with an answer—when asked a question and it figures out a reply.

J—JSON

A simple way computers organise information so apps can read it easily.

K—KNOWLEDGE BASE

A giant library of information AI uses to answer your questions.

L—LARGE LANGUAGE MODEL (LLM)

A super-brain computer that has learned from massive amounts of text so it can talk and answer questions.

M—MACHINE LEARNING

When computers learn from data—like learning what a cat looks like after seeing many cat pictures.

N—NEURAL NETWORK

A computer system inspired by the human brain that helps AI think and learn.

O—OPTIMISATION

Making something work better and faster.

P—PROMPT

A question or instruction directed to an AI.

Q—QUERY

A search or question you ask a computer, like typing something into Google.

R—RECOMMENDATION SYSTEM

AI that suggests things you might like—eg. games, videos, songs or shows.

S—SUPERVISED LEARNING

Learning with examples and answers—like a teacher showing students how to solve math problems.

T—TRAINING

When the AI practices using a lot of information fed to it to get "smarter".

U—UNSUPERVISED LEARNING

Learning without answers—AI looks for patterns all by itself.

V—VISION AI

AI that can "see" pictures or videos—like smartphones requesting for Face ID to unlock.

W—WEIGHTS

Tiny numbers inside AI that help it decide what is important.

X—EXPLAINABILITY (XAI)

Helping people understand how the AI made its decision—like showing working calculations when doing mathematics.

Y—YIELD PREDICTION

AI guessing how much something will produce—like forecasting how many apples an apple tree might fruit.

Z—ZERO-SHOT LEARNING

AI figuring out something new without being directly taught—like solving a puzzle it has never seen.

THE BIRTH OF artificial intelligence (AI) can be traced back to as early as 1914, when Spanish engineer, Leonardo Torres y Quevedo, first demonstrated The Chess Player (*El Adedrecista*), a fully automated machine programmed to follow specific rules. This became the foundation for increased research and scientific development of AI, and of course, computer games. However, the ideological development of AI may have been influenced by works of mathematicians, scientists, theologians or philosophers from the 17th century such as Jonathan Swift, who wrote *Gulliver's Travels* that introduced the idea of The Engine, much like our computer today—a machine used to assist scholars in generating new ideas, sentences and books—or Thomas Bayes, whose theorem, Bayesian Inference, were adopted in machine learning.

AI COMPLICATES OWNERSHIP OF INTELLECTUAL PROPERTIES

BY ONG SIOU WOON

ONG SIOU WOON
20 years (and counting) in Penang, and more than a decade with Penang Institute—she is a YSEALI alumnus trained in urban planning. She finds learning about nature and food a never-ending journey.

The ideological development of AI involves both how AI embodies and propagates existing ideologies (like capitalism, control or techno-optimism), and how it shapes new belief systems; with key aspects including its role in reinforcing social hierarchies through data, creating new forms of power (tech oligarchy), driving transhumanist visions (TESCREAL) and being used in state-sponsored ideological education. In any case, it presents both risks (bias, surveillance) and potential (efficiency, new learning) for human values and society.

Advancement in generative AI over the last few years has disrupted not only the tech scene, but knocked businesses, entrepreneurs and professionals off-balance… with new opportunities and also threats.

Anyone can now use AI to create, to invent or even to help themselves to "professional advice"—with or without the courtesy to quote, to fact-check or to ensure they have not infringed on any intellectual property (IP) rights. More often than not, many equate IP with patents, but IP actually includes legal rights to creators for their intangible assets (customer lists, trade secrets, client relationships, goodwill, etc.).

This is demonstrated in the infographic (see Figure 1), which I generated using Gemini.

The infographic, under normal circumstances, would cite the original source for the information. Information collected was based on multiple analyses by the author. In such a case, it would be right to cite the author for brain-work contribution. Would one then also cite the designer of the graphic for providing the visual? However, attribution won't usually be given if some creation is considered paid work; and the copyright would belong to the person who initiated it.

Applying the same logic on generative AI, how does one, after merely a prompt and a click, lay claim to a product?

Fortunately, this particular infographic I created carries public open source information, and therefore, I can simply credit the creator of the visual by stating that it was "generated by Google's Gemini".

This changes when more complicated ownership(s) or content, especially when commercial terms, are involved. That is exactly what IP-relevant laws are meant to protect—the commercial rights of the creators.

One illustrative case is the Ghibli-style generated photos that once flooded the internet. Everyone wanted a Ghibli-fied photo of themselves! In these cases, had the users, prompt engineers and the LLM involved unintentionally infringed on the creative copyright or trademark of the studio's art style? One may argue that the product was similar but different—it was inspired by it, but is not the exact copy and thus, not an infringement. If the AI prompt interfered with the studio's commercial benefits, then it would be equiv-

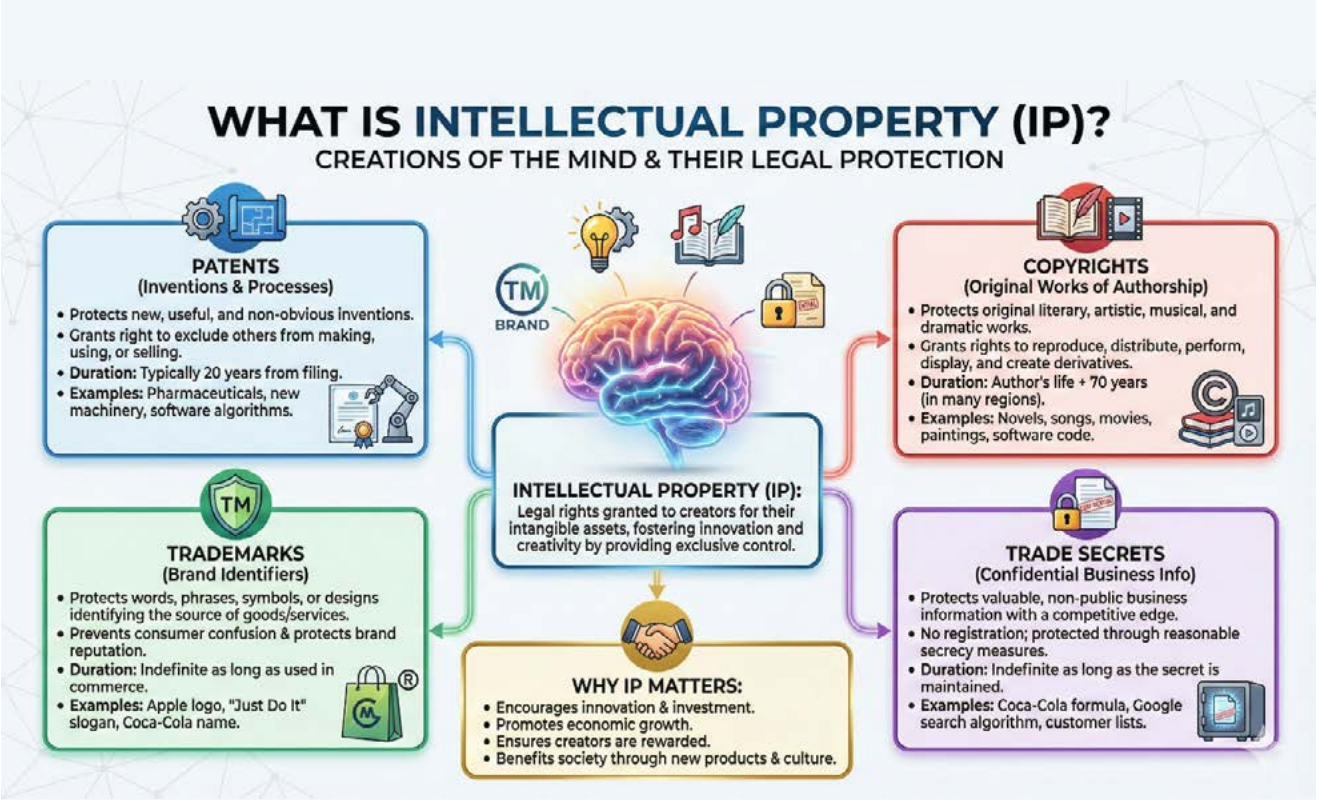


Figure 1
Source: Google Gemini

alent to an infringement. Hypothetically, should Studio Ghibli claim copyright for the Ghibli-styled portraits or the "prompt engineer", who had no relationship with the studio? Or should the rightful owner be the company that owns the LLM that generated these photos from the prompt?

Founding Partner of Chung Chambers, Founding President of IACSA (Intangible Asset Commercialisation & Strategy Association) and President & Board of IIPCC (International Intellectual Property Commercialisation Council), Malaysia Chapter, Patricia Chung explains that only individual(s) or person(s) can own a copyright, and only individual(s) or person(s) can be recognised as an inventor, in Malaysia and in many countries globally. Any AI-generated work would be referred back to the individuals that prompted the AI to generate the end product, not to the AI itself.

She also warns that there are many layers that require examining, and one shouldn't refer to copyright law alone to determine the rightful creator of AI-assisted products; there are many public domain materials available for public consumption. She also shares that the University of Oxford had published a whitepaper on this matter, which stated that creativity involves three core components—external, mental and social. Simply put, the external component includes the level of novelty of the expressed idea or product, the mental component is concerned with the thought process of the individual, and the social component covers society's perception of what is considered "new".

Some AI-powered writing tools (Grammarly, DeepL Write, QuillBot) can be so useful as to undermine the status of novelty of an original piece of writing. Oscar-winning actress and screenwriter, Emma Thompson, once ranted about how annoying built-in AI was in frequently prompting her to rewrite her work. There have been several noted cases when the application of AI had been considered unethical in the entertainment business—such as when Tom Hanks's voice and image appeared in an advertisement without his knowledge or consent, or when Stephen Fry's voice was used to front a documentary he knew nothing about. Poignantly, deepfakes successfully scammed as much as USD200mil in Q1 2025 in North America alone.

According to Patricia Chung, AI will not just complicate copyright issues, but will also affect many other areas of IP. The World Intellectual Property Organisation (WIPO) prepared a document in 2024 entitled "Generative AI: Navigating Intellectual Property" to help businesses and organisations foster responsible and legally compliant use of generative AI. Patricia also emphasised that Malaysia is one of the countries that signed the WIPO Beijing Treaty 2024, agreeing to comb through potential infringements by AI using a licensing framework.

We can't stop the development of AI, neither can we stop anyone from misusing them for malicious intent. However, we can definitely work towards ensuring that it is ethically utilised. What's more important is how we are to prepare future generations for the omnipresence of AI in their daily lives.

Penang is ranked 2.5/5 in terms of AI readiness; both industry leaders and academia agree that ethical standards must be upheld. "We are not blindly adopting; at least, at this point," she said, adding that more collaborative effort is needed for the rollout.

Malaysia is ranked 23rd globally in AI readiness and second in ASEAN. However, at the local level, more assessments need to be conducted by businesses and organisations. "It is safe to say Penang is among the top three states for AI readiness in Malaysia—alongside Selangor and Sarawak."

Anyone who wishes to protect themselves as creator/inventor or company/organisation from AI infringement can definitely draw up their own internal AI governance with an ethical standards policy. Every use case differs slightly from one organisation to another. Effective digital governance requires a framework that covers AI, IP and data governance. These three areas can no longer be separated, and their integration must be done at the national level to ensure coherence.

AI IN CYBERSECURITY

IN 2023, Malaysia recorded 5,917 cybersecurity incidents, according to MyCERT's incident statistics—a troubling indication of how deeply digital vulnerabilities were beginning to shape national risks. Yet, the trend did not stabilise. In 2024, reported incidents rose to 6,209, signalling that cyber threats were not only persisting, but steadily gaining momentum. The trend continued upward; by November 2025, Malaysia had already logged 6,998 incidents, surpassing the previous year's total even before December's numbers were released. Historically, December often brings a surge in fraud, phishing and scam attempts tied to year-end shopping and financial activities, meaning the final tally for 2025 is almost certain to be much higher.

IS IT A BLESSING OR A CURSE?

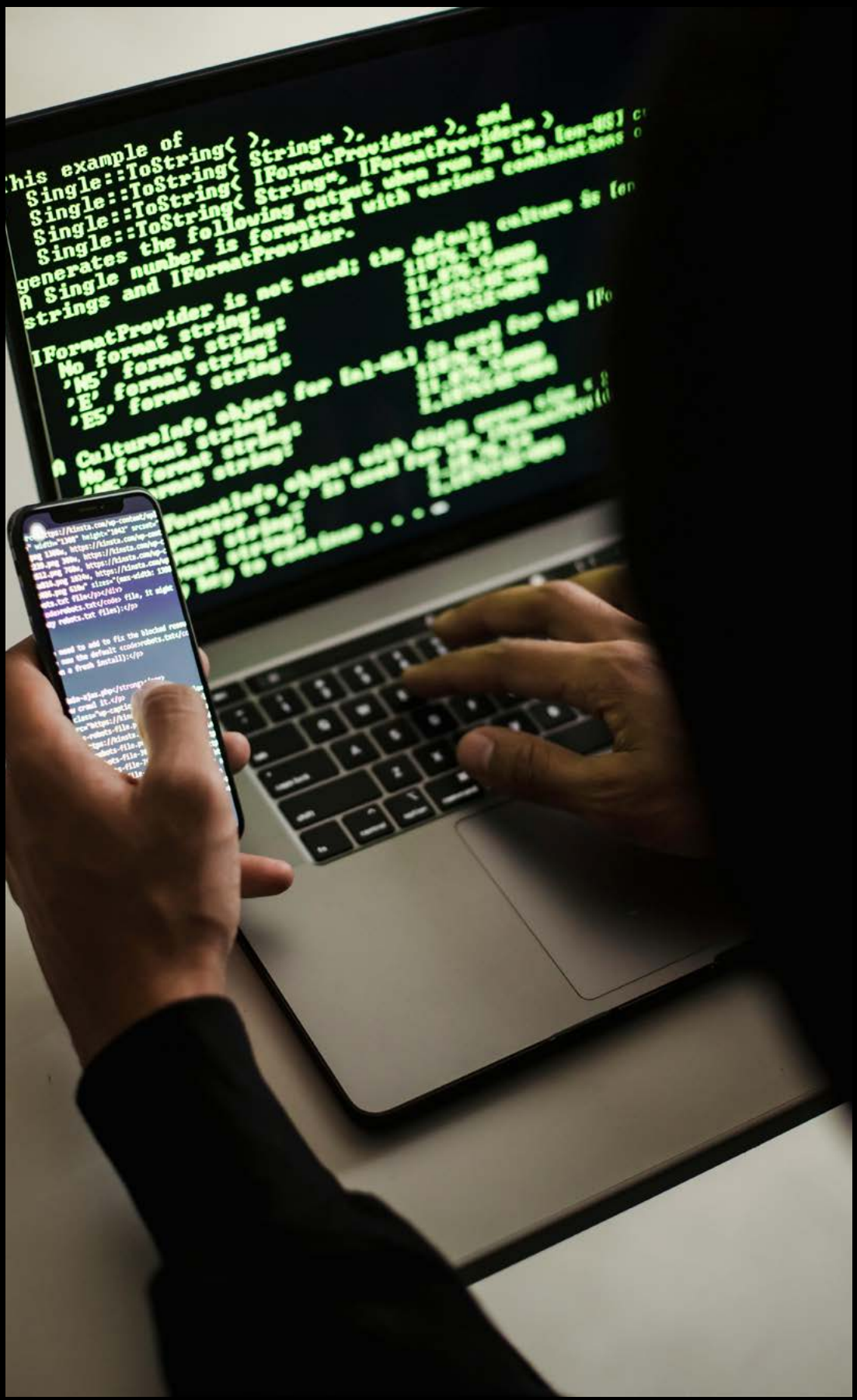
BY HOWIE CHANG

It is important to remember that these figures represent only incidents that were officially reported; in reality, the number is definitely higher. Many breaches go unreported for various reasons: organisations fear reputational damage, some lack the expertise to recognise that an incident has occurred, and individuals often dismiss or overlook suspicious activity. Even with these gaps, the upward trend represents unmistakable evidence that cybersecurity incidents in Malaysia are accelerating. This rise mirrors the nation's growing reliance on digital services, from online banking and e-commerce to cloud-based enterprise systems and Industry 4.0 adoption in states like ours.

Penang, the heart of Malaysia's high-tech manufacturing and global semiconductor activities, sits at the centre of this transformation. The state's factories increasingly operate on connected robotic systems, IoT sensors, AI-enabled automation and integrated supply chain software. Every digital link strengthens operational efficiency, but also introduces potential vulnerabilities. A single cyberattack on a semiconductor plant does not merely disrupt one company; it has the potential to ripple across global supply chains.

It is against this backdrop that artificial intelligence (AI) emerges as both a powerful defender and a potential threat. The big question, "Is AI in cybersecurity a blessing or a curse?" does not have a simple answer. Like most technologies that fundamentally reshape human behaviour, AI brings transformative benefits, while also creating new areas of risk.

“Cybersecurity literacy will become as essential as financial literacy in the years to come.”



INTRODUCTION

AI is not merely another upgrade to cybersecurity tools; it represents a basic shift in how digital security operates. Traditional cybersecurity depended heavily on known patterns like signatures of malware, predetermined rules, blacklists and predefined thresholds. This was effective in a world where threats evolved slowly and attackers were limited by technical constraints—that world is fast disappearing.

Today, cyber threats move too quickly, mutate too frequently and affect too many interconnected systems for humans to detect manually. AI has stepped in to fill that gap. By analysing huge quantities of real-time data, AI models can recognise patterns far beyond human capacity. They can detect suspicious behaviour in milliseconds and respond before the threat escalates. In short, AI has become the nervous system of modern cybersecurity operations.

Yet, AI is not a magic shield. Attackers are also using AI to improve the accuracy, creativity and scalability of their attacks. They can craft phishing messages that sound perfectly natural, mimic familiar voices, automatically scan for vulnerabilities and develop malware that learns to avoid detection. This parallel evolution means AI is simultaneously empowering defenders and strengthening attackers.

Understanding whether AI is a blessing or curse requires examining both sides of this duality.

THE BENEFITS

THE ACCELERATING POWER OF AI-DRIVEN DETECTION

Cybersecurity has always suffered from one major limitation: humans are slow, and threats are fast. An attacker may take only minutes to breach a system, but organisations sometimes require hours or days to even realise something is wrong. AI dramatically changes this timeline.

AI systems analyse network traffic, user behaviour and system logs continuously. They learn what "normal" looks like, and can instantly identify deviations. For example, if an employee account suddenly begins downloading unusually large amounts of data at midnight, or if a machine in a factory starts sending commands it has never issued before, AI tools can flag this immediately. This ability to detect anomalies at speed allows organisations to contain incidents before they spread.

In Penang's manufacturing sector, where downtime can cost millions of ringgit per hour, early detection is critical. Factories increasingly depend on connected industrial control systems like robotic arms, automated inspection tools and complex assembly lines which, if compromised, could stop production or cause physical damage. AI helps monitor these systems at a scale impossible for human teams.

FROM REACTIVE TO PREDICTIVE TO THE RISE OF AI-ENHANCED FORESIGHT

Another advantage of AI is that it enables predictive cybersecurity. By studying long-term trends, historical attack data and global threat intelligence, AI models can anticipate which vulnerabilities are most likely to be exploited next. This helps organisations fix weak points before attackers discover them.

Malaysia sees recurring patterns in cyber-scam surges during festive seasons, tax filing periods or major online sales events. Predictive AI tools help organisations prepare for these cycles by adjusting firewall rules, tightening authentication policies or scanning for known vulnerabilities in advance.

Predictive capability shifts cybersecurity from a reactive position to a proactive one. This change is particularly important for smaller organisations that lack dedicated security teams and rely heavily on managed service providers.

REAL-WORLD APPLICATIONS ALREADY BENEFITING MALAYSIA

Across the country, AI is quietly reshaping how organisations protect themselves.

- Banks use AI to analyse spending patterns and flag fraudulent transactions within seconds. When someone suddenly receives a suspicious one-dollar test charge from an overseas website, AI systems detect and will move to potentially block the transaction before larger purchases can be attempted.
- Telecommunications providers use AI to analyse traffic patterns and detect distributed denial-of-service (DDoS) attacks that aim to overwhelm their networks.
- E-commerce companies such as Shopee and Lazada rely on AI to detect fake listings, bot-driven reviews or suspicious seller behaviour.
- Cloud providers used by SMEs incorporate AI-driven threat monitoring as part of their service, giving smaller businesses access to enterprise-grade security tools that would otherwise be unaffordable.

In short, AI is already embedded in Malaysia's cybersecurity ecosystem. Without it, many organisations—especially smaller ones—would struggle to keep up with the sophistication of modern attacks.

THE RISKS AND DOWNSIDES

ATTACKERS GET SMARTER TOO

The same tools that help defenders can also help attackers. Criminals now use AI to craft highly personalised phishing emails written in fluent, natural language—no more the broken English that once made scams easy to spot. Attackers can scrape social media profiles, learn a victim's job, hobbies and network of friends, and generate tailored messages that are more believable.

AI-driven deepfake voices have already caused concern in Malaysia. In recent years, the Malaysian police, Malaysian Communications and Multimedia Commission (MCMC) and various agencies have highlighted cases where scammers cloned the voices of family members, often using just a few seconds of online audio. Victims received phone calls from what sounded like their children or spouses requesting urgent financial help. These scams are incredibly convincing because they bypass the emotional cues people rely on to authenticate a caller.

Deepfake videos are also appearing in Malaysian investment scam campaigns. Bank Negara Malaysia and the Securities Commission have issued warnings about fabricated videos featuring "celebrity endorsements" or "government approvals", all produced through AI.

Attackers no longer need advanced skills to create such content. AI democratises the ability to deceive.

AI-GENERATED MALWARE AND AUTOMATED RECONNAISSANCE

Researchers worldwide have documented malware that uses AI to alter its structure dynamically, making it difficult for traditional systems to detect. Some malware variants can change their code each time they replicate, evading signature-based detection.

AI can also scan for vulnerabilities across thousands of websites or devices automatically, allowing attackers to discover gaps more quickly than before.

In high-value industrial environments like those in Penang, such techniques are particularly worrying. Industrial control systems were historically isolated from the internet. Today, digitalisation and remote access tools connect them to broader networks, increasing exposure.

THE DANGER OF RELYING TOO HEAVILY ON AI

While AI can do many things remarkably well, it is still fallible. At its core, every AI system is built on statistical models trained on historical data. It recognises patterns because it has seen something similar before. But cyber attackers evolve quickly. When they introduce a tactic, behaviour or sequence of events that falls outside the AI's training experience, the system may simply fail to detect it. This is where the promise of AI meets its limitation: it cannot anticipate what it has never learned.

The opposite problem also exists. AI may overreact by flagging harmless behaviour as suspicious, isolating systems unnecessarily or triggering false alarms.

“The strongest cybersecurity strategies treat AI as an augmentation tool, not a replacement. AI can accelerate detection, process massive datasets and surface patterns impossible for humans to spot, but it is people who make sense of vague situations, ask the right questions and connect the dots when something feels ‘off’.”

In a high-pressure environment like a Security Operations Centre (SOC), constant false positives slow teams down and increase the risk of “alert fatigue”, where real threats are buried under noise.

The deeper issue is that over-reliance on automated systems can create complacency. When organisations put too much faith in AI, vigilance drops. Security teams may ignore subtle anomalies, assume an incident is a false alarm or defer judgment to a model, rather than investigating further. But cyber threats often hinge on human factors like tone of voice, unusual wording in an email, cultural cues or behavioural context within a team that machines can struggle to interpret correctly.

Human judgment remains indispensable. Analysts bring intuition, experience and an understanding of context that no model can fully replicate. The strongest cybersecurity strategies treat AI as an augmentation tool, not a replacement. AI can accelerate detection, process massive datasets and surface patterns impossible for humans to spot, but it is people who make sense of vague situations, ask the right questions and connect the dots when something feels “off”.

In other words, AI strengthens cybersecurity, but it does not absolve us from paying attention. The human–AI partnership is where resilience truly lies.

PRIVACY CONCERNS IN AN AI-DRIVEN SECURITY LANDSCAPE

As organisations adopt AI-powered security systems, a new set of privacy concerns emerges—issues that are not merely technical, but deeply social and ethical. AI-driven cybersecurity tools often require broad visibility into user behaviour in order to function effectively, including login locations, device fingerprints, communication metadata, keystroke timings, browsing patterns and even subtle behavioural signals that help models distinguish between normal and suspicious activity. While such data enables earlier and more accurate threat detection, it inevitably raises concerns about how much surveillance is appropriate in a modern workplace or digital service.

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In Malaysia, these concerns intersect directly with the Personal Data Protection Act (PDPA), which outlines how organisations must collect, process and store personal information. Yet, the PDPA was drafted before the widespread adoption of AI-driven monitoring, leaving organisations with complex interpretive challenges. How much behavioural data is too much? Should users be explicitly informed each time AI-driven monitoring expands in scope? How do companies ensure that data meant for cybersecurity purposes is not repurposed in ways users did not consent to?

These questions grow more urgent as cloud adoption accelerates. When data flows across borders, stored in servers located outside Malaysia, the responsibility becomes even harder to define. Organisations must balance the need for vigilant, continuous oversight with transparent governance, access controls and clear limitations on how long data is retained. Without these safeguards, cybersecurity tools risk becoming mechanisms of overreach, eroding the trust they are meant to protect.

These highlight a fundamental tension in AI-driven cybersecurity. Stronger monitoring can indeed create safer digital environments, but if implemented without care, it can also undermine user trust, disrupt operations and strain customer relationships. As Malaysia deepens its digital transformation, organisations must invest not only in the technical capabilities of AI, but also in governance frameworks that ensure these tools are used responsibly. Effective cybersecurity cannot come at the expense of privacy, clarity or user confidence. The challenge lies in finding the balance where protection and respect for individual rights coexist.

BALANCING THE GOOD AND THE BAD

AI must be implemented as part of a larger cybersecurity ecosystem that includes clear governance, continuous monitoring, strong access controls, comprehensive training and regular audits. Even the most advanced AI tools require skilled analysts to interpret alerts, investigate incidents and make decisions.

Malaysia's national cybersecurity strategy acknowledges this. The Malaysia Cyber Security Strategy (MCSS) 2020–2024 places strong emphasis on building national cyber resilience not just through technology, but through people. The document makes it clear that Malaysia's cybersecurity posture depends on strengthening technical capabilities alongside developing a skilled workforce and improving organisational readiness. It highlights capacity-building, professional development and public awareness as key pillars of a secure digital ecosystem. In this sense, while advanced tools, including AI-enabled systems, play an important role, the strategy notes that Malaysia ultimately requires competent professionals, clear processes and coordinated governance to ensure these technologies are used effectively and responsibly. In Penang's context, this balance is not just strategic, but economically essential.

At the everyday level, Malaysians must also evolve their digital literacy. As scams become more believable, the old markers of fraud like bad grammar, unfamiliar numbers and suspicious email addresses are no longer reliable. Public awareness and critical thinking become part of the cybersecurity equation.

A MALAYSIA-CENTRIC LOOK AT THE ROAD AHEAD

As Malaysia accelerates its digitalisation agenda through MyDIGITAL and the Digital Economy Blueprint, cybersecurity becomes the foundational infrastructure supporting everything else. Cloud adoption across government agencies, the expansion of digital public services, the rise of fintech and the push toward Industry 4.0 all require robust, AI-enhanced cybersecurity capabilities.

As AI increasingly plays a central role in protecting these environments, the need for Malaysian cybersecurity talent will grow in parallel. Universities, training institutions and private organisations are already working to bridge this skills gap, yet the demand continues to outpace supply.

Consumers are part of this ecosystem too. As AI-driven scams spread, Malaysians must adopt safer digital habits, such as verifying information through multiple channels, being cautious with voice calls requesting money, updating passwords more regularly and recognising that a convincing message or video is not necessarily real.

Cybersecurity literacy will become as essential as financial literacy in the years to come. No longer a niche technical concern, cybersecurity literacy is now a shared public responsibility. AI can strengthen our defences, but only if we maintain the awareness, discipline and resilience needed to guide it wisely.

THE FINANCIAL REVOLUTION THAT IS UPON US: TOKENISING CURRENCIES WITH STABLECOINS AND CBDCS

BY KENNETH ONG

ON 22 MAY 2010, an American software developer named Lazlo Hanyecz paid 10,000 bitcoins for the delivery of two pizzas. At the time, these bitcoins were worth about $41; today, they are valued at hundreds of millions of dollars. This day has since been called "Bitcoin Pizza Day", commemorating not only the first real-world transaction using bitcoin, but also the world's most expensive pizza.

In 2021, El Salvador signed the bill to adopt Bitcoin as legal tender, making it the first country to adopt cryptocurrency. President Nayib Bukele bet on the disruptive innovation of bitcoin, hoping that it would promote financial inclusion for a majority of the population who are unbanked, as well as ease the cost of remittances for money sent home by citizens abroad.

The journey of cryptocurrencies has come a long way. While these events have demonstrated the use cases of Bitcoin as a payment system and as a form of legal tender, Bitcoin's extreme volatility proved a fundamental challenge to its use as a reliable medium of exchange.

Asset tokenisation, the process of representing a real-world asset as "tokens" on the blockchain presents a solution to this problem. This concept is the foundation of two emerging classes of digital currencies that centre around stability: stablecoins, a privately-issued cryptocurrency designed to hold a stable value, and Central Bank Digital Currencies (CBDCs), a tokenised form of national currency. By prioritising stability and regulation, these digital assets are set to reshape the future of payments from 2026 onwards.

THE MECHANISM OF ASSET TOKENISATION

Before diving into these two digital assets, it is important to understand the mechanism of tokenisation that built the foundation of stablecoins and CBDCs. Simply put, tokenisation is the "process of creating digital representation of a real thing". While that might sound synonymous with digitalisation, there's a crucial caveat: traditional digitalisation—of photos or documents, for example—places the asset under the control of centralised entities like libraries and e-commerce platforms.

Tokenisation, on the other hand, distributes digital assets on a decentralised ledger that is sustained by computer networks, or blockchain. In essence, this structure allows virtually any real-world assets to be transacted and owned by anyone on the network in the form of digital tokens, which can represent value ranging from art and intellectual property to real estate. The most common example is non-fungible tokens (NFTs).

As absurd as it sounds, what drove the value of NFTs is the enforcement of ownership. Every token is tied to an ID and code unique to the creator, which guarantees authenticity. These tokens are transacted efficiently through the use of smart contracts, a self-executing programme that automates financial transactions without the need for intermediaries. This feature allows for instant settlements with clear tracking of ownership, as the underlying codes cannot be altered once they are on the blockchain, which further enforces asset ownership. Smart contracts embedded in most crypto/digital assets make transactions far more streamlined, transparent and highly liquid compared to traditional finance.

STABLECOINS: THE "STABLE" OPTION IN DIGITAL FINANCE

As the name suggests, stablecoins are designed to maintain a stable value by backing the token to a specific asset, which could be fiat currency, commodity or other cryptocurrencies. Currently, fiat-based stablecoins like Tether's USDT and Circle's USDC are regarded as the safest and most trusted tokens, which account for over 99% of transactions in the market. Major US commercial banks, such as JPMorgan, also issues tokenised deposits that represent customer deposits held in bank accounts.

Like other cryptocurrencies, stablecoins leverage smart contracts and decentralised ledgers to offer advantages over traditional finance. They enhance the speed of transaction while reducing the fees incurred, with some providers charging 80% lower than what traditional banks offer for cross-border transactions. Furthermore, the absence of centralised banks and low barriers to entry make stablecoins more inclusive and available to people who are unbanked.

Beyond financial inclusion, stablecoins have become a vital asset to hedge against inflation in volatile economies. A survey revealed that 47% of participants in developing countries like Brazil, Turkey and Indonesia, which suffered from long histories of hyperinflation and currency instability, use stablecoins for personal savings and cross-border remittances.

As of October 2025, the total market capitalisation of stablecoins has surpassed USD300bil, compared to Bitcoin's astounding USD2.3tril market capitalisation (Figure 1). Regardless, the market for stablecoins is expected to grow significantly, with forecasts projecting the market could exceed USD1.9tril by 2030, potentially reaching USD4tril under a bullish sentiment.

The massive growth of stablecoins have quickly prompted global regulatory action. Legislation, like the European Union's MiCA (Markets in Crypto Assets) framework (2023) and the US GENIUS (Guiding and Establishing National Innovation for US Stablecoins) (2025) Act, now mandates one-to-one backing with liquid assets and mandatory audits for stablecoin issuers. In Asia Pacific, Singapore, Hong Kong and Japan have also finalised comprehensive frameworks on fiat-based stablecoins, all with similar rules requiring a one-to-one reserve to their respective currencies.

FIG 1. TOTAL MARKET CAPITILISATION OF STABLECOINS

Source: DefiLlama

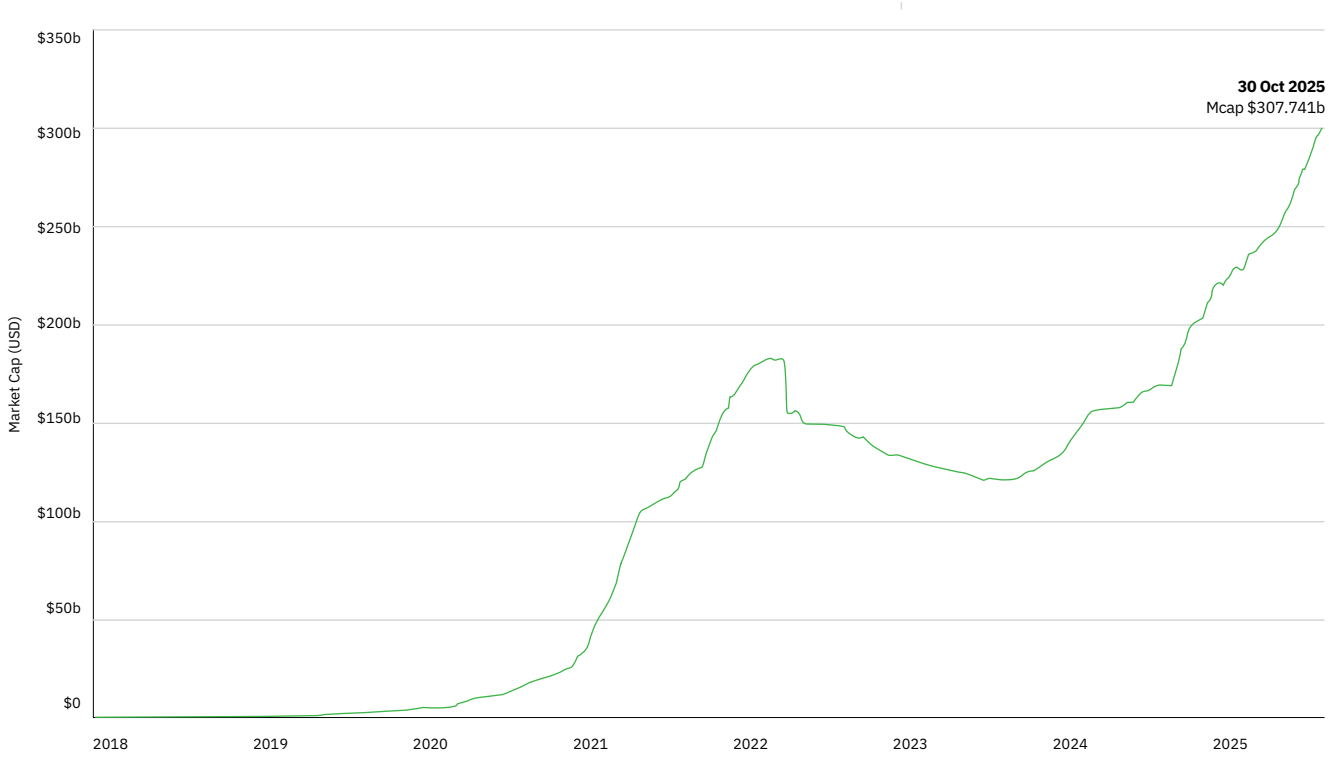
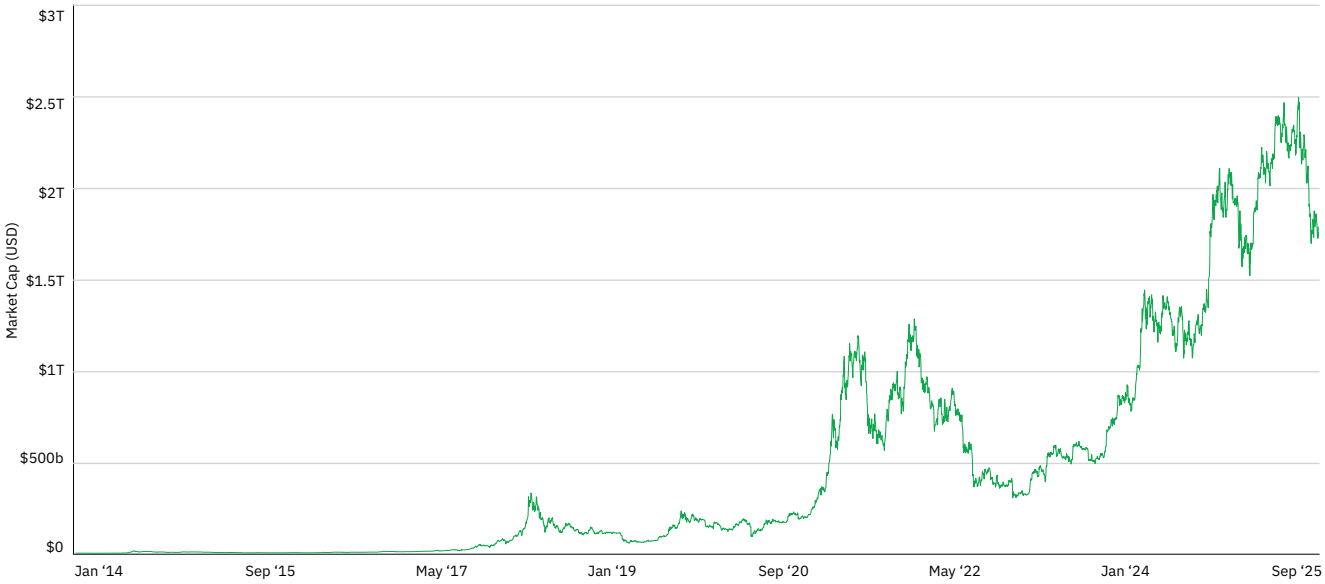


FIG 2. TOTAL MARKET CAPITILISATION OF BITCOIN

Source: DefiLlama



CBDC: A SOVEREIGN-BASED DIGITAL CURRENCY

Central Bank Digital Currencies (CBDC) is a relatively new monetary concept that gained significant traction in 2019, when digital assets rose in popularity. The research into CBDCs has been around for more than three decades, with experts citing that CBDCs could improve transparency in money flows and promote financial inclusion for the underbanked population.

Similar to fiat-based stablecoins, CBDCs are designed to maintain a stable value over time through the tokenisation of a national currency. These offer maximum stability and trust because they are direct liabilities of a central bank, similar to paper cash. This makes CBDCs fundamentally different from stablecoins, which rely on the credibility of private issuers and the value of their reserves assets. The earliest form of CBDC was seen in 1993, when the Bank of Finland launched the Avant Smart Card that stores money in a digital form. Although it was discontinued in the early 2000s, it was cited as the world's first precursor to a CBDC.

The primary risks of CBDCs are cyber threats; a massive scale of cyberattack could threaten data privacy and compromise national financial integrity. Another major risk relates to financial stability. If the public, during a period of economic crisis, rapidly withdraws money from commercial banks to hold CBDCs, it could trigger a crisis similar to a bank run.

Despite the risks and their relative infancy, many countries have begun experimenting with the adoption of CBDCs. Notably, in 2020, China rolled out its pilot programme of digital currency known as the Digital Renminbi (e-CNY). While it is not operated on a blockchain, China aims to use its digital currency to improve monetary control. In the same year, the Bahamas also launched the "Sand Dollar", a blockchain-based digital token, to serve its unbanked population.

THE FUTURE OF DIGITAL CURRENCIES IN MALAYSIA

Recognising the potential of tokenised assets, Malaysia, though moving cautiously behind a few regional peers, has begun actively researching CBDCs and developing a comprehensive framework for digital assets. Key initiatives by Bank Negara Malaysia (BNM) include the regulatory sandbox and the Digital Asset Innovation Hub launched in July 2025. Within these initiatives, projects regarding Islamic stablecoins and shariah-compliant digital finance are being tested in Labuan, one of Malaysia's financial hubs. Simultaneously, BNM is extensively testing out its CBDC prototypes focusing on cross-border, retail and wholesale uses. These prototypes will also implement the use of smart contracts that will further improve real-time electronic transfer of funds.

Digital currencies will continue to shape the payment landscape, with the most likely scenario being the co-existence of CBDCs and stablecoins as the forefront of digital finance. Ultimately, the integration of these assets will depend on effective regulation in mitigating their inherent risks. Malaysia needs to strike a balance between innovation and regulatory compliance, i.e. safeguard stability while ensuring continuous technological advancement.

REFERENCES

1. https://finance.yahoo.com/news/satoshi-bitcoin-whitepaper-went-live-100323013.html
2. https://abmagazine.accaglobal.com/global/articles/2021/dec/business/el-salvador-embraces-bitcoin.html
3. https://www.wisdomtreeprime.com/blog/tokenized-assets-or-digitized-assets-whats-the-difference/
4. https://www.businessinsider.com/personal-finance/investing/nft-meaning
5. https://www.ibm.com/think/topics/smart-contracts\
6. https://www.brookings.edu/articles/what-are-stablecoins-and-how-are-they-regulated/
7. https://www.mckinsey.com/industries/financial-services/our-insights/the-stable-door-opens-how-tokenized-cash-enables-next-gen-payments
8. https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-a-stablecoin
9. https://castleisland.vc/wp-content/uploads/2024/09/stablecoins_the_emerging_market_story_091224.pdf
10. https://defillama.com/stablecoins
11. https://www.coingecko.com/en/coins/bitcoin
12. https://www.citigroup.com/global/insights/stablecoins-2030
13. https://www.ey.com/content/dam/ey-unified-site/ey-com/en-gl/industries/banking-capital-markets/documents/ey-gl-global-stable-coin-regulation-comparison-09-2025.pdf
14. https://www.imf.org/en/publications/fandd/issues/2022/09/picture-this-the-ascent-of-cbdcs
15. https://www.weforum.org/stories/2023/11/cbdcs-how-different-cryptocurrency-stablecoin/
16. https://www.chinacenter.net/2023/china-currents/22-1/chinas-digital-currency-the-hopes-and-fears-of-the-e-cny/
17. https://theedgemalaysia.com/node/773557
18. https://www.bnm.gov.my/cuments/20124/5915429/fsb3_en_box3.pdf

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PREPARING THE YOUNG FOR AN AI-DRIVEN FUTURE

BY WONG LAI CHENG

ARE WE TRULY preparing young people with the knowledge and skills they need to thrive in an artificial intelligence (AI)-driven future?

The influence of AI is no longer abstract or distant; it is embedded in the technologies we use every day and the decisions that shape our future. If education is meant to equip students for the realities of today and the uncertainties of tomorrow, we must rethink what it means to be literate, capable and future-ready in the age of AI.

The Organisation for Economic Cooperation and Development (OECD) has recently announced a significant addition to the global education assessment. The OECD Programme for International Student Assessment (PISA) 2029 will include Media and Artificial Intelligence Literacy (MAIL). Moving beyond reading, mathematics and science, the new PISA 2029 targets interdisciplinary skills; MAIL will assess whether young students are learning to think critically and engage meaningfully in a mediated world increasingly shaped by digital and AI technologies. As production, participation and social interaction move online, this domain will provide insight into students' ability to evaluate the credibility, quality and purpose of digital content. Ultimately, it aims to make well-informed decisions as they continue to participate responsibly and in a digital society.

This innovative domain assessment will use realistic simulations such as browsing the internet, using social media or interacting with AI tools to see how well our students apply key media and AI literacy skills in real-life situations.

While various approaches exist to explain media literacy, there is broad consensus that it involves the ability to access, analyse and evaluate, create, and responsibly engage with mediated communication (Livingstone, 2008; Hobbs, 2017; Potter, 2019). Critical thinking is a core part of media literacy. A student's ability to think critically about the information they encounter in both the digital and non-digital environments influences their ability to determine the reliability and veracity of that information (OECD, 2022).

Meanwhile, AI literacy represents the technical knowledge, durable skills and future-ready attitudes required to thrive in a world influenced by AI. It enables learners to engage, create with, manage and design AI, while critically evaluating its benefits, risks and ethical implications (OECD, 2025).

WHY MAIL MATTERS

MAIL is now an essential component in education. Yet, most curricula around the world still don't explicitly teach students how to evaluate the influence of algorithms or the risks of synthetic media. Without this understanding, students risk being passive consumers of content, rather than informed citizens who can question bias, detect manipulation and think critically.

The MAIL competencies will prepare young students to:

- Identify bias in media and AI systems
- Understand algorithmic personalisation
- Recognise synthetic or manipulated media
- Reflect on ethical and social impacts of media and technology
- Analyse and evaluate the reliability and purpose of digital media content

MAIL competency is not about telling students what to think, but empowering them by equipping them with the tools and skills to think critically and empower themselves and others to critically evaluate the sources, content and impact of information in the age of AI. It means asking questions like "Where did this piece of content come from?" and "Why was this piece of content created?" Developing critical thinking competency means asking critical questions about AI-generated content, algorithmic decisions and the motives behind AI-powered systems.

Malaysia's PISA 2022 results—declining by 6.26% from an average score of 431 in 2018 to 404 in 2022 across reading, mathematics and science—underscore the importance of ongoing efforts to further strengthen the effectiveness of the education system.[1][2] With regional counterparts like Singapore, Vietnam and Korea performing strongly, Malaysia must confront a critical question: how do we prepare our students for the demands of PISA 2029 and the future of work?

Improving PISA outcomes requires embedding 21st century competencies at the heart of teaching and learning, particularly MAIL. To prepare for PISA 2029, Malaysia must:

1. Integrate MAIL into the national curriculum: Embed MAIL fundamentals across subjects, encouraging analytical thinking, ethical reasoning and digital fluency from an early age.
2. Innovate pedagogy through technology: Move beyond content delivery. Use AI-powered tools and digital platforms to personalise learning, stimulate inquiry and nurture creativity.
3. Invest in teacher training and infrastructure: Equip educators with the know-how and tools to teach MAIL meaningfully, and equip public schools with technology-rich environments.
4. Foster real-world problem-solving: Align learning with global standards that emphasise practical applications of knowledge, interdisciplinary thinking and resilience.
5. Expand digital equity initiatives: Scale up national MAIL programmes and ensure no learner is left behind.

To succeed in PISA 2029, Malaysia must go beyond academic reforms by embracing pedagogical innovation, curriculum redesign and technology integration. Ensuring digital inclusion and investing in equitable, future-ready learning environments will be key to empowering all students with the skills needed for an AI-driven future that is continuously and rapidly evolving.

ENDNOTES

1. https://penanginstitute.org/publications/issues/raising-the-alarm-urgent-reforms-needed-to-address-pisa-and-propel-stem-education/

2. https://www.oecd.org/en/publications/pisa-2022-results-volume-i_53f23881-en/full-report/overview-of-performance-trends_ae540546.html?utm

REFERENCES

1. European Commission. (2025). *Empowering Learners for the Age of AI: An AI Literacy Framework for Primary and Secondary Education*. https://ailiteracyframework.org/wp-content/uploads/2025/05/AILitFramework_ReviewDraft.pdf

2. Jordan Hill. (2022). *Policy Responses to False and Misleading Digital Content: A Snapshot of Children's Media Literacy*. OECD Education Working Papers No. 275.

3. ISIS Malaysia (2024). Understanding Malaysia's Decline in PISA 2022 Scores, Institute of Strategic and International Studies Malaysia. Malaysia.

4. Organisation for Economic Cooperation and Development (OECD). 2025. *AILit Framework*. https://ailiteracyframework.org/

5. Organisation for Economic Cooperation and Development (OECD). 2025. *PISA 2029 Media and Artificial Intelligence Literacy.* https://www.oecd.org/en/about/projects/pisa-2029-media-and-artificial-intelligence-literacy.html

6. Organisation for Economic Cooperation and Development (OECD). (2022). https://www.oecd.org/pisa/OECD_2022_PISA_Results_Comparing%20countries%E2%80%99%20and%20economies%E2%80%99%20performance%20in%20mathematics.pdf

7. TheStar. (2024). *M'sia looking to improve Pisa scores.* https://www.thestar.com.my/news/education/2024/02/25/msia-looking-to-improve-pisa-scores

8. United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2024). *User empowerment through Media and Information Literacy responses to the evolution of Generative Artificial Intelligence (GAI).* https://unesdoc.unesco.org/ark:/48223/pf0000388547

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SOME INITIAL LESSONS LEARNED WHEN TRAINING LARGE LANGUAGE MODELS

BY TAN LEE OOI

AS AN ACTIVE user of generative AI tools, I have always been curious about the foundational building of Large Language Models (LLMs). My curiosity was allayed when my sister recommended that I dabble in some interesting on-demand AI projects. Engaging with these projects beyond merely consuming AI provided me clarity on how the AI training industry is relentlessly growing. Pioneering the industry is Scale AI, founded by Alexandr Wang, who was appointed by Meta in June with a USD14bil offer.

AI training aims at feeding, tuning and perfecting the content in LLMs. Behind facilitating "human thinking" is a great deal of labour-intensive work by many AI trainers. Every piece of information in LLMs has to be created and trained by a subject knowledge expert, down to every minutiae, in diverse languages and across various regions to provide high-quality training data to AI companies.

FEEDING THE MONSTER

So, I decided to take part in this training. My first task was simple: Ask a question and check for errors in the answer.

Trouble was, if the model's response was void of error, it meant I had failed my assignment and would not be paid. This required some concerted effort from me to devise prompts that would cause the AI model to make at least one mistake. When an error does appear, I have to correct it. I also have to ensure the response does not sound machine-like.

Another project I undertook involved developing custom ethical guidelines for LLM training, specifically designed to sensitise the models to the nuances and social norms of the Malaysian cultural context. A thousand hypothetical scenarios were submitted to the project I was involved in to train the LLM in how to respond appropriately in the Malaysian setting.

An assignment that affected me negatively was the one that involved compiling profanities used in Malaysia. The project's goal was to help the AI understand human vulgarity, but the immersion was so intense that the profanity began to surface naturally in my conversations. Due to the negative psychological impact, I was onboarded to complete a workshop on Mihaly Csikszentmihalyi's concept of "happiness flow". I learned techniques to reset my cognitive and linguistic disposition after dealing with psychologically taxing and offensive language.

MY TAKEAWAYS

I gained a few important lessons as an AI trainer.

One is that AI hallucination presents a more serious problem than many realise. While some AI-generated responses seem plausible, a closer look reveals they are merely a semantic interaction without genuine reflexive thought. This represents a form of hallucination, particularly when the output fails to meet the expected standard of human intelligence even when it does not contain any error.

Current AI models also do not genuinely understand complex problems. Critical and contextual matters still require human judgment. AI suggestions and recommendations are simply an unpremeditated output of the model, dependent on the initial prompt.

When training AI to avoid "social sensitivities" in multi-ethnic Malaysia, I initially thought I was helping to input information so it will avoid errors. However, wouldn't this be considered a type of censorship? Plus, who decides what is sensitive?

With the constant speedy changes happening in the digital age, I wonder how much we have to feed the LLM monster in order for them to be near-perfect. For now, given what I could see of the workings of the machine, I would say it is an impossible feat.

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THE STATE OF AI IN MALAYSIAN HEALTHCARE

BY KEV LIM

HEALTHCARE IN MALAYSIA is under the same strain as in every middle-income country: rising burden of non-communicable diseases, ageing population, urban rural gaps and chronic workforce shortages.

Artificial intelligence (AI) is simply the next logical layer on top of the digital foundation. Modern healthcare is data heavy: imaging, laboratory results, discharge summaries, monitoring devices and patient reported outcomes. AI systems, especially machine learning and generative AI, are built to detect patterns in these high-volume, high-dimensional datasets in ways humans cannot match in real time.

For Malaysia the value proposition is clear:

- Screen more, screen earlier and at lower marginal cost for those with conditions like diabetic retinopathy, cancer and cardiovascular risk.
- Automate repetitive administrative and documentation tasks so clinicians can spend more time on actual clinical decision making and patient communication.
- Extend specialist expertise from tertiary hospitals into district facilities through AI-assisted triage, decision support and teleconsultation.

A recent review estimates that the AI healthcare market in Malaysia could grow more than 20 times, from roughly USD10mil in 2022 to approximately USD220mil by 2030, which indicates both the current under-penetration and also the significant upside available.

THE SHIFT IN PERCEPTION: FROM FEAR TO PRACTICAL ADOPTION

Globally, studies from Healthcare Information and Management Systems Society (HIMSS) and Medscape show that clinicians increasingly use AI for literature search, documentation, summarising complex data and image interpretation. The same trends are visible here. Malaysian clinicians often begin with small, low-risk use cases: generating discharge summaries, translating clinical notes or checking drug interactions. As confidence grows, adoption expands into more complex areas such as diagnostics and clinical decision support.

Importantly, Malaysian medical students are embracing AI even faster than the system itself. Universities now hold hackathons, innovation challenges and multidisciplinary competitions where students build triage models, image classifiers and digital health prototypes. Penang, in particular, has become an active hub for this kind of student-driven innovation, thanks to its strong university ecosystem and digitally mature hospital network. A new wave of clinicians will enter the workforce already comfortable with AI tools; this will give Malaysia a strong foundation for sustained adoption.

POLICY AND GOVERNANCE FOUNDATIONS

Contrary to the narrative that regulation is lagging, Malaysia has quietly built a reasonably comprehensive policy stack around AI and digital health:

- **National AI Office (NAIO),** launched in late 2024 as a central coordinating body, is mandated to deliver an AI code of ethics, a regulatory framework and a national AI technology action plan for 2026-2030.
- **National Guidelines on AI Governance and Ethics (AIGE)** issued by MOSTI in 2024 provides a cross sector reference for responsible AI practices, including fairness, transparency and accountability.
- **MMC Guideline on the Ethical Use of AI in clinical practice,** published in 2025, gives Malaysian doctors specific expectations on consent, oversight and accountability when using AI in healthcare.
- The newly formed **AI in Healthcare (AIH) Roadmap Initiative** adds clear national direction, with the Ministry of Health (MOH), Ministry of Higher Education (MOHE), Ministry of Science, Technology and Innovation (MOSTI) and the Ministry of Digital jointly outlining actionable steps for responsible AI deployment across Malaysia's health system.

This shows that Malaysia is not lacking in high-level policy. The issue is translation into concrete procurement frameworks, reimbursement models and hospital-level governance that frontline clinicians can actually work with.

AI ONLY MATTERS WHEN THERE ARE REAL USE CASES

The most important principle is simple: without concrete applications, AI is just hype. Malaysia's progress is anchored in real deployments that can be measured. Several local and international solutions are now operating in Malaysian hospitals and clinics, delivering operational gains and clinical support.

IMAGING AND DIAGNOSTICS

- Annalise.ai, Qure.ai and similar radiology AI platforms are used in hospitals such as Sunway Medical Centre to prioritise X-ray, CT and MRI reporting, highlight critical findings, and support radiologists with decision cues.
- DR MATA (Qmed Asia + MOH) is used by MOH's Klinik Kesihatan; it delivers AI-assisted retinal screening for diabetic eye disease, enabling faster diabetic retinopathy screening and early referral pathways.
- Vidanex (digital pathology + AI) for slide digitisation, tumour detection support and high-risk case prioritisation in pathology labs, helps reduce turnaround time and improve reporting consistency.
- mCare (NexoPrima), an AI CTG for real-time CTG interpretation in labour rooms, highlights abnormal patterns across multiple beds and supports earlier escalation by obstetric teams.

CLINICAL DOCUMENTATION AND DECISION SUPPORT

- Qmed Scribe is the local ambient scribe solution (voice-to-text) that generates draft clinical notes, referral letters and discharge summaries from consultations, understanding Malaysia's mixed language interactions and aligning outputs to EMR templates.
- AskCPG (Qmed Asia + MaHTAS/MOH) provides guideline-based decision support, answering clinical questions using Malaysian Clinical Practice Guidelines with fast, cited recommendations.

PATIENT TRIAGE AND VIRTUAL CARE

- NORA (Qmed Asia) serves as an AI symptom checker for pre-visit triage, routing patients to emergency, clinic or home care and integrating with appointment and queue systems in private hospital groups.
- AI Chatbots like Watsonx in KPJ Healthcare, BotMD in Sunway Medical Centre and similar platforms use AI to handle FAQs, appointment guidance and medication queries, while telemedicine providers increasingly use AI for translation, summarisation and risk alerts during virtual consultations.

OPERATIONAL OPTIMISATION

- AI Smart Roster (Qmed Asia) predicts patient load and generates optimised duty rosters for doctors and nurses, used in wards and hospital operations teams.
- AIME (Hayat Technologies) uses AI to forecast dengue outbreaks weeks in advance for public health response.
- AI-assisted medical coding and claims tools suggest ICD-10[1] and DRG[2] codes to streamline billing cycles and cut manual errors.

ROADMAP FOR THE NEXT FIVE YEARS

AI in healthcare is moving fast, but real-world adoption is still slowed by several structural issues. The biggest challenge is data. Our records are scattered across different Health Information System (HIS) versions, private Electronic Medical Records (EMR) and even paper notes—because nothing speaks the same "language". Every integration takes longer than it should, and training local models becomes unnecessarily difficult. Regulation is improving, but hospitals still want clearer operational rules—how to validate an AI system, how to monitor it and how responsibility is shared when AI is involved in clinical decisions.

Financing adds another layer of friction. Most AI deployments start as pilots or capex items, but they will only scale once public and private payers have clear reimbursement pathways. Clinicians themselves are becoming more open to AI, yet adoption grows only when the tools save time and fit naturally into their workflow. Good onboarding and trust-building remain essential.

Over the next five years, we must strengthen data standards and interoperability so that information can flow smoothly between hospitals, clinics and labs. We need more practical regulatory frameworks that give hospitals confidence to adopt AI safely and consistently. We need sustainable funding models to move AI out of pilot mode, especially in areas where the value is already proven: documentation, coding, triage and diagnostics. And we must continue investing in people, from clinicians to medical students, so AI becomes a reliable, everyday tool rather than an experimental add-on.

Malaysia must commit to building and adopting local AI—models trained on Malaysian data, aligned with Malaysian offerings, and hosted on Malaysian infrastructure. This is the only way to ensure trust, safety and long-term scalability. With the right foundations in place, AI can move from isolated projects to a stable part of how healthcare is delivered across the country.

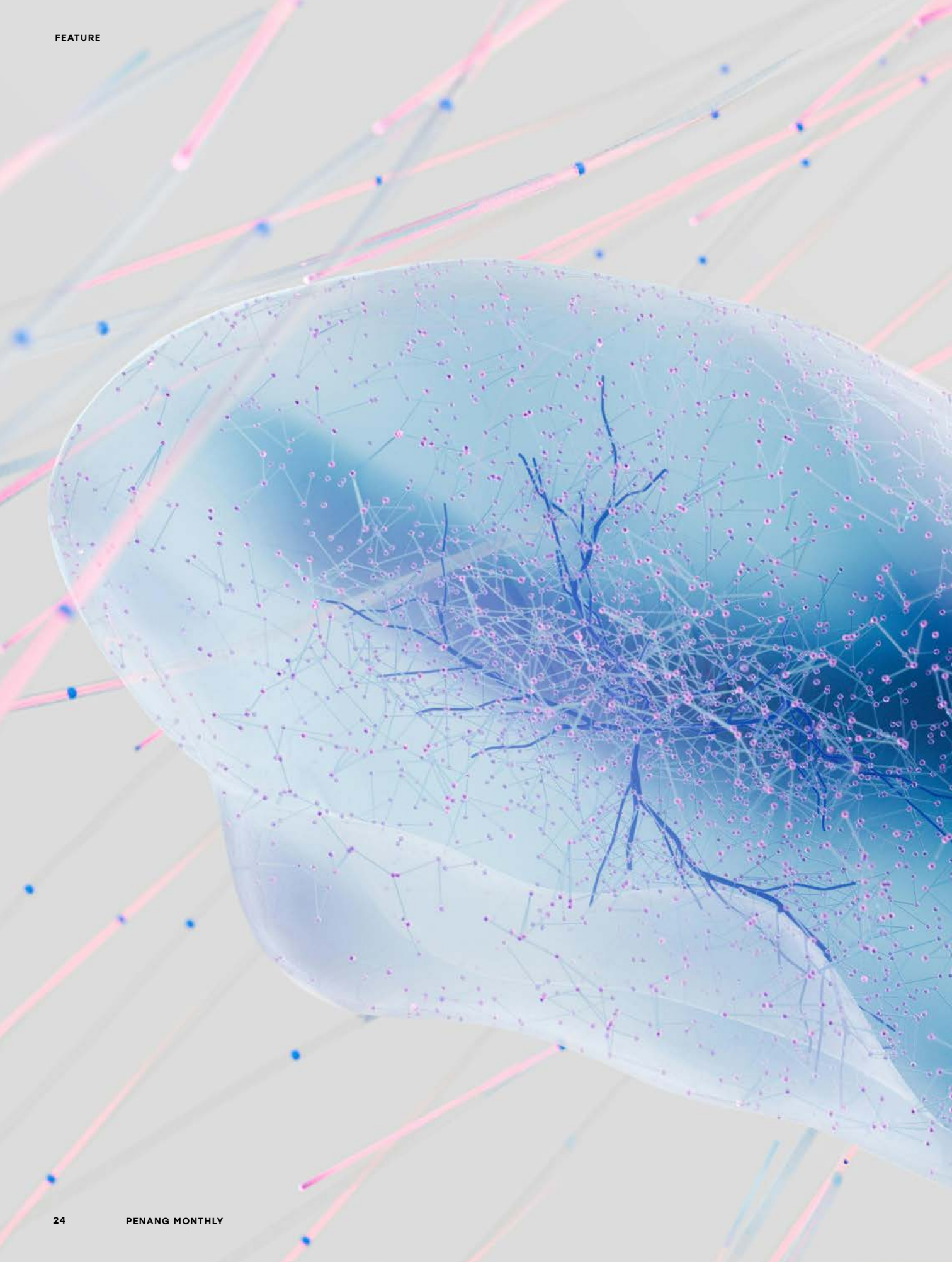
Penang, with dense hospital clusters and globally competitive healthcare services, can become strategic testbeds for these local models, giving Malaysia a controlled, realistic environment to validate AI before national rollout.

The focus now is scaling AI properly: better data foundations, clearer rules, sustainable financing and stronger adoption of local AI solutions that fit our guidelines and workflows. If we get these fundamentals right, AI will move from isolated pilots to everyday clinical practice, improving efficiency, accuracy and patient care across the entire system.

FOOTNOTES

1. International Classification of Diseases, 10th Revision
2. Diagnosis-Related Group

DR. KEV LIM is a doctor-turned-healthtech entrepreneur and CEO of Qmed Asia, a regional leader in enterprise digital health. Trained in paediatrics with prior Clinical AI research experience, he bridges clinical insight and technology to transform healthcare delivery across Southeast Asia.



FACING THE SPECTRE OF AI

THE REAL CHALLENGE IS TO RESTORE THE CONDITIONS UNDER WHICH THINKING HAPPENS

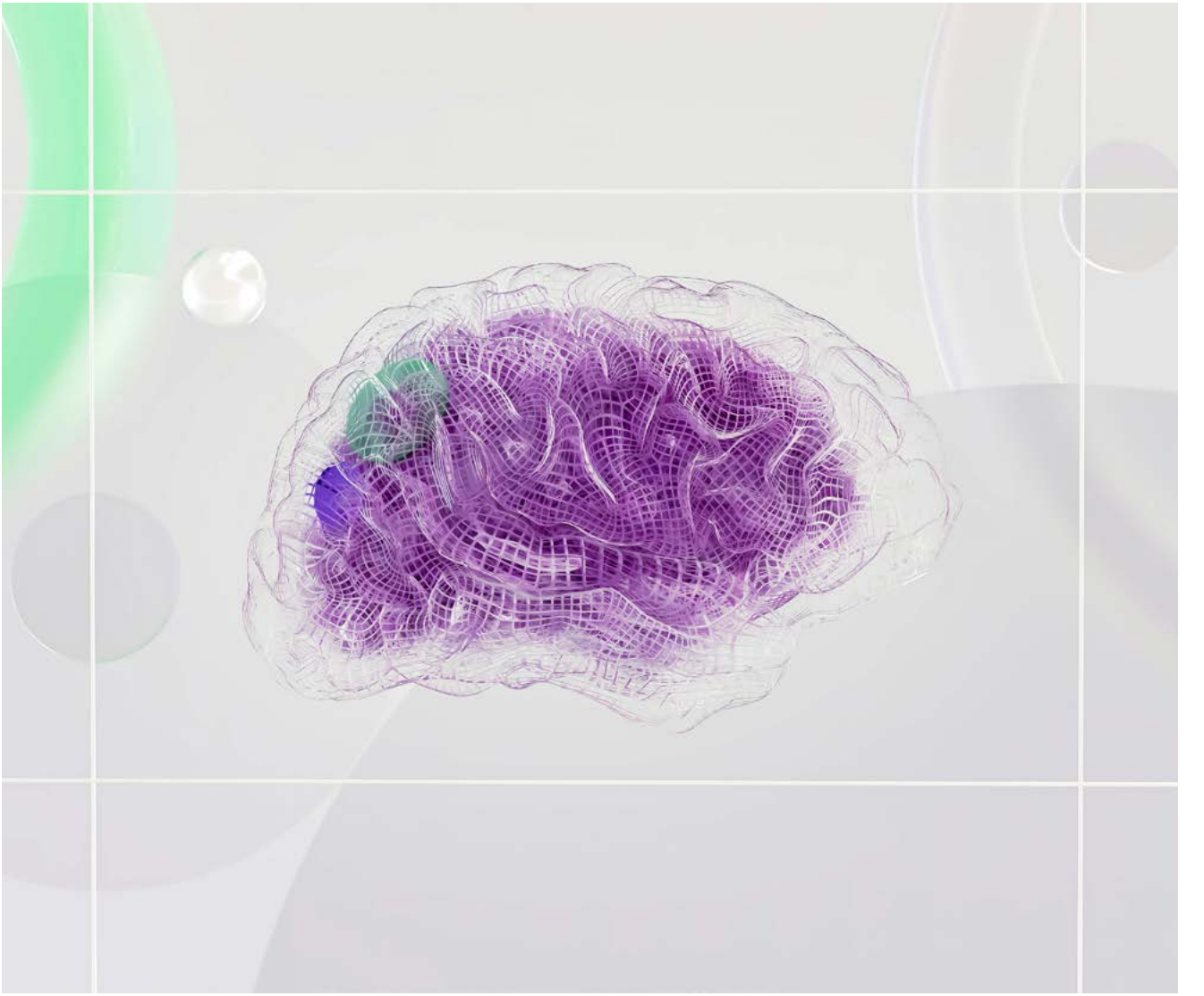
IN EARLY NOVEMBER, an email arrived from our programme coordinator. It contained a single question: "Given the rise of AI, what should be the role of human teachers of writing?" Things have changed. Two years earlier, when I asked the university whether we should prepare a coherent framework for artificial intelligence (AI) in teaching, the reply was instantaneous: "Why should we be first?"

BY TORSTEN JUELICH

The reckoning has arrived, whether we are ready or not. AI has arrived, like a spectre haunting education—fluent, tireless, efficient and increasingly woven into students' lives. Yet, the real issue is not the machines. The real issue is something much more fragile: universities have lost the conditions under which thinking can actually happen. AI did not create these conditions; AI merely unveiled them. When conditions for thinking erode, humans do what humans always do: compensate, offload, reach for whatever reduces cognitive strain. Before we debate what teachers should do in the age of ChatGPT, Gemini and Deepseek, we must ask a more foundational question: Do our classrooms still offer the mental, emotional and social space that allows students to think at all?

For decades now, higher education has operated on assumptions inherited from another era—that students come to university seeking knowledge unavailable elsewhere, that assignments require genuine struggle, that exams measure mastery rather than compliance. AI did not break these assumptions, it simply revealed that they were already broken.

Today, the landscape is unrecognisable: students now have instant access to explanations, translations, summaries, answers and arguments. Many assignments can be completed by AI instantaneously and, most critically, at a passable level. Meanwhile, teachers disagree about what is allowed, administrators hesitate and policies lag years behind reality.



NOT ALL IS AI'S FAULT

Underneath all this lies a deeper truth: when circumstances make thinking optional, students stop practising it. When cognitive overload becomes normal, students naturally turn to cognitive offloading. When shortcuts deliver instant clarity, the appeal can take on the contours of dependency; this is not a moral failing, but a predictable neurological response.

AI's rise is not the cause of cognitive drift. It is the symptom of learning environments that no longer protect the space required for sustained attention and intellectual effort.

Writing is not the act of placing words onto a page. It is the act of organising a mind. As an old teacher of mine used to say: "*Arbeit am Wort ist Arbeit am Gedanken*" (Working on the word is working on the thought). To write is to discover what one believes, to test the strength of a claim, to confront confusion, to connect evidence with meaning, to bring order into one's thinking. Writing is not the display of knowledge—it is the slow construction of it. AI can mimic the product of writing. What AI cannot replicate is the process of discovering understanding.

The role of the writing teacher, therefore, is not to simply transmit linguistic rules, or to teach how to outwrite machines, or how to police students. The role of both the university and the teacher in times of AI is to create an environment in which students experience enough friction to resist cognitive laziness, and enough support to avoid cognitive offloading becoming their dominant learning strategy. In other words: teaching writing means cultivating the conditions in which thinking becomes not only possible, but irresistible, interesting and something students cherish.

In his Atlantic article "ChatGPT Doesn't Have to Ruin College", T.A. Harper describes an encounter with English major students, who told him in no uncertain terms what they thought of the idea of letting an algorithm do the writing for them. Those students were describing not writing, but conditions—precisely the conditions our universities must reclaim.

Our students, mostly enrolled in the life sciences, arrive with immense pressure. A workload of up to 14 courses a semester. Weekly in-class tests, quizzes, projects. Classes starting at 8am, days finishing at 10pm. Weekends loaded with laboratory work on top of course projects and homework imposed by impatient supervisors. A culture of silent competition, every student on their own, just like what they had experienced at every stage of their education. Studying English as a second language adds to the struggles of making academic ends meet.

AI AS RELIEF

Under these circumstances, AI is not a threat; it turns into a lifeline that allows for some brief respite from the relentless bombardment with assignments, many of questionable value for true learning. Under these conditions, students ask—quite reasonably—"why read a dense scientific paper,

when a chatbot explains it instantly?" "Why write a rough draft, when AI produces something cleaner?" And, "why wrestle with uncertainty, when a tool offers quick certainty?"

This is not laziness. This is cognitive triage. Human brains are designed to conserve effort. When workloads explode and attention collapses, cognitive laziness is not a failure of character—it is an efficient adaptation. When a tool offers instant clarity, structure and certainty, dependence becomes increasingly tempting.

Students are not avoiding thinking—they are exhausted by environments that make thinking nearly impossible. AI fills the vacuum left by pedagogical conditions in decline.

Thinking does not emerge from pressure, distraction, speed or schedules designed for maximum throughput. Thinking emerges when certain human conditions are met:

- Time—enough to read, reconsider, revise;
- Attention—the ability to hold an idea without being interrupted by a mobile phone;
- Presence—listening to another mind in real time, face-to-face, through an emotional connection;
- Safety—freedom to be wrong without being humiliated in front of peers;
- Curiosity—interest arising from a sincere, open desire to understand, explore and learn about something new, driven by fascination rather than a gap in knowledge;
- Dialogue—the friction of honest minds meeting, not to debate and defeat, but to explore.

Thinking requires an atmosphere—not a tool. Crucially, such an atmosphere prevents the formation of subtle dependencies on instant-answer systems. Our task as teachers is to rebuild this atmosphere. AI is not the enemy of thought; the enemy is the collapse of conditions that make thought possible.

REDESIGNING LECTURING

To restore these conditions, our teaching team redesigned the academic writing course.

First, small groups instead of silent rows: students sit in groups of four to six. The goal: replace competition with collaboration, thus replacing cognitive offloading with shared reasoning. Second, no gadgets, unless needed: students describe this as "a much-needed rest for the brain." Many of our students get to experience undivided attention for the first time all week—an antidote to the constant micro-offloading encouraged by digital devices.

Third, weekly science-news reading: students select one article at home, they read it in their own time, they come to class with handwritten notes—a sign of genuine ownership.

I will never forget the student who said, quietly, "this is the first time I actually enjoyed reading a scientific article."

In class, they explain their chosen science stories to their peers. Slow reading interrupts cognitive laziness by reinstating the pleasure of sustained attention.

Fourth, only then do we invite AI into the room. Students compare their own summaries to AI's output: where did AI oversimplify? What nuance did it miss? What error did it hallucinate? What question did it fail to ask?

They learn that AI is useful, but naïve; fluent, but blind; confident, but often wrong. Students shift from consuming AI answers to critiquing them—from outsourcing thought to reclaiming it. In doing so, they learn how to use AI without becoming cognitively dependent on it.

In an age of ubiquitous AI, slow human skills look increasingly obsolete, be it handwriting, deep reading, patient questioning, outlining ideas, testing arguments or revising sentences. If we stop using these skills, we risk drifting toward the kind of passive, screen-mediated existence imagined in *Wall-E*.

In his essay, "The Age of De-Skilling", Aphiah argues that "judgment, imagination, empathy… aren't backups; they're daily practices" and "to offload those faculties would be, in effect, to offload ourselves."

These skills counteract the brain's natural slide toward cognitive laziness. They reduce reliance on cognitive offloading. They insulate against the subtle forms of dependency that arise when instant answers become the norm. They maintain the mental muscles that allow us to use AI, rather than be used by it.

The paradox of the AI era is simple: the less useful a human skill looks, the more cognitively valuable it becomes.

Higher education faces a defining choice: to become efficient AI-assisted credential factories—fast, polished, convenient, yet hollow; or to become sanctuaries for thinking—places where slow reading, hard conversations, uncertainty, intellectual struggle and human presence are not obstacles to learning, but its essence.

The danger is not that AI will replace teachers. The danger is that universities will forget what teachers are for.

If universities do not restore the cognitive conditions for learning, cognitive offloading will become the default mode of student life. If they do, AI can be integrated without allowing dependency to take root, and be embraced at its best: measured, critical and free of dependency.

What then is the future of lecturing in times of AI? Surely not to outwrite the machines; not to ban them or surrender to them. The task is older and more radical: restore the conditions under which thinking can actually happen. Because when those conditions exist, cognitive laziness recedes, cognitive offloading becomes selective rather than automatic, and dependency loses its grip. AI can produce flawless sentences, instant answers, perfect summaries. But AI cannot care, listen, hesitate, wonder, doubt or connect.

Thinking is a human act. Recall how Steven Levy expressed this in his commencement address at Temple College of Liberal Arts Class of 2025 (published in *Wired* as "No Graduates, AI Hasn't Ended Your Career Before It Ends": "you have something that no computer can ever have. It's a superpower, and every one of you has it in abundance. Your humanity."

If we restore the conditions for thinking, students will rediscover what no machine can simulate: the experience of understanding itself.

In *What the Best College Teachers Do*, Ken Bain describes the environments in which deep learning naturally flourishes: spaces where curiosity is sparked, ideas are questioned, mistakes are safe and students feel invited into intellectual exploration. AI has changed many things, but not this. The task ahead is not new. It is simply to remember what Bain taught us: that thinking blooms when the conditions are right—and we must rebuild those conditions with courage.

***Note:** ChatGPT served as a conversational partner in organising the structure, strengthening the argument, and improving the cadence and rhythm of the writing. The intellectual content and final wording are entirely the author's responsibility.*

REFERENCES

1. T. A. Harper, *"The Question All Colleges Should Ask Themselves About AI"*, *The Atlantic* (2025).
2. S. L. Beilock, *"How to Think, Not What to Think"*, *The Atlantic* (2025).
3. Kwame Anthony Appiah, *"The Age of De-Skilling"*, *The Atlantic* (2025).
4. T. A. Harper, *"ChatGPT Doesn't Have To Ruin College"*, *The Atlantic* (2023).
5. Steven Levy, *"No graduates, AI hasn't ended your career before it ends"*, *Wired* (2025).
6. Ken Bain, *What the Best College Teachers Do* (Harvard University Press, 2004).

DR. TORSTEN JUELICH is a PhD graduate from ANU (Medical Sciences), Australia, and currently works as a lecturer at two major universities in Beijing, China.

THE GROWTH OF ARTIFICIAL INTELLIGENCE

BY HAJAR ARIFF & ONG SIOU WOON

HAJAR ARIFF graduated from Universiti Tun Hussein Onn Malaysia (UTHM) with a Bachelor of Science (Hons) in Industrial Statistics. She is an introvert who lends her time to activism whenever the need calls.

ONG SIOU WOON 20 years (and counting) in Penang, and more than a decade with Penang Institute—she is a YSEALI alumnus trained in urban planning. She finds learning about nature and food a never-ending journey.

THE GROWTH OF artificial intelligence (AI) is driven by a diverse ecosystem of players, from **full-stack platforms and industry-specific vendors** to **open-source innovators and cloud-native providers.**

FULL-STACK PROVIDERS

Offer end-to-end AI solutions, from infrastructure to deployment, for minimal in-house setup.

CLOUD-NATIVE PLATFORMS

Enable fast, scalable and easily integrated AI through cloud infrastructure.

OPEN-SOURCE CONTRIBUTORS

Promote transparency and flexibility for teams wanting control over their AI models.

INDUSTRY-SPECIFIC VENDORS

Focus on sectors like finance, healthcare or manufacturing, offering tailored, regulation-ready solutions.

Source: Alibaba Cloud

Building on this ecosystem is a **growing global network of innovators,** from startups and research labs to tech giants, each working to reshape industries and set new standards for digital progress.

Source: Alibaba Cloud

US, CHINA & UK

lead in the global AI startup race

Source: Alibaba Cloud

62,184

AI-RELATED STARTUPS

Source: Alibaba Cloud

2,049

AI STARTUPS SECURING OVER USD1.5MIL IN FUNDING ANNUALLY

Source: Alibaba Cloud

212,230

AI COMPANIES ACTIVELY OPERATING GLOBALLY

Source: Alibaba Cloud

AI STARTUPS IN MALAYSIA

AI-driven ventures make up the majority of Malaysia's advanced technology startups, reflecting the growing focus on **innovation-led industries.** Most are concentrated in the **Klang Valley;** meanwhile, emerging hubs in **Penang and Johor** show how AI entrepreneurship is gradually expanding beyond the centre.

DISTRIBUITION BY TECHNOLOGY (AI)

Source: MYStartup

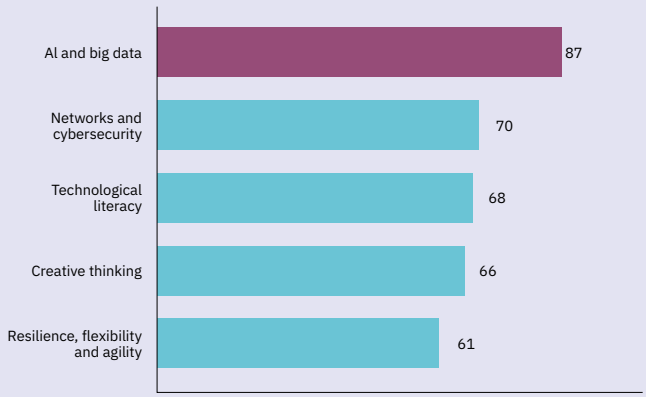
SELANGOR 87	KL 76	PENANG 16	JOHOR 8
SABAH 5	SARAWAK 5	PERAK 4	KELANTAN 2
NEGERI SEMBILAN 2	PUTRAJAYA 2	TERENGGANU 1	MELAKA 1

WHERE AI JOBS ARE

Globally, digital and adaptive skills are becoming central to the future of work. AI and big data show the strongest rise at **87%,** followed by cybersecurity, technological literacy, creative thinking and resilience. Demand is strongest in **automotive, telecommunications and professional services,** with other sectors such as energy, healthcare and government quickly catching up. The trend highlights a worldwide move toward **combining technical fluency with adaptability** in the workforce.

SKILLS EVOLUTION (%), 2025-2030

Source: WEF, Future of Jobs Report 2025



TOP 10 INDUSTRIES FOR AI AND BIG DATA

Source: WEF, Future of Jobs Report 2025

AUTOMOTIVE & AEROSPACE	100%
TELECOMMUNICATIONS	100%
PROFESSIONAL SERVICES	98%
INFORMATION & TECHNOLOGY SERVICES	97%
INSURANCE & PENSIONS MANAGEMENT	97%
FINANCIAL SERVICES & CAPITAL MARKETS	95%
SUPPLY CHAIN & TRANSPORTATION	94%
MEDICAL & HEALTHCARE SERVICES	92%
ENERGY TECHNOLOGY & UTILITIES	90%
GOVERNMENT & PUBLIC SECTOR	90%

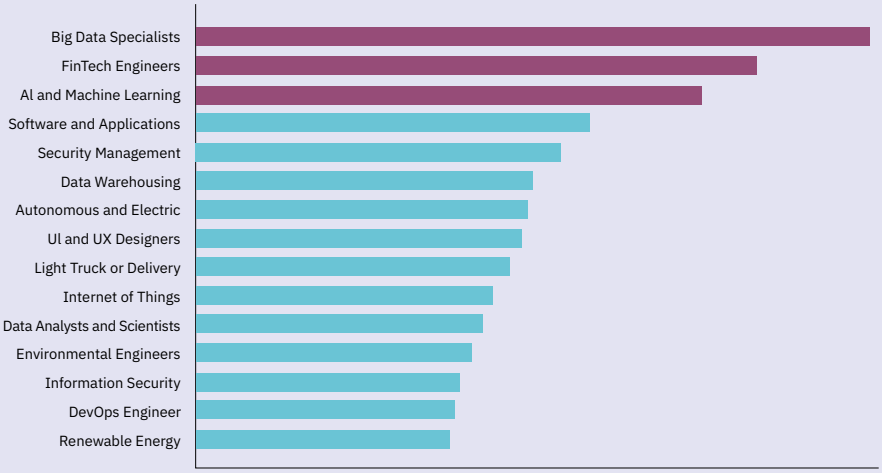
FASTEST-GROWING JOBS

The fastest-growing jobs of 2025-2030 point to an economy powered by **data, intelligence and automation.** Roles like **big data specialists, FinTech engineers and AI & machine learning experts** are leading the surge, while demand for **cybersecurity, renewable energy and design talent** shows how technology and sustainability are shaping the future of work.

TOP JOBS, 2025-2030

Source: WEF, Future of Jobs Report 2025

Note: Projected by surveyed employers.

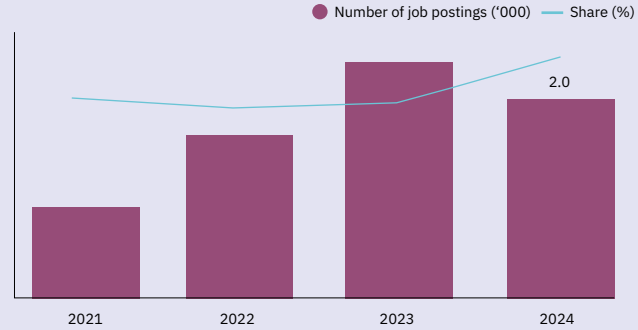


MALAYSIA'S AI SKILLS AND ICT EMPLOYMENT

In 2024, job postings requiring AI expertise reached **2%,** reflecting **growing demand for automation, analytics and intelligent systems.** This rise parallels an expanding information, communication & technology (ICT) workforce of **16.4mil,** signalling Malaysia's **advancing digital maturity** and the widening demand for **tech-driven skills.**

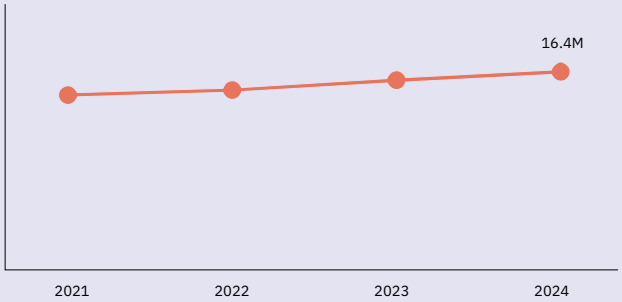
JOB POSTINGS REQUIRING AI-RELATED SKILLS, MALAYSIA

Source: 2025 Global AI Jobs Barometer, Malaysia Analysis, PwC & DOSM



EMPLOYMENT IN THE ICT INDUSTRY, MALAYSIA

Source: 2025 Global AI Jobs Barometer, Malaysia Analysis, PwC & DOSM



MEET THE MACHINES

Generative AI (GenAI) platforms are reshaping how people work and create, with **ChatGPT** leading the wave. With an estimated **557mil users,** ChatGPT stands far ahead of the pack, followed by Google Gemini and Deepseek. Platforms like Perplexity, Grok, Microsoft Copilot and Claude are building strong followings, reflecting how the AI ecosystem is diversifying as new models enter the mainstream.

POPULAR AI PLATFORMS

Source: DataReportal, Oct 2025

Note: As of August 2025

POPULAR GENAI USE CASES

Source: Digital 2026, Global Overview Report

USER ACTIVITY	2025 RANK	2024 RANK
Therapy & companionship	1	2
Life organisation	2	N/A
Finding purpose	3	N/A
Enhanced learning	4	8
Generating code (PROS)	5	47
Generating ideas	6	1

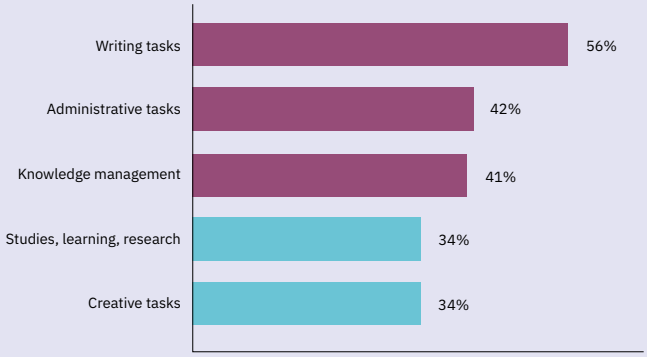
In 2025, activities like **therapy and companionship, organising daily life and finding purpose** top the list of AI uses, showing how people are embracing AI as supportive aid. Meanwhile, **AI-assisted coding and enhanced learning** continue to gain traction, signalling a broader shift toward **productivity and personal development.**

HOW ARE MALAYSIANS USING GENAI?

In the workplace, GenAI is most often used for **writing (56%), administrative work (42%) and knowledge management (41%).** Beyond the office, Malaysians are turning to AI for **fact and general knowledge (58%), skill development and learning (51%) and language translation (40%).** These patterns suggest that GenAI is not just a workplace tool, but also emerging as a trusted partner in **learning, problem-solving and personal growth.**

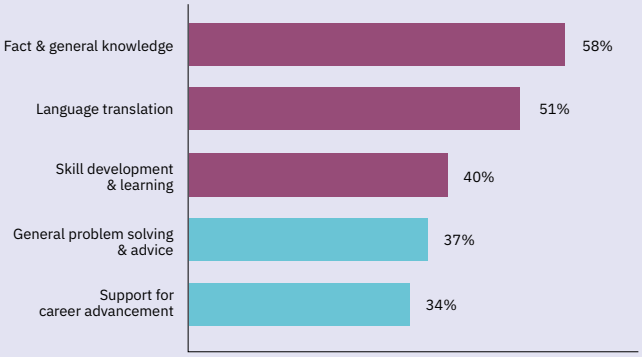
GEN AI IN WORK

Source: Decoding Global Talent 2024 Report



GEN AI IN PERSONAL LIFE

Source: Decoding Global Talent 2024 Report



BACKSTAGE POWER

Globally, an invisible web of infrastructure powers every AI query, video stream and digital transaction, making the unimaginable possible.

170+
COUNTRIES

800+
CLOUD SERVICE PROVIDERS

11,000+
COLOCATION DATA CENTRES

Source: WEF, Future of Jobs Report 2025

FUELLING LLM GROWTH

Source: Towards AI

2025
GenAI spending estimated at USD644bil

2035
Specialised infrastructure ecosystems to exceed USD350bil

As cloud infrastructure and data centres expand, it fuels the rise of **Large Language Models (LLM),** the engines behind today's GenAI. These models rely on vast computing power housed in data centres worldwide.

Malaysia mirrors this transformation, anchored by **global giants** such as Amazon Web Services (AWS) and Microsoft, supported by over **100 data centres nationwide.** Johor is emerging as a **major data centre hub** due to its proximity to Singapore. KL's data centres primarily support **domestic enterprises and government systems,** while other regions such as Labuan and Kuching contribute to Malaysia's **expanding digital footprint.** Beyond the southern and central regions, Penang is positioning itself as the **northern digital gateway** with three data centres, followed by Kedah and Perak with two each.

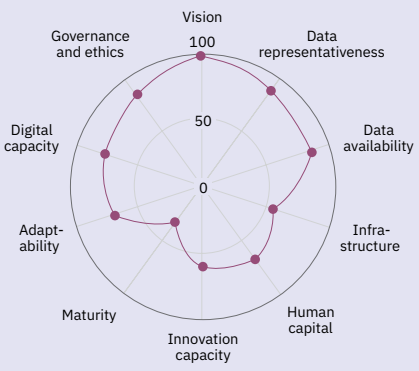
MALAYSIA CLOUD AND DATA CENTRE INFRASTRUCTURE BACKBONE

Source: Data Centre Map & Data Centre Asia

MALAYSIA: AI READY

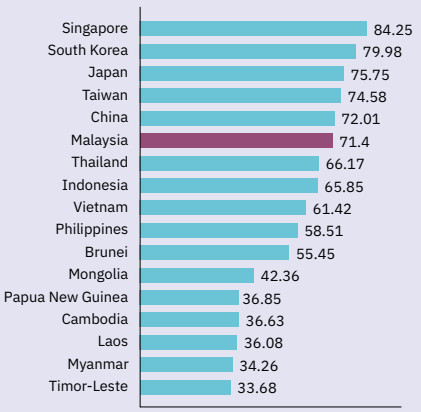
MALAYSIA INDEX OF AI READINESS, 2024

Source: Oxford Insights, 2024



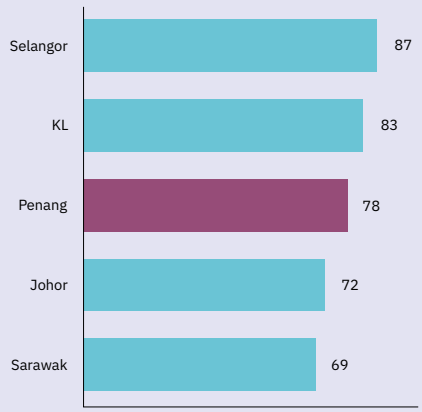
GOVERNMENT AI READINESS INDEX, EAST AND SOUTHEAST ASIA, 2024

Source: Oxford Insights, 2024



MALAYSIAN STATES LEADING IN AI READINESS, 2025

Source: AI Malaysia, 2025



Ranking **24th** globally with a score of **71.4,** Malaysia's AI readiness is driven by **strong government vision and data infrastructure.** Backed by a clear national vision, governance and ethics, and digital capacity, Malaysia stands among East and Southeast Asia's **top AI-ready nations.** While **technology, maturity and innovation capacity** remain areas for growth, the country's steady progress reflects a clear move from strategy to real AI impact. Within Malaysia, **Penang** takes centre stage as Malaysia's AI manufacturing hub with a score of **78,** proving that innovation does not stop at the Klang Valley. **Selangor** leads the charge, KL powers **digital growth,** while Johor and Sarawak drive AI momentum **from vocational AI training to agriculture.**

HIGHS AND LOWS IN PENANG'S URBAN DEVELOPMENT

BY IAN MCINTYRE

Source: The Light Waterfront

IAN MCINTYRE is a veteran journalist with over 25 years of experience reporting for the mainstream and alternative media. He subscribes to a belief that what is good for society is likewise beneficial for the media.

TWO MAJOR LANDMARKS have sprouted up on Penang Island in the last quarter of 2025—the Penang Waterfront Convention Centre (PWCC) and the Lin Xiang Xiong Art Gallery. Surrounding them are various housing schemes and commercial spaces, which will eventually house international hotels, a shopping mall and retail chains—all developed by IJM Land Berhad, the same builder who constructed the Tun Dr. Lim Chong Eu Expressway.

PWCC, measuring 10,433ft² contains an exhibition hall and conference rooms with a waterfront view of the Penang channel, bridge and Seberang Perai on the mainland. It seats up to 10,000 visitors with 10 function rooms and a parking bay for 2,900 vehicles.

As for the seven-storey art gallery, this was designed to resemble a turtle, a symbol of longevity and good fortune in Chinese folklore. It is happenstance that the outline of Penang Island also (used to) takes after the shape of a turtle. The gallery features work by its founder, renowned artist Professor Lin, who was born in China and educated in Singapore. His works are accompanied by 200 other international artworks. The facility also includes its own exhibition space, eateries, a rooftop terrace, and an art and culture centre.

Both landmarks underscore the growing reliance of reclamation in the Penang psyche despite initial objections from civil society organisations (CSO); adding land to increase more buildable surface area on the island is now taking place throughout the state. While the Butterworth foreshore reclamation plan is currently scrapped, ongoing reclamation is taking place at Gurney Wharf, the Andaman Island off Straits Quay, together with the almost-completed Seri Tanjung Pinang township. The Light Waterfront is one of the notable ones, and largely went unencumbered as the land was available as part of the expansion of the expressway as a connector for traffic dispersal from Penang Bridge.

Some 14km away is the Silicon Island, the state's most prominent project—we are looking at an additional 2,300 acres of land mass off the Permatang Damar Laut beachfront in Batu Maung. But state executive councillor Zairil Khir Johari, who oversees the key infrastructure, has argued that the island is needed to correct the acute shortage of land bank.

"Reclamation is not new to Penang," Zairil has often pointed out in past interviews. He spoke of how Gurney Drive was reclaimed by British colonial authorities.

THE CITY'S FOUNDATION AND BEYOND

IJM Land chief executive officer, Tony Ling Thou Lung was quoted in past media interviews as saying that The Light Waterfront is its most iconic project to date. "The Light Waterfront is our flagship project in Penang. We have been part of Penang's growth story for more than 40 years, and The Light Waterfront brings together everything we have learnt—residential, commercial, retail, hospitality, wellness and placemaking—into one integrated waterfront city."

Launched in 2007, the first phase focused on premium residential living, namely The Light Linear, The Light Point and The Light Collection. Contrary to speculations, all units were fully sold after it was completed. It was reported that while Phase 1 established the tone of exclusivity and architectural finesse, Phase 2 is slated to transform the development. At the centre of the latter phase is a 32.76-acre mixed-use commercial precinct by IJM Perennial Development Sdn Bhd—a joint venture between IJM Corp and Perennial Holdings Pte Ltd—where the anchor is PWCC. There will also be a shopping mall known as The Waterfront Shoppes with a nett lettable area (NLA) of 1.5mil ft².

IJM Land has signed agreements with two hotel operators to establish the five-star JdV by Hyatt Hotel and the four-star Galaxy Minyoun Hotel from China, both of which are making their debut in Malaysia. The hotels will be positioned above an 11-storey office component, which will offer a total of 200,000ft² of workspace.

Phase 2 also features residential parcels, including Waterside Residence (completed in 2020), the fully-sold Mezzo Residence and the upcoming Lightwater Residence. Completing the integrated precinct will be a wellness component.

Ling believes that there is demand for a mixed-use property in Penang. The business suites, for example, are not regulated under the Housing Development Act, and are designed to offer flexible usage. They cater for entrepreneurs, creative professionals and start-ups that require hybrid live-work arrangements. The dual-key units make it possible for owners to occupy or lease out one or both units.

We can see the state's reliance on land reclamation as a primary method for expansion. These projects are expected to contribute significantly to the state's development pipeline into the near future.

PUSHBACKS AND THE FUTURE OF RECLAMATION

It is a shared belief among developers in Penang that reclamation projects bring value to the investors: The Light City is located close to the bridge towards the mainland; the upcoming Silicon Island is less than 5km away from the Penang International Airport in Bayan Lepas; and Andaman Island bridges the bustling Gurney Drive to Tanjung Tokong at the northern part of the island.

As expected, CSOs have sounded and will continue to sound the gong on the environmental impacts of reclamation. One such example is the lobbying against more reclamation in the vicinity of their homes by those living around Karpal Singh Drive, only several kilometres away from The Light City. They want a stop to the proposed reclamation project, which is designed to be the catalyst towards rehabilitation of the now-disused Jelutong landfill.

Former Batu Uban assemblyman and a CSO member, T. Jayabalan, in a dialogue spoke of a need to protect the Middle Bank—a national marine treasure off Karpal Singh Drive, which may be overwhelmed by the new reclamation initiative. Jayabalan said that the project's physical footprint and associated hydrodynamic changes directly threaten Middle Bank, Penang's last natural seagrass meadow and a habitat for over 400 marine species. The environmental impact assessment mislabels Middle Bank geography, underplays irreversible ecosystem risks and ignores scientific consensus on restoration limits, he stressed.

Despite the vehement protests by green activists over reclamation, Penang seems destined to have more parcels of new land than ever before. This presents a persistent dilemma, where the greater needs of the state often take precedence over the ecological concerns voiced by CSOs.

This predicament is not only ours to bear; similar isle-centric economies like Hong Kong and Singapore have ventured into large-scale reclamation. Even in developed countries with considerably large land mass such as the US and parts of Europe have chosen to reclaim land, although they are making progress toward land restoration of late.

It is ironic that the first event to be held on the reclaimed land, which PWCC sits on, is the Penang Green Summit, an event for green conservation. At the same time, it was brought to my attention that this project received the least attention by COSs over its reclamation ingredients due to the expressway's overwhelming interests in traffic connectivity. This convergence underscores the practical need to pursue solutions that meet the state's development imperatives, rather than relying solely on theoretical "green" discussions.

What Penang needs to do, in the words of evergreen activist, Anil Netto, is to find a balance, not totally discarding all forms of development, but to find a space where both nature and development can coexist.

While we look forward to the events to be held at PWCC and its surrounds, which will bring a surge of visitors through MICE and pleasures from shopping, F&B and shows (concerts, art exhibitions and the like), we also want to see how such developments reintroduce nature to balance the harsh development onsite.

BITING THE BULLET

BY OOI KEE BENG

GLOBALISATION SLOWDOWN AS A NECESSARY STAGE IN GLOBAL DECOLONISATION

DATO' DR. OOI KEE BENG picks on the past to reference the present, and picks on the present to situate the past.

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FOR CENTURIES, the Pearl River delta had been the trading hub for anyone wishing to trade with the Chinese Empire. When one considers the dynamics of China's political economy over the last millennia, this makes a lot of sense. Not only had the most active foreign traders sailed in from the south, through what we today call the South China Sea, the economic centre of the empire itself had over time shifted century by century southward as well. The political, military and strategic centre had to remain in the north though; this was because invaders had always come from the north and northwest. And on horseback, not in ships.

Today the Greater Bay Area (GBA) is the world's most dynamic economic district, and it has been recognised as the most innovative region in the world, ahead of the Greater Tokyo Area, and then US' Silicon Valley.

Beyond a simple economic acknowledgement of these dynamics lies the deeper effect on the family of nations of the current rise of China as a whole. Indeed, the comprehensive success of China's reform and opening-up programme, started haltingly in 1978 and boosted in 1992 by Deng Xiaoping's pronouncement to the country on the inevitability of the policy, has had epiphanous effects on geopolitical analysts, diplomats and scholars.

For the Global South, by which is meant countries that have been having difficulties becoming rich and stable, their postcolonial possibilities and ambitions are being revisited. What really is the middle-income trap that most countries cannot get out of? Is it a technical dynamic, or is it the considered result of hegemonic structures developed in the late-colonial and post-colonial age?

With the West reacting so aggressively to the rise of what it sees as a new superpower, questions have been inevitably raised about the nature of Western hegemony itself, and its adamant stance against losing control over major global supply chains. Measures undertaken by Western powers in recent years in reaction to China's growing influence in the world have led to fears that "deglobalisation" was happening, and this would split the world into spheres of influence, detrimentally duplicate technological innovations, and maybe lead to a third world war.

Where Southeast Asia is concerned, the rise of China offers new geoeconomic conditions and opens conceptual doors once tightly locked for reimagining nationhood, geopolitics and supply chains.

Independence for the European colonies came during the Cold War, and just after World War II (or the Pacific War in East Asia — if one wishes to be more specific, as one should do for analytical clarity). To understand how nationhood tended to be understood at that time, and how it was fought for, one needs to embrace the notion of "colonial multipolarity" under the colonial world order. It was that condition that made the colonies, when they transformed into uncertain nation states, as territorial as they now became.

It took a long time before neighbouring countries in Southeast Asia began to imagine regionalism as a necessary factor in their development process. The Association of Southeast Asian Nations (Asean), from the very beginning was part and parcel of the ideological warfare that was raging across the world between communism and capitalism. It was only with the end of the Cold War that Asean could expand its membership to include all countries within the broad region bordered between China, India, Australia and the Pacific Ocean.

The 21st century, then, has been the time when Asean increasingly could promise to be an internationally significant force, and a forum to be taken seriously as an independent organisation.

The historical significance of the forming of strong economic ties between China and Asean becomes obvious if we consider that process to be the regionalising of nation-building. More succinctly, it may be understood as decolonisation happening in a regionally orchestrated sense.

The formation of colonies to suit the national empires of Europe saw them growing along varied cultural trajectories even if they were neighbours. Independence saw them unable to reject the path dependencies — to say the least — of their colonially determined nationhood.

While countries like Vietnam, or Burma, fought off their colonial masters in wars of independence and distanced themselves from the latter, others like Malaysia, Brunei and Singapore continued to maintain strong connections with the UK.

One could see this condition as the first stage of national independence. Those who fought wars of independence tended to isolate themselves, having turned their backs on the world as defined by their former masters and their allies. The sores ran deep. For the latter group of nations, the opposite happened. Their post-colonial consciousness was tied strongly to Britain and to the colonial metropolis. Thus, regional independence failed to take place, and was thought of more as a curiosity than a realisable vision. The region's newly independent countries remained suspicious and ignorant of each other — alienated, untrusted and unneeded even. Within each country, nationalism as ideology fanned identity politics on one hand, and class warfare on the other.

THINKING FURTHER

The economic prowess of neighbouring China today has allowed for regional integration to be reimagined in the post-colonial age. Considered that way, the apparent deglobalising effects of this is to a large extent, the delayed process of regional post-colonial independence outside of nationalistic frameworks. Nation-building, in Southeast Asia and elsewhere in the nominal South, now requires much rethinking. The Asean project, consciously slow and inclusive in decision-making, and centred around the three forms of community building — strategic, economic and sociocultural, has to raise its goals and pace.

One could argue that colonialism was essentially about the colonialists taking advantage of inequalities that they discovered as they traversed the oceans and landed in faraway places. It began with pure force — with military might, economic greed and religious excuses. But that stage of conquest and colonisation was not sustainable. And so, the inequality became structural, including uneasy alliances and distancing between different colonial powers. This state of affairs tended to evolve to become ideological inequalities, most notably as "racism" in its various forms, such as "orientalism", or "the White Man's burden" to govern inherently less civilised humans.

CAPTIVES OF THEIR OWN IDEOLOGY

As the South continues its long process of liberation — of decolonisation, Europe is plunged into its own need for some deep self-analysis. The braked process of decolonisation in the South before the rise of China is understood in the West as proof of its superiority, its entitlement and as the right to privilege. History continued to be written by the West.

For Western Europe, good governance has since 1945 tended to be measured in social democratic terms, despite the dislike for socialism and communism represented by the Soviet Union. That middle-path form of governance has been expensive, and held its own weaknesses.

Across the Atlantic, social democratic values were considered way too leftist by most Americans. But to the post-WWII European mind, nation-building is largely a social democratic project, with high taxes, strong and interventionist governments and safety nets for the population. The impetus for regionalism in Europe has thus been quite different from that in Southeast Asia, and the early denial of the strength of nationalism in the European Union project is now coming home to roost, one could say.

Where the US is concerned, over the same period of time, from 1945 to 2025, being a major victor in WWII, with the other three "victors" under its thumb, and now having to conduct a hot-and-cold war against the four big victors, the Soviet Union, it organised for itself a "world order" that made it the inheritor of European global hegemony. It became Britannia 2.0.

Colonial multipolarity became American unipolarity.

Over the years, managing the hegemonic system required to rule over an unruly world, it failed to invest in its own nation-building.

Here, the term "supply chains" needs to be expanded to include more than merely material production. Controlling energy, military power across the globe, global payment systems, the education system, the mass media, global logistics and communication and so on have been the major concerns of the American Empire.

In that context, the "Make America Great Again (MAGA)" movement is a cry of anguish from many Americans, reflecting decades of neglect in Washington's nation-building — a term that in Europe connotes welfare, social safety nets and public support. It is in fact a class war, a direct expression of the income gap and disconnect implanted by a post-war American regime felt drawn to contain communism on one hand, and maintain Western hegemony on another.

America had risen like a phoenix from the sufferings of the Great Depression of the 1930s. Through The New Deal and the military investments in WWII and the Cold War, it quickly transformed into Britannia 2.0. This led it to focus on securing control over the world and maintaining control over all key supply chains. This neglect of nation-building finally led to the much delayed protest movement we call MAGA. The (Gramscian) hegemonic downgrade that the US must now suffer, along with its key allies, Europe and Japan, is a subject that needs to be deconstructed thoroughly. Revealing the mechanisms and the conceptual locks of global hegemony is a fateful undertaking for the late period of decolonisation we now live in.

Where Asean member states are concerned today, the big challenge is about surviving the unwillingness of Western hegemony to give up its ideological and hegemonic apparatus in order to allow for a mutualist, multipolar world to develop. At the same time, in facing that challenge, it has to rein in China's impatience and lack of understanding of the worries of its small hedging neighbours.

Given the picture drawn in this paper, Asean and its member states, keeping in mind the decolonising potential of the next few decades, should develop: (i) immediate responses in the form of diplomatic strategies and trade negotiations; (ii) medium-term initiatives aimed at region building and not only narrow nation building; and (iii) longer-term constructing of mutualist multipolarity. Strategically, what they should aim for is "regional consolidation" instead of existing comfortably in "colonial spaces". It may be a matter of "biting the bullet" in the short term so that decolonisation can gain more meaning, as envisioned when the United Nations was first formed.

Countries in the South should start with greater consciousness about hegemony — as understood in the Gramscian sense (that is, power embedded in popular attitudes and discourses) For starters, Western foreign policy thinking has been influenced by military thinking since the very beginning, and thus the analogies and trains of thought of post-WWII international relations show great preference for aggressive connotations found in words like "traps", "chip war" and even "G2". This presumption of international hierarchism threatens to recreate and perpetuate a world where most countries and most peoples have to be suppressed for the sake of the few.

FOUR PENANG STORIES OF TEACHERS AND PARENTS WHO BUILD RATHER THAN BLAME

BY AGNES CHIN

HEADLINES TELL US what is broken. Communities show us how to fix it. As Malaysian schools face renewed scrutiny, voices rise—demanding resignations, reforms or respect. When conversations about Malaysia's schools turn into blame games—targeting teachers, parents, ministries or "today's generation"—stories of quiet cooperation remain untold, such as those about teachers and parents who chose to build rather than blame.

While many children are "farmed" out to schools, tuition centres, iPads and smartphones, there are still those who believe in showing up. We examine four distinct narratives, beginning with a Penang teacher, who once found his classroom in the homes of strangers.

THE TEACHER WHO STAYED

Long before initiatives and hashtags, there was a young teacher named Chin Chee Keong from Penang, fondly known as Cikgu Chin. He was freshly posted to SMK Membakut in rural Sabah. As he could only afford to return home once a year, he taught during the school holidays.

His students were sons and daughters of illiterate rubber tappers, farmers and fishermen. Cikgu Chin visited their homes, offering free lessons in living rooms or under trees. It wasn't only the children who learned. Parents began to see, for the first time, how curiosity could be nurtured—not beaten down—and how education could belong in their homes, not just in school halls.

Decades later, he still believes that a teacher's reach extends through parents.

"You can't teach a child in isolation," he shared. "If you reach the parents, you've already reached half the classroom."

He recalled how visiting students' homes in rural Sabah opened his eyes to the struggles families faced. "It touched my heart to see parents who were really concerned about their children's education, though often constrained by the challenges of daily survival," he reflected. Those moments shaped his lifelong conviction—that while education centres on the child, it also depends on the surrounding ecosystem.

By stepping into his students' homes, Cikgu Chin bridged the gap between teacher and parent. From their own homes, parents began to see that learning can happen in many ways, regardless of their means. His story reminds us that genuine education requires presence, not just attendance, and that teaching can extend beyond the school gates.

THE TEACHER WHO PLANTED AGENCY

Cikgu Jerome's story is what happens when empathy takes root within the school community. When Jerome Khou noticed his students were acing exams, but struggling to apply concepts, he didn't assign more drills. He gave them a garden.

Cikgu Jerome co-founded the Green Educators Workgroup (GREW) in Penang and began weaving sustainability into everyday lessons. Students as young as seven built aquaponic gardens, coded automatic watering systems and led zero-waste drives that pulled parents into the mix. He believed that when parents sort recyclables beside their children, lessons tend to stick better, and those habits soon become a lifestyle.

In 2022, SJKC Union was dubbed Malaysia's first ecological civilisation school[1] winning environmental awards, its most recent award being the Penang Green School Award 2025[2]. But the real triumph was subtler: parents stopped being outsiders. They became co-educators, joining weekend clean-ups and composting workshops, often contributing new ideas and expertise to numerous sustainability projects. Each reused bottle and planted seed became a shared act of citizenship and a lesson in ownership that neither worksheets nor speeches could teach. When lessons become a family project, values learnt take root.

FROM WEEDS TO WONDER

SMK Kampong Kastam in Seberang Perai found its own way to nurture responsibility—one patch of soil at a time. The school was once seen as a struggling secondary school with tired grounds and resigned spirits. Instead of waiting for funding, teachers and students launched a humble initiative: "One Class, One Garden". Every class got a small plot and a simple goal—make it thrive.

Teenagers dug, planted and watered; parents donated seedlings and compost. Teachers coordinated schedules, turning the grounds into a living classroom. Even the local council chipped in with plants, time and expertise. As one teacher put it, they decided to stop blaming and start planting.

The results were transformative. The school won Green School Awards, reduced waste and rekindled their pride. Teachers noticed that students who rarely spoke up in class were now leading planting schedules. Even those who struggled academically found a sense of ownership in watching something grow because of them.

Concrete tasks that require care create small repeatable opportunities to practise

“Education isn’t built by systems, it’s sustained by people.”

Penang-born **AGNES CHIN** is the founder of Meraki Word Craft. Drawing on her management background and love for local stories (and *char koay teow*), she celebrates Penang’s everyday heroes.

responsibility, patience and accountability more deeply than any lecture and students, parents and teachers.

THE BRIDGE BETWEEN SCIENCE AND SOUL

For Sathisha Goonasakaran, head of STEAM at Tenby Schools Penang, science and art aren’t subjects—they function as bridges. She realised that many parents felt alienated by their children’s modern curriculum. Coding? Robotics? 3D printing?

So, she invited them in.

Family STEAM Nights turned classrooms into collaborative spaces. Children from both primary and lower-secondary levels designed robots, model bridges and mini wind turbines alongside their parents. Sathisha reflected that her favourite moments were when parents fail first and laugh—because that’s when children see that learning takes courage, not perfection.

Soon, dinner table conversations changed from “What did you score?” to “What did you try?”

Tenby’s initiative has since earned national recognition for innovation—but its real success was relational. Parents now see teachers not as exam enforcers, but as partners in curiosity. Education was redefined to include emotional literacy as much as academic excellence.

COMMON GROUND, COMMON GROWTH

These stories tell a powerful truth: education isn’t built by systems, it’s sustained by people.

When parents and teachers stop debating who’s responsible, children start learning responsibility. Children thrive when adults show up. In each project, adults stepped out of their silos: teachers opened classrooms to families, parents swapped criticism for collaboration, children saw adults practising what they preach.

The most important reforms rarely come from ministries or manifestos. The most rooted growth seldom begins with policy, but with shared purpose. It grows from the ground up. Maybe the next time we’re tempted to point fingers, we could pick up a spade, a paintbrush or even a bedtime storybook instead.

***Note:** All stories are based on interviews and public records. Some quotes have been paraphrased where direct sourcing or interviews were unavailable.*

FOOTNOTES

1. https://www.thevibes.com/articles/education/58487/penangs-sjkc-union-becomes-countrys-first-ecological-civilisation-school#:~:text=Khaw%20said%20the%20school%20planted,The%20Vibes%2C%20April%2012%2C%202022

2. https://www.buletinmutiara.com/green-culture-triumphs-at-penang-green-school-award-2025/#:~:text=GOING%20green%20is%20more%20than,testament%20to%20our%20unwavering%20commitment.

REFERENCES

1. “ESD Exhibition by GREW.” Penang Hill Festival, Penang Hill Corporation, https://www.penanghill.gov.my/phf/?page_id=296. Accessed 1 Nov 2025.

2. Grand Launch of the STEAM Engine | STEAM Fest 2024.” Tenby Schools Penang News & Events, 2 July 2024, https://www.tenby.edu.my/penang/news-events/news/grand-launch-of-the-steam-engine. Accessed 1 Nov 2025.

3. Lim Min Jun & K.H. Ong. “SMK Kampong Kastam’s Journey From Struggles to Success.” Buletin Mutiara, 15 JAN 2026, https://www.buletinmutiara.com/smk-kampong-kastams-journey-from-struggles-to-success/. Accessed 1 Nov 2025.

4. “Malaysia.” Global Environmental Education Partnership (GEEP), https://thegeep.org/resources/countries/malaysia. Accessed 1 Nov 2025.

5. Persatuan Pendidik Lestari Hijau Pulau Pinang (Green Educators’ Workgroup – GREW). “Who We Are.” GREEN EDUCATORS’ WORKGROUP (PENANG). Google Sites, https://sites.google.com/moe-dl.edu.my/grew/home. Accessed 1 Nov 2025.

6. Simon & Schuster (2025). I Love You Just the Same by Keira Knightley. Retrieved from https://www.simonandschuster.com/books/I-Love-You-Just-the-Same/Keira-Knightley/9781398531741

7. “STEAM Fest Open Day 2023 – Tenby Schools Penang.” Internationalschoolspartnership.com, https://lp.internationalschoolspartnership.com/penang-steam-fest. Accessed 1 Nov 2025.

8. “STEM Education for Industrial Revolution 4.0: Malaysian Teacher Perception and Practice – Chin Chee Keong et al.” IConFEd 2020, IPG Kampus Tuanku Bainun. https://ipgktb.edu.my/iconfed2020/eng_record-ed_presentationsB01.html. Accessed 5 Nov 2025.

9. “Tenby Schools Penang.” Tenby Schools Penang – Our School / Learning Journey, https://www.tenby.edu my/penang. Accessed 1 Nov 2025.

AT TIMES, if you want to understand a country, watch what its people laugh at. Food tells you how they sustain themselves, politics shows you how they fight, but comedy—that sly, dangerous animal—reveals how they survive. In Malaysia, a country juggling contradictions for decades, stand-up comedy quietly functions as both pressure valve and mirror. It is not a booming industry compared to tourism, palm oil plantations or electronics exports. But it is there—in dim rooms above cafés, black box theatres behind *kopitiams* and increasingly in festival tents and hotel ballrooms from KL to Penang.

LAUGHING IN THE SHADOWS: STAND-UP COMEDY IN MALAYSIA

BY SURESRAJ THERAMBARAJOO

Comedy in Malaysia didn't arrive with Netflix or YouTube, though both turbocharged its reach. Its roots go back to figures like Harith Iskander, who in the 1990s stood on stage and talked honestly about Malaysian life—traffic jams, the bumbling bureaucracy, the way Malaysians would eat anything on a stick. Harith became, and still is, the "Godfather of Malaysian Stand-Up", eventually crowned "Funniest Person in the World" by the Laugh Factory. His pioneering work laid the groundwork, but a new generation was ready to push boundaries even further. In 2014, Crackhouse Comedy Club opened in KL, founded by Rizal van Geyzel and Shankar Santhiram. It was a basement bar, the kind you'd find in New York's Greenwich Village, except tucked into a strip mall. Here, comedians poked fun at ethnic stereotypes, political scandals and the quirks of Manglish—the beloved Malaysian mix of English, Malay, Chinese dialects and Tamil, all jumbled together. It was raw, unpredictable, and for a moment, it seemed like comedy might be the new way Malaysians could talk honestly about themselves.

But freedom of speech in Malaysia is a delicate game. In 2022, after a controversial open mic went viral, Kuala Lumpur City Hall (DBKL) revoked Crackhouse's license and blacklisted its owners for life. Rizal was fined for "offensive communication" under the Communications and Multimedia Act. Suddenly, comedy wasn't just risky in the way that all art is risky—it was dangerous. One performer told me, shaking his head: "We joke, but sometimes the joke isn't worth the trouble. You have to learn the invisible lines."

Yet, the shows didn't stop. They never do. Harith kept performing, even after one of his shows at Dewan Filharmonik Petronas was cancelled.[1] Younger comics kept writing material. Audiences still came, hungry for release—because to some in Malaysia, humour is survival.

When you can't hold out your fist against the authorities, you make a joke about potholes. When you can't discuss religion openly, you laugh at the way your grandmother mixes feng shui with Friday prayers. Comedy here is less about the punchline, but more about the wink that says: I get it. You get it. Let's move on before someone hears us. The freedom to improvise, to laugh at life, pulses in other corners of the country as well—most notably, Penang.

NORTHERN HUMOUR SCENE

Penang, the island that thrives on cultural collision, has built its own small but vibrant comedy scene. Walk through George Town during festival season and you'll find stand-up shows squeezed between art exhibitions, heritage tours and street markets. Trishaws rattle past, horns blaring, while festival lights drape across pre-war shophouses, picking out chipped paint, faded murals and laundry hanging like pennants from balconies. Amid Penang's chaotic streets and spicy smells, comedians carve out tiny pockets of laughter, reflecting the city's unique character.

In 2024, Laugh Pesta brought together a lineup of multi-racial comedians, riffing on everything from dating apps to Char Koay Teow prices. At Hotel NEO+, "My Mic and I" turned a hotel ballroom into a stage for irreverent, punchy sets.

During George Town Festival (GTF), audiences gathered for #penangonebetter, where Sai Wabikong performed in Mandarin and Hokkien, proving that stand-up doesn't need English to sting or sing. Only recently, Penang's very own Gajen Nad brought his Global Malaysian Chindian Comedy Special to the island—a show as mixed and layered as Penang's own population. These Penang nights aren't just about jokes—most comedians are scrappy, resourceful and intimately tied to their audiences.

Of course, Penang's comedy scene is small. There isn't a permanent club, no Crackhouse equivalent, and many shows are pop-ups attached to festivals or hotel evenings. But perhaps that's the point. Penang thrives on impermanence. One night, a comedian performs in a heritage shophouse, the next in a conference hall and the night after that in a café's upstairs loft. Watching a show, you notice the audience: students, professionals, artists, retirees—they sit elbow to elbow, ordering Tiger beers or iced Milo, laughing at the same jokes even when the punchlines hit in different registers. That's the quiet miracle of stand-up in our beloved Penang: it bridges. For a few minutes, Malays, Chinese, Indians, expats and everyone in between are in on the same secret. Something more than entertainment is happening—the island's syncretic soul is speaking through punchlines.

That doesn't mean it's always safe. Every comic knows the landmines: religion, the monarchy, racial privilege. Cross those and you risk fines, blacklisting or worse. So, comics dance along lines, teasing without trampling. Sometimes, the best joke is not the one told, but the one everyone imagines after a pregnant pause. Malaysians are masters of this game, having played it in hawker stalls, classrooms and Parliament itself.

Where does Malaysian stand-up go from here? The scene is fragile, but stubborn. The Crackhouse debacle showed how quickly progress can be undone, how vulnerable comedians are to authority. Yet, Penang's laughter, improvised and multilingual, shows the appetite is real. Audiences want to hear their lives reflected on stage, not just in imported Netflix specials, but in local voices, in accents bending the way families bend them, in jokes about language quirks and inter-ethnic misunderstandings.

The future may not be in grand comedy clubs with neon signs, but in guerrilla gigs Penang specialises in. Pop-up shows, festival nights, upstairs rooms above *kopitiams*—spaces where people feel safe enough to laugh at themselves, at each other, at the absurdity of being Malaysian in the 21st century. Comedy here, like food, doesn't need Michelin stars to matter. It just needs an audience, a mic and courage to say what everyone is already thinking.

Anthony Bourdain once said food is everything we are. In Malaysia, comedy is too. It's how people endure the contradictions of a place, both open and closed, free and censored, plural and divided. To sit in a darkened room in KL or George Town, surrounded by strangers from different walks of life, laughing at the same thing—that's as close to unity as Malaysia gets. And like the best Char Koay Teow, it's messy, spicy, a little dangerous and worth every bite.

FOOTNOTE

1. https://www.thestar.com.my/news/nation/2025/01/24/dewan-filharmonik-petronas-cancels-harith-iskandars-show-amid-insensitive-comments-on-islam

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MAKING STATE-FEDERAL RELATIONS FIT FOR THE PURPOSE OF NATION BUILDING

BY YEONG PEY JUNG

HAVE YOU EVER wondered why, at times, it takes so long to repair certain potholes, alleviate congestion at bottlenecked road junctions or realign bus routes closer to housing communities?

Welcome to the tangled relationship between state and federal governments. In Malaysia, most of the major developmental budgets, approvals and decisions sit with Putrajaya. Meanwhile, state governments are the ones handling the everyday realities based on issues such as land, local councils and licensing.

However, when the body that approves differs from the body that delivers, things get lost in translation. Action is delayed, leading to growing public frustration.

On paper, Malaysia is a federation. In reality, Malaysia is highly centralised, even when compared against unitary systems. While states and provinces in federations such as Australia and Indonesia get a say in health, education, policing and beyond, states in Malaysia do not. Even rubbish collection and sewage, services that sit so close to home, are often under the purview and regulation of the federal government. This stark imbalance of authority and responsibility ultimately leads to inefficiency.

This also creates an inevitable paradox.

Penang is often touted as a "state that punches above its weight". Despite being the second smallest state by land area, it contributed RM120bil to the national GDP in 2023, amounting to approximately 7.6% of total GDP. Penang has also been responsible for more than half of Malaysia's semiconductor exports, owing to its thriving E&E and manufacturing industry.

Additionally, the tax revenue generated here (income tax, corporate tax, sales and service tax) goes straight into the coffers of Putrajaya. In return, the state receives a capitation grant, which is based strictly on the population size. This works out to roughly RM16 per person annually. Given that Penang is a small state, what it receives is not equitable to what it has contributed. As State Assemblyman of Bukit Tengah, lawyer Gooi Hsiao Leung stated at a recent forum held in Penang Institute, "that barely buys us two plates of Char Koay Teow".

This is a clear illustration of serious fiscal imbalance. Penangites are major players in the nation's economic development, but the state has to rely on land swaps and reclamation for income generation to fund infrastructure development because federal funding is limited or politically contingent. This situation is not unique to Penang; some other states also struggle with the same constraints.

Fiscal decentralisation seems the obvious remedy to this state of affairs; at its simplest, such a measure allows for a more equitable portion of state-generated revenue to be retained by the state.

Beyond fiscal matters, there is also the question of administrative authority. It is no secret that traffic congestion is an everyday challenge in Penang. Citizens often wonder why the state government does not just deploy more buses or realign routes to ease congestion. The answer lies in jurisdiction: public transport is under the jurisdiction of the federal government, meaning Rapid Penang operates under federal purview. As a result, the state government faces limitations in operational decisions on that front.

A similar situation is observed in the matter of public safety. When the state government tried to increase neighbourhood safety and security by establishing the Voluntary Patrol Unit (PPS) in 2013, the project was confronted with legal challenges. Why? Well, policing and security is strictly a federal matter. The unit was deemed unlawful by the Federal Court in 2019 and subsequently disbanded. These examples illustrate that under the existing framework, the state's ability to solve grassroots issues are impeded by the present division of powers.

This irrationality is the main reason the Penang State Government has created the State-Federal Relations Select Committee[1] to develop possible remedies. The goal is simply to achieve more effective governance and fairer distribution of resources among citizens.

In addition to authority constraints, centralised planning also impacts economic growth, especially in the matters of talent management. Penang is a globally renowned semiconductor hub, yet persistent challenges such as the lack of high-skilled engineers and STEM-trained workers remain. As education sits within federal purview, the state government encounters limitations in tailoring technical education and training programmes to fit local economy and industry needs—the state does not have any authority over education and training institutes. This results in a mismatch between the skills of graduates and the technical workforce required by the semiconductor industry. In this case, we can see the importance of devolving greater authority to the state government so that it can manage its own talent pipeline. Excessive conservatism and nationalism remains a major stumbling block in the import of skilled workers.

Ultimately, the argument for greater state autonomy is not about the wrestling of power; it is simply efficiency and effectiveness. At its core, decentralisation is able to cut out bureaucratic red tape. The simple logic of subsidiarity—that those closest to the problem should manage it—should hold sway by default. When state and local governments can act without the need to wait for approval from the centre, on-the-ground issues run a better chance of being resolved swiftly and effectively.

Such a shift would also drive transparency. In a centralised system, lines of responsibility are often blurred due to the layers of bureaucracy, and citizens are often unclear over where the buck actually stops. By giving states greater autonomy in areas that matter, the state administration is visibly accountable for what happens in those areas. Having a more equitable share of resources also ensures that state government is able to develop the state best suited to Penang's inherent strengths.

However, for these reforms to happen, the conversation must also take place in the public sphere. Penangites need to understand the division between state and federal powers. Addressing the mentioned structural imbalances and structural gaps require cooperation across all layers of government. Citizen awareness and support is also vital for reforms to have a chance to be realised.

Moving forward, the Penang State-Federal Relations Select Committee—led by State Assemblymen Gooi Hsiao Leung and Lee Khai Loon, with Penang Institute as its Secretariat—will be driving this vital conversation over the following two years. The Committee will prioritise institutional reform, interstate collaboration and raising public awareness. But the task does not just rest with the Committee and the politicians; progress depends on collective effort from the public. Penang needs more autonomy to shape its future, and be the best that it can be. And there is more urgency than we might think.

FOOTNOTE

1. https://penanginstitute.org/publications/issues/report-of-the-penang-state-federal-relations-select-committee-01-25/

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RETRACING THE LANDSCAPE OF ANCIENT KEDAH

FROM BUKIT MERIAM TO BUKIT PENJARA

BY EUGENE QUAH TER-NENG & REXY PRAKASH CHACKO

MANY CENTURIES AGO, when the island of Srai (ไทร)—meaning "banyan tree" in Siamese—had just become attached to the mainland, forming what we now know as Mount Jerai, the king of this ancient land of Kedah embarked on a coastal expedition. Urged by his trusted and loyal *menteri ke-empat* (fourth minister), and weary of his residence, the Raja travelled north from Kuala Muda, spending his days "finding fish along the seashore and taking pleasure in the hunting of all manner of beasts"[1]. Thus recounts the *Hikayat Merong Mahawangsa*, also known as the *Kedah Annals*.

This King, described as a man of exceeding virtue, bore the title "Phra Ong Mahapodisat" (พระองค์ มหาโพธิสัตว์)—the Exalted Great Bodhisattva[2]. The *Hikayat* tells us that upon reaching Tanjung Puteri—the Cape of the Princess—near the mouth of Merbok River, the King remained unimpressed, but when the entourage pressed on to Bukit Meriam (Cannon Hill), the location captured his heart immediately. He ordered at once for a palace to be raised there. The hill was also near a neighbouring elevation, Bukit Penjara (Prison Hill), where his father—the dreaded and despised Raja Bersiong, the Fanged King—had once built an earthen fort and kept a prison.

With the shadow of his father's tyranny behind him, Phra Ong Mahapodisat sought to build a new era. The *Hikayat* records that the King commanded his subjects to hasten completion of the fort-palace, and invited his own son to dwell with him there.

The young prince was given the title of Phra Ong Mahawangsa (พระองค์ มหาวงศ์)—the Exalted Lord of the Great Lineage—alluding to the mythical founding figure of the kingdom, Merong Mahawangsa (มะโรง มหาวงศ์), the Dragon of the Great Lineage, for whom the *Hikayat* was named.

Yet, a shadow hung over Phra Ong Mahawangsa's exalted lineage; he was, after all, the grandson of Raja Bersiong. While his grandfather lusted after blood, his weakness was the excessive consumption of toddy. When he took over from his esteemed father, the people did not see him in the same good light.

One day, the *Hikayat* tells us, Sheikh Abdullah bin Ahmad Kumiri from Yemen arrived at the palace on Bukit Meriam—an encounter that would change Kedah's history forever. The Hindu-Buddhist Raja embraced Islam upon meeting with the Muslim teacher. "After some consultation, the name of the Raja was changed at his request to Sultan Muzlaf al-Shah," records the *Hikayat*. Scholars like Sayyid Qudratullah Fatimi suggest that this is the proper reading of the name, though later chroniclers have almost universally standardised this to the more familiar Sultan Muzaffar Shah.

Thus, was established the Kedah Sultanate at Bukit Meriam—a kingdom that endures to this day with the honorific *Darul Aman*, the Abode of Peace.

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THE FOUNDATION TRAIL: A REVERSE TREK

The date of Phra Ong Mahawangsa's conversion to Islam remains uncertain. Richard Olaf Winstedt, writing in 1936, proposed the year 1474 CE based on Acehnese sources—a date broadly consistent with the *Sejarah Melayu*. Other scholars, working from epigraphic evidence of varying reliability, have suggested dates as early as the twelfth century. The debate continues, but what remains constant is the setting: these hills, this coast and this view that the newly converted Sultan would have known.

It was this continuity of landscape that drew us to Kedah on a bright morning in early August 2025. Together with Zuhairy Fauzy, secretary of the Penang Heritage Trust, and heritage enthusiast, Lau Pei Ling, we set out to retrace this ancient royal route—in reverse. Beginning where Sultan Muzaffar Shah's story climaxed, we would work backward through time to the older, more primal landscape that shaped Kedah's early history.

FROM CANNONS TO CHESTNUTS

We left Penang early, the rising sun casting long shadows across the channel as we crossed into Kedah via the Kota Kuala Muda Bridge. A few minutes' drive brought us to an unpaved path behind Surau Kampung Bukit Berangan. The hill rises slightly over 100m above sea level—modest by mountaineering standards, yet commanding in its position above the coastal plain.

The hill has a dual identity; it is officially called Bukit Meriam, but is known locally as Bukit Berangan. The shift in nomenclature tells its own story. While *meriam* recalls the cannons of the royal fort, *berangan* follows the common Malay tradition of naming places after local flora; in this case, possibly the native wild chestnut tree (*Castanopsis* sp.). The name change reflects the site's transformation from the seat of political power to the quiet rhythms of nature. Where cannons may have once stood, now only trees remain, standing sentinel over the view.

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The wide path curved upwards through patches of secondary forest and a small orchard before we reached the summit plateau. It took 20 minutes to arrive at the largely bare summit marked by a trigonometric stone marker belonging to the survey and mapping department. From here, the view was panoramic: facing west towards the coast, a bright patchwork of paddy fields stretched out, punctuated by small *kampung* houses and swaying coconut trees, framed by low hills in the distance.

Standing on this summit, we tried to imagine the palace that once stood here. This proved both easy—because the strategic logic declares itself: you can see vessels approaching from the sea, monitor river traffic and survey the agricultural lands that fed the kingdom—and impossible, because the centuries have erased every trace of the structures that once crowned this hill.

Writing in 1940, the archaeologist, Horace Geoffrey Quaritch Wales, who had first investigated the now-famed Bukit Choras, described Bukit Meriam as "a long low ridge running in a north-south direction and varying from about 100 to 150 feet in height." He continued, "In early times, it was probably an island among the swamps, with a little flat land bordering the foot which is now *kampong*. It was probably somewhere in this *kampong* that Colonel [James] Low found his early inscription under the centre of an ancient brick building".

The visual transformation is total: what was once an island commanding the swamps is now a hill watching over a sea of paddy. The landscape here offers no easy answers, only questions that accumulate like sediment. After taking in the view, we continued southwards along the ridge. With Bukit Meriam behind us, we headed for the next point on our expedition.

CONCRETE AND ANCIENT CLAY

We returned to the car and drove north towards Pantai Merdeka, following a road that might or might not approximate an ancient route along the shore. Pantai Merdeka, Independence Beach, is today a popular destination for locals. Across the water, Gunung Jerai rose in all its majesty, an ancient navigational landmark that for over a millennium guided traders from India, Arabia and beyond to these shores.

At the end of the walkway stood a World War II-era pillbox, part of the failed British coastal defenses against the Japanese invasion. This structure is an FW3/Type 22 Pillbox, built by Malaya Command. From the ancient kings to the British Empire, this coastline has always demanded defence.

Interestingly, oral tradition suggests that Raja Bersiong's prison may not have been at the summit of Bukit Penjara at all, but rather in a cave along these foothills, closer to where we now stood. Yet, the rocks around this point tell a much older story. They possessed a reddish hue with wavy bands—mudstone from the 400-million-year-old Mahang Formation, now gazetted as part of the Jerai Geopark. Human histories here—whether ancient fortifications or modern concrete pillboxes—are mere scratches on the surface of geological deep time.

THE FANGED KING'S FORT

The very name, Prison Hill, carries a weight of foreboding. We started the climb from the Pantai Merdeka Cemetery, and as we climbed towards the purported site of Raja Bersiong's prison fort, we recalled the legends surrounding this place. Raja Bersiong—Phra Ong Maha Perita Deria (พระองค์ มหา ปริตต์ ไธรฺย), which ironically means "the Exalted Lord of Great Protective Fortitude"—appears in the *Kedah Annals* as a ruler who grew fangs following an appetite for human blood. Was the remembered brutality of a historical ruler, filtered through centuries of oral transmission, gradually reimagined as tales of vampirism and cannibalism? This tale remains one of

CAPTIONS

1. (Cover spread) View from the summit of Bukit Penjara. The beach seen below the slope is Pantai Merdeka. At the middle left of the frame, in the horizon, the northwestern tip of Penang, Muka Head, can be seen.

2. View of Gunung Jerai from the narrow promontory facing Pulau Sayak.

3. Tanjung Bungah as seen from Kampung Pulau Sayak. The two Leader Garden towers with their signature pyramidal top can be seen at the centre of this view.

4. Gunung Jerai, as viewed from the Pantai Merdeka walkway.

5. At the summit of Bukit Penjara. Gunung Jerai and Tanjung Dawai at the mouth of Sungai Merbok can be seen in the background.

6. Gunung Jerai as seen from the wide entrance of Sungai Merbok, once an important waterway to the interior of Kedah.

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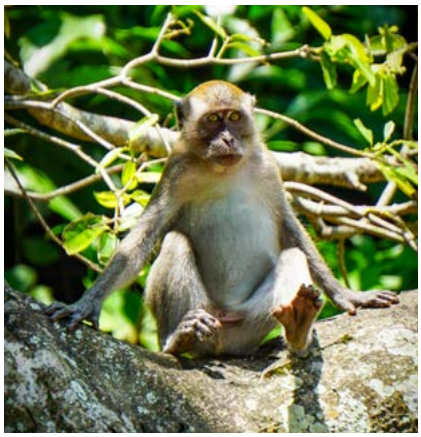
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the Malay world's most powerful allegories about the dangers of unrestrained power.

The trail—a recently made jeep track—was steep and tiring, but we reached the exposed summit in just under 30 minutes. Today, the top of Bukit Penjara is a recently established paragliding site. The irony was striking: where prisoners are said to have once languished within the walls of the prison, paragliders now launch themselves into the open sky, shouting with delight.

Quaritch Wales also excavated Bukit Penjara, describing it as "a small hill... with a rounded outline and covered with jungle. On the summit we excavated a mound... The remains appeared to be those of a small brick porched sanctuary opening to the west... the brick remains are certainly those of a shrine." On whether the legend of Raja Bersiong's structures might have historical basis, he noted "there is sufficient level space on the summit, near the brick remains, for a wooden building to have been erected, of which no trace remains."

While no stones remain above ground to testify to the legend, standing at the peak, the logic of these hills became unmistakeable. Whoever controlled Bukit Meriam and Bukit Penjara controlled the approaches to the interior. They could see any fleet approaching from the sea and any army marching along the coast. In the distance, even the Penang Hill range is visible.


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CAPTIONS

7. Long-tailed macaques *(Macaca fascicularis)* abound in the vicinity of Pantai Merdeka.

8. A rarely seen view—the sweeping panorama of the entire north coast of Penang, from George Town at Tanjung Penang at the left to Muka Head on the right, as seen from Kampung Pulau Sayak.

9. A WWII-era FW3/Type 22 Pillbox at the end of the Pantai Merdeka walkway.

10. The view from the peak of Bukit Meriam looking northwest. The green "hill" on the far left is Pulau Sayak.

11. View of Pulau Pinang and the Penang Hill range in the distance, as seen from the northern end of Bukit Meriam's summit. The coastline is from George Town at Tanjung Penaga until Batu Ferringhi.

12. Bright purple morning glory *(Ipomoea cairica)* flowers spotted during the hike.

FOOTNOTES

1. Most English translations in this article are by Eugene Quah, based on A.J. Sturtock's romanisation of the *Hikayat Merong Mahawangsa.*

2. In Buddhist tradition, a *bodhisattva* refers to a being on the path to enlightenment.


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EUGENE QUAH is an independent researcher and writer who is working on a book tentatively called "Illustrated Guide to the North Coast of Penang". He rediscovered the joys of writing after moving back to Penang from abroad.

REXY PRAKASH CHACKO is an electronic engineer by profession and a nature lover by passion. While he spends his weekdays earning a living at the Bayan Lepas Free Industrial Zone, his weekends are spent reflecting and recharging on the green hills of Penang.

REFERENCES

1. Nasha Rosaidi Khaw, N. B. R., Shahidan, S., Zainun, N., & Saidin, M. (2019). The Post-14th Century Ancient Kedah: A Port In Decline?"

2. Gerolamo Emilio Gerini (1905), "The Nagarakretagama List of Countries in the Indo-Chinese Mainland), pg. 495

3. Jabatan Perancangan Bandar dan Desa (PLAN-Malaysia) (2020), "Laporan Akhir Jerai Geopark", Accessed: https://fliphtml5.com/iiwrk/lknd/LAPORAN_AKHIR_JERAI_GEOPARK/ Thomas Walker Arnold (1913), "The Preaching of Islam: A History of the Propagation of the Muslim Faith", pg. 363–376

4. Mokhtar Saidin, Ibrahim Komoo (2019), "Jerai Geopark Warisan Geologi, Geoarkeologi dan Biologi"

5. Richard Olaf Winstedt. "The Kedah Annals". Journal of the Malayan Branch of the Royal Asiatic Society. December 1938

6. Tan Zi Hao (2020). "Raja Bersiong or the Fanged King: The Abject of Kedah's Geopolitical Insecurity". Indonesian and the Malay World. 48 (142): 263–280

7. James Low (1849). "A Translation of the Keddah Annals &c". The Journal of the Indian Archipelago and Eastern Asia", Volume 3

8. The Burney Papers, Vol 5.

9. Maziar Mozaffari Falarti (2013), "Malay Kingship in Kedah: Religion, Trade, and Society"

10. Richard Olaf Winstedt (1920), "History of Kedah", No. 81 Straits Branch of the Royal Asiatic Society (SBRAS), March 1920

11. Nasha Rodziadi Khaw, Nazarudin Zainun, Mokhtar Saidin (2019), "Lembah Sungai Merbok-Muda: Dari Era Kemerosotan Kedah Tua Hingga Pascakemerdekaan"

12. Sayyid Qudratullah Fatimi (1963), "Islam Comes to Malaysia"

13. Horace Geoffrey Quaritch Wales (1940), "Archaeological Researchers on Ancient Indian Colonisation in Malaya", JMBRAS, Vol. 18

14. Alfred John Sturrock (1916), "Hikayat Marong Maha Wangsa. or Kedah Annals"

A SHIFT IN PERSPECTIVE

It took barely 10 minutes to drive from the foot of Bukit Penjara to Kampung Pulau Sayak, the final point on our itinerary. Along the way, Penang Island appeared on the horizon, its undulating spine looking unusually broad from this northern vantage point—a reversal of our usual view. We are used to looking at Kedah from Penang; now we looked at Penang from Kedah, and the familiar seemed slightly strange.

We parked at the end of the road and continued on foot towards a narrow promontory. Underfoot, the rocks had the same clay-ish texture and reddish hue we had seen at Pantai Merdeka—the exposed surface of the Mahang Formation once more. We stood there, separated by a deep channel from the densely forested Pulau Sayak.

The name fits the geography perfectly: *sayak* refers to a coconut shell split in two (from the Minang language), and indeed, the island sits upon the water like an overturned coconut shell. Standing at the tip of the promontory, we turned back to gaze at the hills we had just explored. We had retraced an ancient royal journey, stood on summits where power once resided, and looked out at views that, minus modern development, would have been recognisable to that early ruler.

The landscape has remained remarkably pastoral: the same coastal vistas, the vast paddy fields, the same strategic hills, the same rivers and islands. What has changed is the meaning we attach to these places, the layers of history that have accumulated over time—from Hindu-Buddhist polities to Islamic sultanates, from British military works to modern recreational sites.

Our journey in reverse had carried us through centuries of history, from the concrete pillboxes of World War II back to the prison fort of a legendary fanged king, and finally to the palace site where Sultan Muzaffar Shah established the Kedah Sultanate. Each hill tells its own story; together, they form a narrative of transformation, violence, faith and endurance in this often-overlooked corner of the Malay Peninsula.

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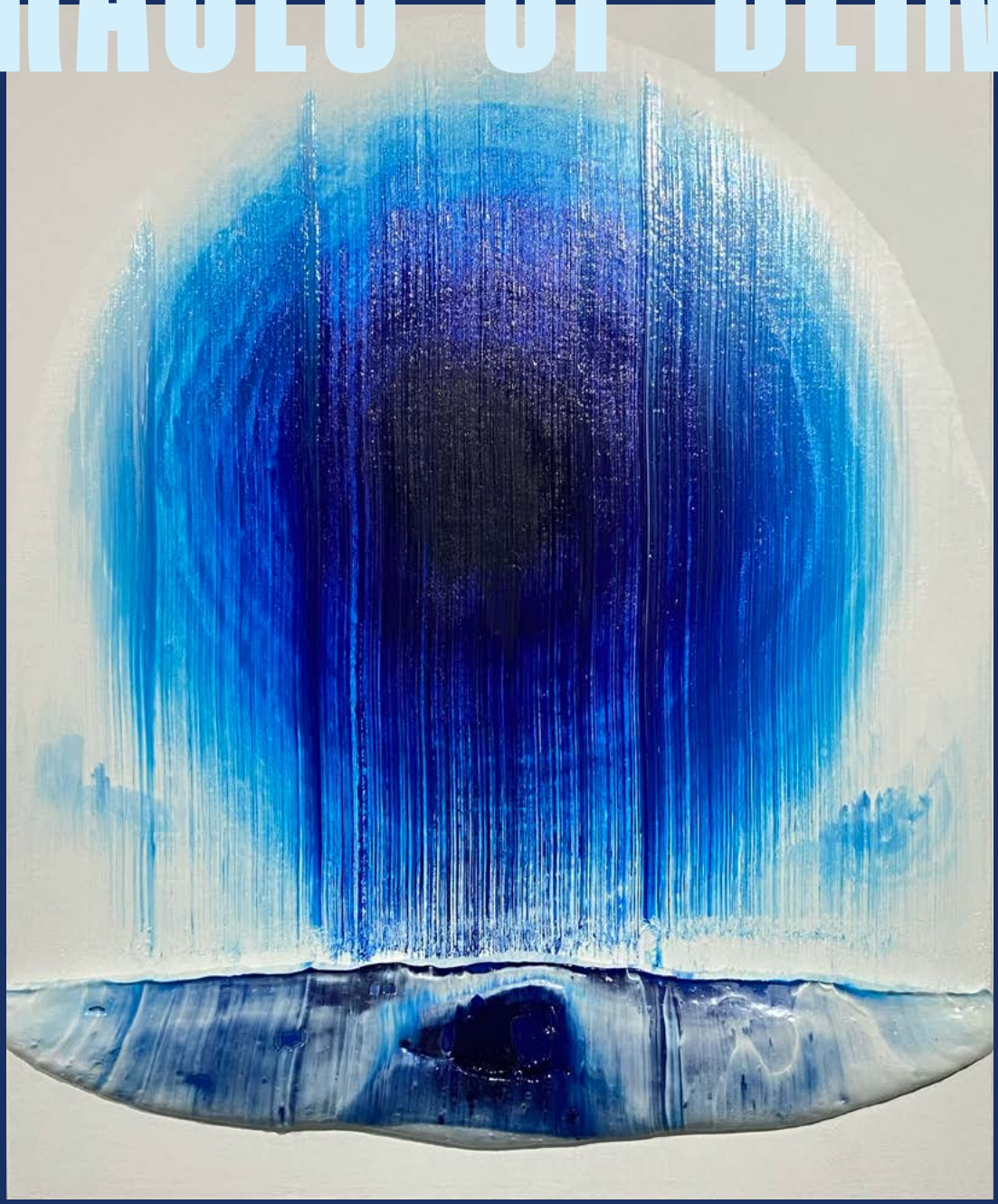
TRACES OF BEING



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KESHIKI AND PROCESS IN MINA KATSUKI'S *TOMOE*

BY SHUMIN TAN

IN HER EXHIBITION *Tomoe,* Mina Katsuki lets the layers of her paintings sit in plain sight. Thin coats of Egyptian blue are laid down one after another, finished in a deliberate sweep. Small ridges form where pigment has gathered along the stroke's edge. The works don't hinge on metaphor—they stay with the mechanics of their painting: the pressure of a wrist, the drag of pigment across canvas. This is *keshiki* in practice—not an idea, but the residues of decisions made in real time.

The Japanese aesthetic of *keshiki*—"scenery"—is experienced by Katsuki during a mountain hike. She had bypassed a famed landmark, and had stopped at a tree most hikers would barely register—its bark thick with wet moss, its limbs bent outward in sharp, uneven angles; the kind produced by years of snow load. Those crooked branches reminded her of brushstrokes pushed to their limit. That brief moment on the mountain was not just inspiration, but *keshiki* in practice: an encounter with form shaped by weather, accident and time.

Keshiki makes the process visible: the stray drip, the shifted stroke, the smudge on ceramic. Such marks show a work coming into being, shaped by both control and chance. This approach links Katsuki to a broader lineage, in which meaning arises from action rather than representation. From Sengai Gibon's ink dispersals to the performative experiments of Gutai, artists have long treated the mark as a record of the body at work. Murakami's paper-tearing and Kazuo Shiraga's body-driven painting push this further, turning process into form. *Tomoe* continues this trajectory, translating those principles into contemporary abstraction.

In her online portfolio, Katsuki writes, "This is a painting for looking at the paint." The statement rejects illusion, asking the viewer to see the work as nothing more—and nothing less—than pigment, surface and gesture. It echoes Clement Greenberg's insistence that modernist painting acknowledges its own flatness, its nature as a two-dimensional field. But where Greenberg framed this as a formal reduction, Katsuki's pursuit feels lived and more intimate. At O Sculpture studio, a single chair is placed before one of her largest canvases, inviting viewers not to look *at,* but to dwell and to encounter the work as something present, not symbolic.

Though grounded in modernist formalism, Greenberg's framework also sheds light on Katsuki's process. Each painting begins with a period of extended meditation, after which she slowly builds layers of pigment. The preparatory act becomes part of the work itself; each piece is titled with the total duration from meditation to final sweep of paint—ranging from the brief *00:15:25* (2025) to the marathon *02:41:05* (2025).

For Katsuki, this "honesty" is as much psychological as it is formal. She writes that she has "noticed changes in [her] physical and emotional state," noting that even on steady days "there are times when [she] cannot draw a straight line." Her paintings become seismographs of being: recordings of tremors in body and mind. In works like *00:19:14* (2025), the surface forms a pattern of dots, almost like fish scales, yet the uneven acrylic catches the light and reveals faint lines reminiscent of a heartbeat monitor or EEG. Even in her most controlled work, the painting captures these micro-movements, extending Greenberg's idea of flatness into something lived, embodied and continually in flux.

In my reading, the strongest aspect of Katsuki's work is this sustained attention to bodily presence—the way the paint becomes a record of essence and lived

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experience. Yet, this raw honesty sits uneasily beside the symbolic weight of the title "*Tomoe*", which gestures toward cultural and historical resonance the works themselves never fully take up. The exhibition's framing around "the shape of duality," with its alternating yin and yang remains underdeveloped: the duality is suggested, but never made perceptible. As a viewer moving through the exhibition, the intended tension never comes through. The concept is stated in words, but never truly experienced.

One way the exhibition could have been stronger is through deeper engagement with the symbolic weight of *tomoe*. The swirling form carries a long history: from archers' leather guards to *magatama* beads symbolising vitality, and later, water and protection. Whether intentional or not, Katsuki evokes these associations through striking physicality. In *00:37:22* (2025), the circular sweep resembles a protective shield, curving around the canvas as if warding off external forces. In *02:16:19* (2025), the form rises like a conical helmet. Fittingly, the exhibition's title, *Tomoe*, is a name shared with the legendary female samurai, Tomoe Gozen, lending Katsuki's gestures a sense of courage and distinctly feminine strength.

Katsuki frames her aim clearly: "to emphasise the importance of balance—not the blend of opposites, but their coexistence". She observes that "in today's world, we often try to resolve differences in… gender or cultural distinctions by eliminating the gap", insisting instead that "it is not about erasing… [but] maintaining balance between two distinct entities" and recognising differences even amid conflict.

Tomoe gestures toward this philosophy, its swirling form suggesting tension. Yet, in practice, the single sweeping brushstroke collapses the duality into one continuous motion. While the work captures essence, the distinctiveness of opposites—the tension Katsuki describes—remains more conceptual than perceptible.

This gap is widened by the exhibition's provisional structure: the current yin phase presents only half the intended duality, leaving the idea of balance promised rather than experienced. The symbolic weight of *tomoe* and Katsuki's philosophy of coexistence is undercut by the work's material immediacy. While the paintings succeed in recording *keshiki,* embodied presence and pigment in motion, their philosophical ambitions—expressing coexistence and duality—remain suggested rather than fully realised on the canvas.

CAPTIONS

1. *00:37:32* (2025)
2. Visitor viewing *02:16:19* (2025).

SHUMIN TAN is an educator who enjoys writing on the side. She writes personal essays and poetry that wander through questions of home, language, and identity. A third-culture kid at heart, her works have found homes in Singapore Unbound, Jom Magazine, and at the European Cultural Centre.

SELF-TAUGHT GEN Z ARTIST PAINTS KALEIDOSCOPES OF MALAYSIAN CULTURE

BY NICOLE CHANG

AT JUST 17, Danya Adriana Feri Pito Manda has carved a distinctive space in Malaysia's contemporary art scene. Her bold, vibrant canvases weave layered narratives of Malaysian heritage and cultural diversity, reimagined through a fresh Gen Z perspective.

Danya's artistic exploration began at the age of 12 during the Covid-19 lockdown, when she found inspiration in short videos shared by abstract artists on YouTube. Lacking formal training, she embraced abstract art as a means of self-expression. Starting with mimicking abstract techniques on A3 drawing paper, she experimented with acrylic pouring to explore the free flow and blend of colours.

As her confidence grew, she began to develop her own artistic style, evolving from purely abstract works to semi-abstract compositions, and subsequently to contemporary pieces influenced or inspired by her experiences and surroundings.

Dahlia Rafek, Danya's mother—who once aspired to study fine arts—was captivated by her daughter's talent. "The way she blends her colours impressed me. She started creating more, even on larger scales," she recalls. Dahlia started posting her daughter's artwork on Instagram (artby.danyaferi), attracting a growing audience (now over 4,000 followers), mostly from outside Malaysia. "Many were impressed with her skills at her age, with some doubting that such refined works could be created by a 12-year-old," says Dahlia.

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GROWING PATH IN MALAYSIAN CONTEMPORARY ART SCENE

Danya began participating in art exhibitions in 2022 at age 14, predominantly in Selangor and KL. Since then, Danya has steadily increased her presence in the art community. In 2024, she participated in 11 exhibitions, as compared to just three in her first year.

Her representation by Art Market Malaysia (IG: artmarketmalaysia), a platform founded and dedicated to showcasing local emerging and disabled artists (operating as a membership-based community) since 2022, opened further doors. To date, she has participated in over 25 exhibitions, and also took on roles as an art instructor, leading art workshops and outreach activities. In 2024, she was commissioned by YTL Group and Marriott International to paint three large-scale artworks for the interiors of the newly opened Moxy Hotel located in KL Chinatown.

Active engagement within the art ecosystem proved pivotal to her growth. Through interactions with established and senior artists—many of whom openly shared their practices and experiences—Danya rapidly developed her skills and confidence. "Although initially nervous, especially when listening to experienced artists discuss their works, I gradually overcame my fear and learnt to talk about my painting, sharing my expressive approach and my creative process," Danya reflects.

Danya also won awards in art competitions along the journey. "I like entering competitions to see how far I can go. However, sometimes the limitations imposed are rather demotivating. I prefer more freedom to paint and explore my creativity in expressing my perspectives on specific themes or subjects through art." This preference for artistic autonomy progressively shaped her evolving style in art.

DANYA'S CREATIONS: A GEN Z ARTISTIC VISUAL LANGUAGE

While her practice began in abstraction, Danya's work has expanded to include semi-abstract elements influenced by bold expressionism and driven by youthful curiosity. Her recent paintings unfold across kaleidoscopic, vibrant backdrops layered with geometric forms, dynamic lines, patterns and culturally symbolic motifs.

Together, her works form visual narratives that reflect Malaysian heritage and culture—from expansive urban landscapes to intimate street scenes and collage-like arrangements of cultural icons. By reinterpreting familiar landmarks, traditions and natural elements through a Gen Z perspective, Danya explores how cultural heritage is remembered, reshaped and reimagined by today's youth. Her paintings invite viewers to linger, uncovering deeper layers of meaning beneath their energetic surfaces.

Danya describes her process as themeled, yet intuitive. Once she decides on the central concept, she plans the composition carefully to balance visual flow, then follows the "creative rhythm" within her heart for shapes, patterns and detailing. Danya paints with energy and curiosity that far outpace her age, layering colours, shapes, forms and emotions into a unique visual language that bridges heritage with contemporary creative expression. "I love blending Malaysian arts and cultural elements with vibrant colours and forms. Even as the country modernises, I hope my paintings could remind youths like me to reconnect with our local cultures and traditions. Those are part of our identity."

ART PASSION, STUDIES AND FUTURE CAREER

Balancing art and studies isn't always easy, especially during exam season. "Last year, I was rushing to complete three large commissioned paintings while preparing for my exam. With a paintbrush in hand, I continued painting while listening to the audio of my History notes. I managed to deliver the paintings on time and scored high in the subject too," recalls Danya.

Currently preparing for her SPM examinations, Danya balances her academics with her dedicated creative pursuits. She hopes to pursue a degree in economics while practising art part-time, with a long-term interest in exploring the intersections of art, branding and creative entrepreneurship.

Danya represents a growing generation of young Malaysians redefining creative expression—not by rejecting the past, but by reinterpreting it anew. Her kaleidoscopic canvases speak through colour and form, engaging with memory, identity and the freedom to shape one's own cultural narrative. Her work reminds us that heritage is not static, but living, evolving and deeply personal.

For Danya, painting is also a form of emotional regulation. "When I paint something bright and happy, I feel the same. If I'm stressed or frustrated, I keep painting until I feel better," she says. Sharing that joy with others is what she cherishes most.

CAPTIONS

1. (Cover page) Danya's working corner at home.

2. Together with her mother, Dahlia (standing), Danya was interviewed on *Apa Khabar Malaysia* at Bernama TV in April 2024.

3 & 4. Danya's large-scale kaleidoscopic paintings resemble vibrant, multi-coloured batik.

5. Completed in 2020.

6 & 7. Completed in 2021.

3

4

5

7

6

NICOLE CHANG has just completed her PhD programme at the Department of Development Planning and Management, School of Social Sciences, Universiti Sains Malaysia.

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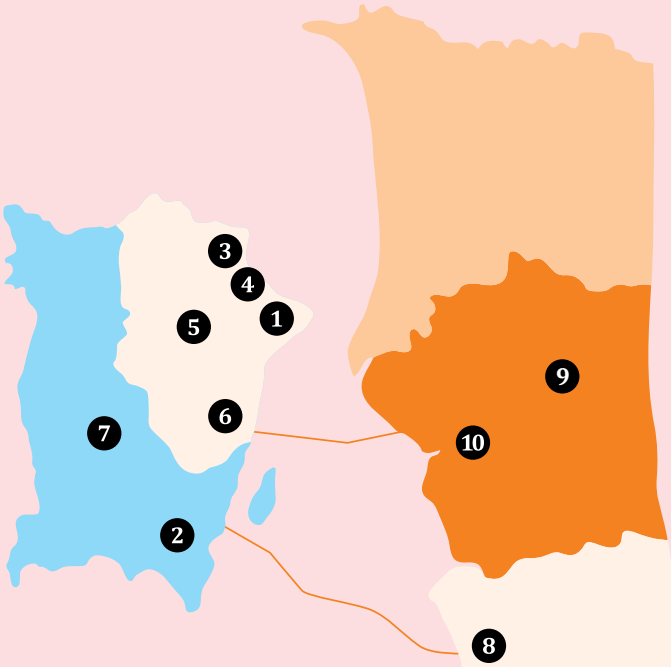
GOT A STORY TO TELL?

WRITE TO US AT
editor@penangmonthly.com

HERE'S WHERE YOU CAN FIND PENANG MONTHLY



PICK-UP SPOTS
KL/SELANGOR

◯ Kuala Lumpur
Hubba Hubba Mont Kiara
The Godown Arts Centre

◯ Petaling Jaya
Temu House
Yin's Sourdough Bakery and Café

◯ Subang Jaya
Sunway University
(Students Study Area)

PICK-UP SPOTS
PENANG

1 George Town
Areca Books
Book Island @ COEX
Infinity 8
Black Kettle
BookXcess Gurney Paragon
ChinaHouse
Cheong Fatt Tze Mansion
(Blue Mansion)
Gerakbudaya Bookshop
@ Hikayat
Gurney Plaza
(Information Counter)
Hin Bus Depot Art Centre
Huey & Wah Café
Le Petit Four Patisserie
More by Arang Coffee
Penang Institute
Penang Island City Council
(Komtar Level 3)
Pusat Harmoni
(Harmonico)—Reception
Ren I Tang Heritage Inn
Sin Seh Kai Artisan Bakery
Tourist Information Centre
32 Mansion

2 Bayan Lepas
Arang Coffee
InvestPenang
Penang Development
Corporation (PDC)
Penang Skills
Development Centre (PSDC)
Urban Republic

3 Tanjung Bungah
Gusto Café
Straits Mini Mart
Tenby International School
Yin's WholeFood Manufactory
(Lembah Permai)

4 Tanjung Tokong
Blue Reef Straits Quay

5 Air Itam
Coffee Elements
Penang Hill—Lower Station

6 Gelugor
E-Gate (Security Desk
located at the building's
middle span)
Penang Youth
Development Corporation
(PYDC)
Universiti Sains Malaysia,
Hamzah Sendut Library 1
(Main Entrance Foyer)

8 Batu Kawan
IKEA Batu Kawan

9 Bukit Mertajam
Seberang Perai City Council

10 Juru
AUTO CITY
Shop-In D'Park

READING SPOTS
PENANG

1 George Town
Bricklin Café Bar
Consumers' Association
of Penang
Forward College
G Hotel
Kim Haus
Komichi Tea House
Mugshot Café
Narrow Marrow
Penang Public Library
USM Library
Wheeler's Café

4 Tanjung Tokong
Leo Books

7 Balik Pulau
Botanica Mansion
Nada Natural Farming

8 Batu Kawan
Peninsula College

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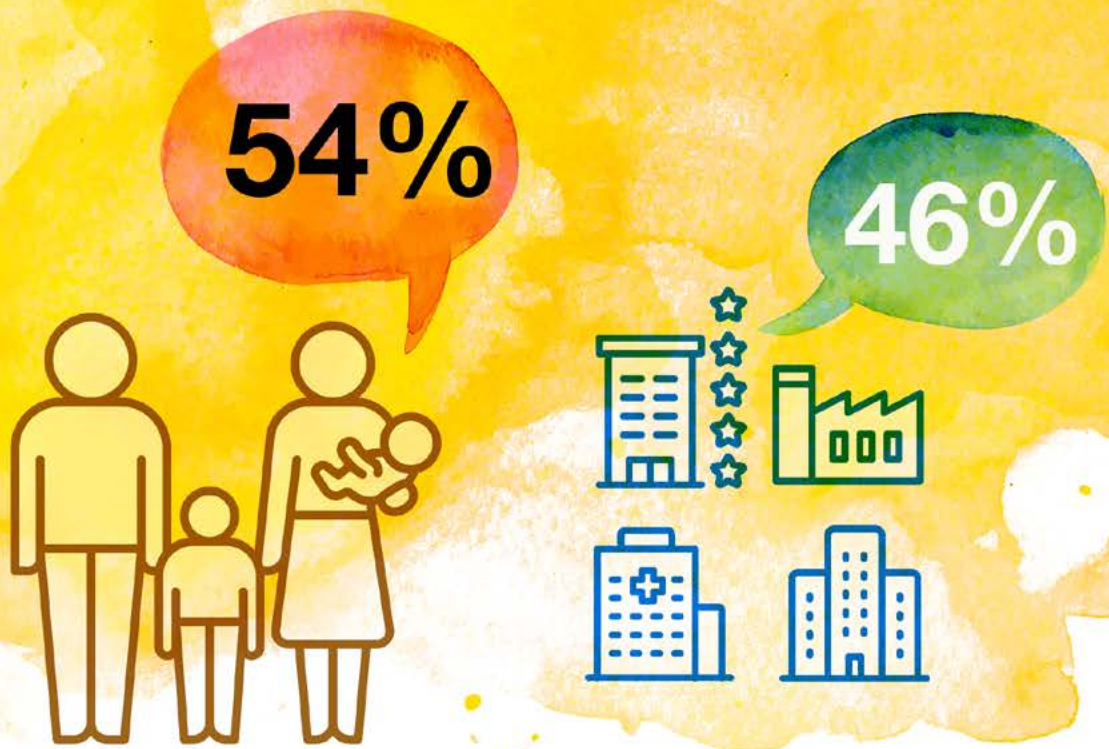
"WHO USES MORE WATER IN PENANG: COMPANIES OR HOUSEHOLDS?"



In 2024, **604,976 domestic consumers in Penang consumed about 54%** (470 MLD) of the state's total water consumption of 870 MLD in 2024. **100,522 non-domestic consumers accounted for the remaining 46%** (400 MLD).

In other words, households use more water than all the factories, hotels, offices, shopping malls, F&B outlets, hospitals and government premises in Penang.

Penang's per capita domestic consumption was **261 litres/capita/day (LCD) in 2024**. The national average (as published by the National Water Services Commission or SPAN) was 225 LCD in 2024. This shows that an average household in Penang used **16% more water than the national average**.

Please conserve water at home, just like you conserve electricity and fuel. For water saving tips, please visit www.pba.com.my.

Penang has unlimited potential. However, as a "small state", our water resources are naturally limited. Please use water wisely.

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